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ANNEX D: Weather, Vegetation, Soil and Terrain (U)

1. (U) General: This analysis of weather, vegetation, soil and terrain has been summarized and extracted from Annex D to study "Clearance of Vegetation and Foliage in the DMZ area (U)", EUSA Engineer, 31 January 1968.

2. (U) The DMZ Security System Trace can be divided into three areas on the basis of topographic characteristics. The three areas include:

a. West DMZ - Extending from the mouth of the Imjin Valley to the point where the Imjin enters the ROK.

b. Center DMZ - From the point where the Imjin enters the ROK, east to the Soyang River.

c. East DMZ - From the Soyang River to the Eastern coast of the ROK.

3. (U) Weather:

a. General: The source of most of the variation in Korea's climate is the annual progression of the seasons. The cyclic alternation of the south and north monsoons of summer and winter, respectively, decisively control the climate. Due to the predominance of this monsoon control, the climate seasons are best delineated by wind flow. Within the lower layers of the atmosphere, immediately above the land surface, a persistent northerly wind flow characterizes the winter season. A persistent southerly wind flow distinguishes the summer season. In the intervening periods when the wind flow has no persistent direction, are spring and fall. Climatalogically the DMZ Security System Trace is also divided into three distinct areas. Temperatures, precipitation and winds will differ in the highground area of the Central DMZ, from the relatively low laying area of the West DMZ and the East DMZ.

b. Growing Season: Spring normally commences during the first week in April with the last frost occurring around 20 April, in the central portion of the DMZ. Broadleaf trees in Old Field, Scrub and Forest communities begin budding in late April. Flowering follows during early and mid May. Leaves begin to appear in late April and are fully developed in all species by late May. The effective cover of this foliage extends then from late May until the first severe frosts in late October. New shoots of grass species begin to emerge from the old plants in early April. Full growth is dependent on the species, the maximum height (one to one and a half meters) is reached by all species by mid June.

c. Dormant Season: Dormant season or winter season commences about the first of November, terminating about the last of March.

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The following data shows the mean dates of surface frost and thawing. Dates will vary, depending on the locality.

MEAN DATES, FREEZING AND THAWING OF THE SURFACE SOIL

	West DMZ	Central DMZ	East DMZ
Freezing	20 December	10 December	20 December
Thawing	20 February	1 March	20 February

4. (U) Vegetation:

a. Description of Communities along the Trace: Vegetation along the DMZ Security System Trace can be divided into four types of plant communities. The classification is based on four factors: Dominant species, soil type, water availability, and influence of man. These associations include:

(1) Old Field Community: The dominant species in an Old Field Community along the Trace include several grass species and sedges (Carex). Growth of these plants will reach height of one to one and one half meters during the growing season. Scrubs are common in the Old Field Community. Two of the most common are alder (Alnus) and willow (Salix). For a typical example see photograph, figure D-1.

(2) Scrub Community: The SCRUB community can be dominated by either needle leaf plants, mostly pine (Pinus) and juniper (juniperus) or broadleaf plants, or a mixture of the two. The broadleaf is dominated by oak (Quercus) and chestnut (Castenea). Other common species include birch (Betula), popular (Populus) and alder species. Trees vary in size between two and three meters. Though the soils of the SCRUB communities usually lack moisture and contain few nutrients, large areas along the Trace are covered by SCRUB as a result of man's influence through cutting, burning and clearing. This community occupies the larges percent of land along the Trace. For a typical example see photograph, figure D-2.

(3) Forecast Association: Trees in the FOREST community include mostly oak and chestnut. Pine is common and occasionally spruce and maple are observed. FOREST communities are limited to mountainous areas along the Trace particularly in the central DMZ. For a typical example see photograph, figure D-3.

(4) Cultivated Lands: Cultivated lands are found in the low wet areas along the rivers and streams both north and south of the DMZ beyond the limited access areas. For a typical example see photograph, figure D-4.

b. DMZ Vegetation: An analysis of the DMZ restricted area and the area to the south indicates the following percentage by type of community:

(1) Old Field - 15%.

(2) Scrub - 70%.

(3) Forest - 10%.

(4) Cultivated - 5%.

5. (U) Soils: Soils along the Trace are both deep and shallow. Deep soils of finegrained clays and silts at a depth exceeding 2 feet are located at the extreme western portion of the Trace from the mouth of the Imjin River to a line connecting Kaesong and Munsan. From this line to Chorwon the soil is shallow to moderately deep and is composed of course and fine-grained sands and clays. Between Chorwon and Kumwha a third type, moderately deep fine-grained clays, is the dominant type. Finally from Kumwha to the east coast the soils are shallow and characterized by coarse and fine-grained sands and clays with rock fragments. All soils along the Trace are rated uncompacted.

6. (U) Terrain:

a. Topography:

(1) West DMZ: The area of the western part of the DMZ consists of rolling terrain and grassy plains, relatively easily accessible to vehicular traffic. The Imjin valley is the dominant feature. The eastern part of the western DMZ becomes mountainous with ragged and steep slopes up to 39 degrees, rising to an elevation of approximately 300 meters. The drainage pattern is mainly southerly.

(2) Central DMZ: Immediately south of the south tape, the western part of the Central DMZ consists of rolling terrain and grassy plains in the Chorwon area. East of Chorwon it becomes mountainous with elevations ranging excess of 350 meters. Steep slopes up to 70 degrees and ridges are characteristic. Trafficability is extremely difficult. Rivers drain south into the Han River basin.

(3) Eastern DMZ: East of the Soyang gang valley the terrain continues to be mountainous with slopes from 50 to 70 degrees and elevations in excess of 400 meters. Trafficability is extremely difficult. The terrain slopes relatively steeply towards the coast. Rivers in this area flow generally north into the Nam gang.

b. Drainage: When applying herbicides the following run-off characteristics should be considered:

(1) West DMZ: In the US sector, although there are virtually no cultivated areas north of the Imjin river, consideration should be

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given to possible pollution of the southern bank where rice is the predominent crop. The Yokkok Chon, originating in the Chorwon area, flows north through the DMZ into North Korea and meanders through North Korea for approximately 30 Kilometers to join the Imjin River at coordinates CT 1729. The main crop in this area is rice.

(2) Central DMZ: In the central part of the Central DMZ, a nameless stream originates at coordinates CT 8436 and drains north into the Kumsong River north of the DMZ. The Kumsong flows into the Pukhan River which in turn drains into the Hwachon resevior.

(3) Eastern DMZ: Streams and brooks along the eastern DMZ drain into the Nam Gong River. Rice fields are to be found within the Kosong area in North Korea and may become subject to pollution.

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ANNEX E: Technical Characteristics of Herbicides (U)

1. (U) Chemical control of vegetation and foliage has been an accepted agricultural practice for a number of years. The various chemical herbicides that are commonly used for this purpose are classified according to their effects as follows:

a. Dessicants are chemicals which rapidly dry up foliage causing the leaves to fall off of treated vegetation. Dessication can be effectively used to prepare vegetation for controlled burning during the growing season.

b. Herbicides are chemicals which are absorbed into the plant inhibiting growth and eventually killing the plant. Initial plant response is that the leaves and stems of the plant begin to die first causing the plant to be "defoliated". The second response is the eventual death of the plant which may occur two to three weeks later.

c. Soil applied herbicides are chemicals that are placed into the soil and are absorbed through the plant root system and then translocated throughout the plant causing defoliation and eventual killing of the plant.

2. (U) As a common meaningful designation and to prevent confusion the term "defoliant" rather than the term dessicant, herbicide, etc has been used throughout all briefings, correspondence and directives pertaining to the Vegetation Control Program CY 1968.

3. (U) Spraying defoliants as a means of improving both horizontal and vertical visibility where vegetation is dense has become an accepted practice in military operations in Vietnam. Research, which has been conducted for more than 20 years at the US Army Biological Laboratories, Fort Detrick, Maryland, has been confirmed for its use on a large scale, for certain defoliants by their successful use during the past six years in Vietnam. In Vietnam the military worth of herbicides as a new military weapon has been proven. The improvement of air-to-ground and ground-to-ground visibility has uncovered enemy positions, permitted observation of his movements and has been a primary factor in reducing the incidence of ambushes with a resultant saving of lives of allied military personnel.

4. (U) The defoliants that have been used in Korea have been in use in the United States for over 20 years. They are available commercially in the United States under a variety of trade names at most seed stores, garden shops and farm supply stores. In the summer of 1967 a commercial variety of 2,4 D was sold in the YONGSAN PX Garden Shop. Although the use of defoliants is recognized and is taught at agricultural colleges in Korea they are not generally used in agriculture in Korea due to the relative expense of the active ingredients and the plethora of cheap manual labor.

5. (U) In order to avoid misunderstandings on what can be accomplished, by the use of defoliants on vegetation, it should be borne in mind that the utlimate effect of the chemicals will be to provide a vegetation condition similar to that of winter. With certain chemicals, the vegetation growth is completely stopped. While with others it may be temporarily defoliated and later refoliate. In any case the chemicals do not cause the vegetation to vanish. The trunks and branches of trees, for example, remain in place until removed by man or nature. In any case the chemicals do not cause the vegetation to vanish. The trunks and branches of trees, for example, remain in place until removed by man or nature. In Vietnam, it has been noted that when trees 50 to 100 feet high were defoliated by aerial spray, there was an increase of approximately 80% in vertical visibility and horizontal visibility was improved 50%.

6. (U) As a result of tests and data obtained from defoliant operations in Vietnam and field evaluation in Korea as well as recommendations from the US Army Biological Laboratories, Fort Detrick, Maryland the following defoliants were selected for use in Korea:

a. Agent Orange: A 50:50 mixture of normal butyl esters of 2,4-diphenoxyacetic acid (2,4-D) and 2,4, 5-triphenoxyacetic acid (2, 4, 5T). It is a systemic plant poison which when absorbed into the plant through foliage and translocated throughout the plant causes a rapid withering followed by death of the plant within 2 to 3 weeks. It is specific for broad leaf plants and is effective against most trees and woody brush including evergreens, locust and scrub oak. Generally speaking narrow leaf plants which include most grasses are not affected by Agent Orange. Effective defoliation and death of most susceptible vegetation can be expected from an application rate of three gallons of active agent per acre. Agent Orange was applied as a liquid spray and was mixed with No 1 diesel oil at a rate of 3 gallons of Orange to 50 gallons oil for spray of a one acre area. Agent Orange is relatively non toxic and no danger exists to warm blooded animals in connection with its handling and application. Figure E-1 illustrate the vegetation cover along a road near the DMZ. Figure E-2 illustrate the same area after treatment with Agent Orange.

b. Agent Blue: A liquid formulation of cacodylic acid known commercially as PHYTAR 560G. It is used for the rapid dessication, or drying out, of the leaves of woody and grassy growth, particularly narrow leaf growth such as annual and perennial grasses. It has an extremely fast response time of 3 to 5 days for this type of vegetation and is especially effective in preparing vegetation of a high water content for controlled burning. Rice and other cereal grain crops belonging to the narrow leaf family of plants are extremely sensitive to this agent, in fact Blue has been used in Vietnam as a specific agent to destroy Viet Cong rice crops. Agent Blue is applied as a liquid spray and is mixed with water at a ratio of 3 gallons of Blue to 50 gallons of water for application to a one acre area. Figure E-3 shown

a possible ambush area adjacent to a tactical road Figure E-4 is the same area following application of Agent Blue.

c. Monuron UROX 22: This agent is a pelletized solid containing 22% Monuron trichloroacetic acid and is an all purpose semi-permanent soil applied herbicide. It is effective for the long term control of perennial and annual grasses, vines, broadleaf weeds, trees and woody plants. This agent is spread by hand or mechanical broadcast in the same fashion as pelletized fertilizer and is applied to the soil immediately prior to or at the beginning of the growing season. Once applied to the soil Monuron slowly dissolves and is absorbed into the soil where it is absorbed into the root systems of plants and is further translocated throughout the plant causing defoliation and eventual killing of the plant. Rainfall is required to dissolve the pellets and cause absorption into the soil; therefore, two to three months may be required before a visible effect of the agent may be observed. Once applied to the soil Monuron is expected to be effective for up to two growing seasons. It is comparitively non-toxic and no danger exists to man or animals in handling and application.
To illustrate the effect of Monuron UROX the tree in Figure E-5 was treated with a basal application on 10 April 1968. Figure E-6 shows that as of 3 July 1968 the leaves were browning and the tree was beginning to die in contrast to the fully developed foliage of adjacent untreated vegetation.

COMPARISON OF HERBICIDE EFFECTS

AGENT:	ORANGE	BLUE	MONURON UROX 22
CLASSIFICATION:	HERBICIDE	DEFOLIANT (DESSICANT)	SOIL APPLIED HERBICIDE
CHEMICAL COMPOSITION:	50:50 MIXTURE 2,4D AND 2, 4, 5T	CACODYLIC ACID (PHYTAR 560G)	COMMERCIAL PREPARATION (ALLIED CHEMICAL CO.)
EFFECTED VEGETATION:	WOODY GROWTH, TREES BROAD LEAF WEEDS	WOODY AND GRASSY	WEEDS, TREES, WOODY PLANTS AND PERENNIAL GRASSES
METHOD OF DISSEMINATION:	LIQUID SPRAY (OIL BASE)	LIQUID SPRAY (WATER BASE)	HAND OR MECHANICAL BROAD CAST
DURATION OF EFFECTIVENESS:	ONE GROWING SEASON	MAXIMUM DEFOLIATION IN 2 TO 3 WEEKS	TWO GROWING SEASONS
RESPONSE TIME:	2 TO 3 WEEKS	3 TO 5 DAYS	2 TO 3 MONTHS
TOXICITY:	NO EFFECT ON WARM BLOODED ANIMALS	LOW (COMPARABLE TO ASPIRIN)	NON-TOXIC

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Annex F

SUMMARY OF EQUIPMENT AND MATERIEL FOR VEGETATION CONTROL

FSN	NOMENCLATURE	UNIT PRICE	QUANTITY	SOURCE OF SUPPLY	TOTAL COST
6840-926-9094	Agent Blue	$ 275 per drum	635 drums	AF Stocks, Vietnam	$ 174,625
6840-915-6351	Agent Orange	$ 385 per drum	380 drums	AF Stocks, Vietnam	$ 146,300
9140-274-1912	DFM Diesel Oil	$ 5.50 per drum	7,000 drums	EUSA	$ 38,500
6840-685-5449	Monuron UROX 22	$ 30 per drum	7,800 drums	CONUS	$ 234,000
NSN	Herbicide Dispenser	$ 25 each	50 each	CONUS	$ 1,250
3740-916-6462	Insecticide Sprayer GED, 180 gal per hr	$ 160 each	22 each	CONUS	$ 3,520
3740-641-4719	Insecticide Sprayer Hand-held, 2 or 3 gal capacity	$ 25 each	200 each	EUSA	$ 5,000
				TOTAL COST:	$ 603,195

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ANNEX G

PRIORITY, SCOPE, AND DEFOLIANT REQUIREMENTS

PRIORITY	MATERIAL	I CORPS (GP) SCOPE (ACRES)	I CORPS (GP) QUANTITY	FROKA SCOPE (ACRES)	FROKA QUANTITY	TOTAL QUANTITY	TOTAL ACRES
1 DMZ SECURITY SYSTEM FENCE	MONURON	2,200	110,000 LB	5,600	260,000 LB	390,000	7,800
	ORANGE	1,730	5,190 GAL	2,650	7,950 GAL	13,140 GAL	4,380
	BLUE	1,500	4,500 GAL	0	0	4,500 GAL	1,500
2 CP's and OP's	MONURON	0	0	0	0	0	0
	ORANGE	450	1,350 GAL	1,365	4,095 GAL	5,440 GAL	1,815
	BLUE	1,400	4,200 GAL	0	0	4,200 GAL	1,400
3 ROADSIDES	MONURON	0	0	0	0	0	0
	ORANGE	300	900	0	0	900 GAL	300
	BLUE	1,550	4,650 GAL	5,370	16,110 GAL	20,760 GAL	6,920
						TOTAL	24,115 ACRES

Orange=19480 6/8

6510

ANNEX II

ALLOCATION OF DEFOLIATION EQUIPMENT AND MATERIEL

MATERIEL	I US CORPS (GP)	CAPABILITY	FROKA	CAPABILITY	TOTAL CAPABILITY
MONURON (UROX B)	2,900 dms (145,000 lbs)	580 acres	4,900 dms (245,000 lbs)	980 acres	1,560 acres
AGENT ORANGE	135 dms (7,425 gal)	2,475 acres	245 dms (13,475 gal)	4,491 acres	6,966 acres
AGENT BLUE	274 dms (15,070 gal)	5,023 acres	351 dms (19,305 gal)	6,435 acres	11,458 acres
*DIESEL OIL	2,500 dms	N/A	4,500 dms	N/A	N/A
				TOTAL COVERAGE CAPABILITY:	19,984 acres

* Used for mixing w/Agent Orange at a ratio of 50 gals per 3 gal Orange

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Standard Operating Procedures for Vegetation Control (U)

식물 통제 예규 (보)

operations when required weather conditions are exceeded.

지휘관에게 작업 중지 건의.

g. Report to Detachment L all areas which are treated, identifying

살초 작용제 살포 지역 (범위와 위치)과, 사용된 화학제 (양)

the area sprayed (size and location), and agent used (amount). See Annex A.

를 포함한 작업 실시 전 지역을 "앨" 파견대에 보고. (부록 에이. 참조)

h. Observe and report agent effects on areas previously sprayed,

기 작업 실시 지역에 대한 화학 작용제의 효과와, 가능시는

to the degree possible. See Annex A.

효과의 정도도 보고. 부록 에이. 참조.

3. (C) Agnet Characteristics:

(111) 화학 작용제의 특징:

a. Monuron: Monuron is an all purpose, semi-permanent soil sterilant

머뉴론 : 머뉴론은 그 사용 목적이 다양하며 반 영구적 초토제로서

effective in the control of perennial grasses, weeds, trees, and woody

다년생 식물, 잡초, 초목 및 기타 임산 식물 통제에 효과적임.

plants. The form of Monuron to be used in Korea is Urox 22. It should

한국에서 사용될 머뉴론의 형태는 유락크스 22이며. 본 살초제는 초목

be applied to the soil just before or during the growing season so that

성장기 직전이나 성장 기간중 지면에 살포함으로서 식물의 뿌리로

it can be carried down into the root zone for absorption into the plant.

흡수되록 한다. 화학제가 일단 식물에 흡수되면 그 작용은

Once absorbed into the plant its action is slow, requiring 2 to 3 months

서서히 나타나기 시작하여 큰 식물을 죽이는데 2내지 3개월이 소요

to kill larger plants. It is non-toxic and presents no particular

된다. 본 살초제는 독성이 없고 취급과 사용에 특별한 위험성은

hazard in handling or application except that it is slightly irritating

없으나 피부나, 코 및 목구멍을 약간 자극 시킨다.

to the skin and the nose and throat.

Standard Operating Procedures for Vegetation Control (U)

식물 통제 예규 (보)

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지휘관에게 작업 중지 건의.

g. Report to Detachment L all areas which are treated, identifying

살초 작용제 살포 지역 (범위와 위치)과, 사용된 화학제 (양)

the area sprayed (size and location), and agent used (amount). See Annex A.

를 포함한 작업 실시 건 지역을 "엘" 파견대에 보고. (부록 에이. 참조)

h. Observe and report agent effects on areas previously sprayed,

기 작업 실시 지역에 대한 화학 작용제의 효과와, 가능시는

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성장기 직전이나 성장 기간중 지면에 살포함으로서 식물의 뿌리로

it can be carried down into the root zone for absorption into the plant.

흡수토록 한다. 화학제가 일단 식물에 흡수되면 그 작용은

Once absorbed into the plant its action is slow, requiring 2 to 3 months

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to kill larger plants. It is non-toxic and presents no particular

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hazard in handling or application except that it is slightly irritating

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to the skin and the nose and throat.

Standard Operating Procedures for Vegetation Control (U)

식물 통제 예규 (보)

b. Agent ORANGE: A mixture of two systemic herbicides known chemically

오렌지. 작용제: 이것은 두개의 분류가 다른 살초제의 혼합물로서

as 2,4D and 2,4,5T, both of which are available commercially in the United

화학 분야에서는 2,4딕. 와 2,4,5딕. 라 부르며 이는 미국에서 상품화되어

States and are widely used by homeowners to kill weeds in lawns, along

있으며 가정에서 잔디나 집 주변의 잡초를 죽이는데 널리 이용되고

fence lines, and around borders. Agent ORANGE is a systemic plant poison

있다. 오렌지. 작용제는계획적인 초목 유독제로서 식물의 잎에 흡수되면

which, when absorbed into the leaves of plants causes rapid defoliation

신속한 낙엽 효과를 나타내어 궁극적으로는 그 식물을 죽이게 된다.

and eventual death of the plant. Agent ORANGE is effective against most

이 오렌지. 작용제는 상록수와 인동 덩굴 및 기타 덩굴과 잎이 큰

trees including evergreens, woody growth such as honeysuckle and other

식물과 같은 우거진 식물을 포함한 활엽수에 효과적임. 이 살초제는

vines, and most broadleaf plants. The agent is disseminated as a spray,

분무식으로 살포하며, 취급하는데 있어서나 사용하는데 있어서 온혈

and no danger exists to warm blooded animals in connection with its handling

동물에는 하등의 위험성이 없다. 이 살초제를 사용한후 비가 많이 나릭면

or application. If there is heavy rainfall following application the

미소량의 살초제가 빗물을 따라 관개 배수로로 흘러들어갈 가능성은

possibility exists that traces of the agent may be carried in run-off water

있으되 물이 살초 지역으로부터 멀리 갈수록 살초제는 점점 희박해져

into irrigation ditches; however, the farther the water travels from the

농작물에 대한 피해 가능성은 감소된다.

sprayed area, the greater will be the dilution factor and the possibility

of crop damage will decrease.

c. Agent BLUE: Agent BLUE is a liquid solution of cacodylic acid

부루. 작용제 : 이 살초제는 일반 시장에서 피아.560지..라부르는.

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Standard Operating Procedures for Vegetation Control (U)
식물 통제 예규 (보)

known commercially as Phytar 560G. It is used for rapid drying out of the
비소산 액체 용액이다. 이 작용제는 잎이 무성한 식물의 잎을 신속히

foliage of woody and grassy vegetation and is particularly effective in
건조시키는데 사용되며 다년생 식물을 장기간 통제하는데 특히

the extended control of perennial grasses. Rice is extremely sensitive to
효과적이다. 벼는 이 살초제에 극히 민감하다.

this agent. It is disseminated in a spray form and when applied during dry
이 작용제는 분무식으로 살포되며 건조기에 사용하면 신속히 흙속으로

weather there is little danger of run-off water carrying traces of Agent
흡수 분해 됨으로 동 작용제가 빗물을 따라 전답으로 흘러들어갈

BLUE into rice paddies since the agent is rapidly inactivated in the soil.
위험성은 거의 없다.

Agent BLUE is water soluble and will not be effective if applied during
부루. 살초제는 물에 용해되며 강우시에 사용하면 효과가 없으며

rain; and if rain occurs within 12 hours of application, considerable
또 사용후 12시간내에 비가 나리면 효과가 상당히 감소 된다.

degradation of effects can be expected. Additionally, rain immediately
이 외에도 사용중이나 사용 직후에 비가 나리면 빗물과 함께

after or during application will increase the possibility of crop damage
흘러가 농작물에 대한 피해 가능성이 증가된다. 독성면에서 볼때

due to run-off. As for toxicity, Agent BLUE is about as toxic as aspirin.
부루. 살초제는 아스피린. 정도의 유독성이 있다. 이 작용제를 취급

Personnel handling or applying this agent should take normal sanitary
하거나 사용했을때는 몸을 씻는것과 같은 정상적인 위생 대책을

precautions of washing after handling.
취해야 한다.

4. (C) Application restrictions:

(111) 사용상의 제한 사항 :

a. No agents will be applied within the DMZ. All areas must be
비무장 지대내에서는 살초제 사용을 금지한다. 모든 사용

south of the south Tape. Agents will NOT be applied in areas which are
지역은 반드시 남방 한계선 이남이어야한다. 다음과 같은 상황하에서는

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immediately adjacent to the South Tape if:

살초제를 남방한계선 직 부근지역에 사용함을 금한다:

(1) There is a possibility of run-off into the DMZ. Areas of

비 무장 지대안으로 흘러들어갈 가능성이 있을때.

application close to the DMZ will have a positive southward drainage

비 무장 지대에 가까운 지역에서 사용할때는 남방 한계선과 사용

between the South Tape and the application area.

지역 간에 분명히 남쪽으로 흐르는 배수로가 있어야 한다.

(2) There are winds blowing which could cause possible agent

살초제를 비 무장 지대나 건답으로 날아가게할 정도의

drift into the DMZ or into food crops. With wind speeds over 5 MPH,

바람이 불 경우. 그리고 5마일의 풍속하에서 실험한결과 살초제가

agent drift has been observed for distances up to 3 miles.

3마일 지점까지 날아간 경우가 있었다.

b. Extreme care will be taken to avoid damage to food crops. No

농작물에 대한 피해를 방지하기 위해 각별한 주의를 경주해야한다.

agent will be applied within 200 meters of food crops.

건답으로부터 200미터 이내 지역에서는 살초제의 사용을 금한다.

c. Spray operations will be conducted so as to avoid contaminating

강 물이나 물이 고인 곳에 오염되지 않도록 살포 작업을 해야

streams and standing water. Special caution will be used when cleaning

한다. 살포 장비를 세척할때는 물을 오염시키지 않도록

spray equipment to proclude gross contamination of water bodies.

각별한 주의를 경주해야 한다.

d. Spray operations with BLUE and ORANGE will not be performed when

강우시는 부루. 나 오렌지. 작용제를 살포해서는 않되며 또

it is raining, and BLUE should not be applied if rain is predicted within

12시간 이내에 강우 예보가 있을때도 부루. 작용제는 사용해서는

12 hours. Monuron can be applied during light rain but should not be

않된다. 머뉴론. 작용제는 가랑비가 나릴때 사용하여도 무방하나

applied during heavy rain or when heavy rain is predicted, since heavy

호우시나 호우 예보가 있을때는 사용해선는 않된다. 왜냐하면

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rain might carry the Monuron with the run-off water rather than working
머뉴론. 작용제가 사용지역의 식물의 뿌리로 흡수되지 않고 빗물에
it into the root zone within the area of application.
씻겨 흡착갈 가능성이 있기 때문인 것이다.

5. (C) Application Priorities:

(111) 사용상의 우선 순위 :

a. Priority 1:

우선 순위 1:

(1) A strip approximately 100 meters on either side of the fence
방책선에서 약 100미터 폭의 지역 (어느 쪽이던 한쪽)에다
will be treated with Monuron and ORANGE. The width of the strip will vary
머뉴론. 이나 오랜지. 작용제를 사용한다. 이 100미터 지역의 폭은 지형
some what depending on the terrain and current installations.
이나 현존 시설물에 따라 다소 차이가 있을것임.

(2) In areas where the fence is north of the South Tape, NO
방책이 남방 한계선 북방에 위치한 지역에는 어하한
agents will be applied. These areas will be cleared manually.
살초제도 사용해서는 않된다. 이러한 지역은 인력으로 초목을 제거해야한다.

(3) No agents will be used along the fence when the South Tape
남방 한계선이 방책 아래쪽으로 경사를 이루고 있을때는
is down slope from the fence. These areas will be cleared manually.
살초제를 울타리를 인해 사용해서는 않되며 인력으로 초목을 제거해야 한다.

b. Priority 2: Check Points (CP's) and observation posts (OP's).

우선 순위 2: 검문소와 관측소.

A strip approximately 100 meters wide will be cleared around the entire
이러한 시설물의 전 외곽을 따라 약 100미터 폭의 지대는 사계 청소해야
perimeter of these installations. The first 50 meters will be cleared
한다. 처음 50미터폭의 지대는 인력으로 하고 잔여 50미터는
namually and the next 50 meters will be treated with one of the three
위 제한 사항에 위배되지 않는한 위 세가지 살초제중 한가지를 사용

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agents, provided application does not result in violation of the above
사계 청소 한다.
restrictions.

c. Priority 3: Roads and MSR's between the CCL and the South Tape.
우선 순위 3: 남방 한계선과 민통선 간의 도로 및 주 보급로.

A strip 60 meters wide (30 meters on each side of the road) will be
상기 제한 사항에 위반하지 않는한 도로 양쪽 30미터씩 60미터 폭의
treated provided it does not violate the above restrictions. The actual
지역에 살초제를 사용한다. 이 지역의 실제 폭은 지형에 따라
width of the strip will vary depending on terrain and the agents may be
일정하지 않을것이며 또 살초제의 종류도 대상 식물에 따라
varied depending on the vegetation. Agents BLUE and ORANGE will be used
다를수 있다. 작용제 부루. 와 오랜지.는 대부분 우선 순위 3 지역에
for the most part on priority three areas.
사용 된다.

6. (C) Equipment:

(111) 장비 :

a. M8 trailer mounted power driven decon apparatus.
엠.8 트레타 탑재 동력 제독기.

b. Hydro - pump defoliation sets.
고압식 살포기.

c. Hand sprayers.
수동식 살포기.

d. M106 disperser (Mity Mite).
엠.106 분무기 (마이틱. 마이트.)

e. Herbicide Dispensers (granular).
살초제 유포기 (입자식).

7. (C) Equipment and Agent Handling Procedures.

(111) 장비 및 살초제 취급 절차.

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a. Agents will normally be diluted by mixing with diesel oil or
살초제는 사용전에 디젤유 나 물과 혼합하여 농도를 희박
water before being applied. Dilution rates can be varied depending upon
하게하는것이 통상이다. 작용제의 농도는 분무에 사용되는 장비와
the equipment being used to spray and the agent and the amount of agent
1 에이커 당 사용하는 양에 따라 다르다. 이와같은 작업을 위해
desired per acre. For this operation the rate of dilution and application
기대하는 살초제의 농도와 사용량은 아래와 같다 :
to be expected are:

(1) Monuron - Granules are to be broadcast by hand or
머뉴론 - 1 에이커 당 250 파운드를 손이나 기계
mechanical spreaders at the rate of 250 pounds per acre.
분무기를 사용 살포 한다.

(2) ORANGE - 3 gallons of agent with 50 gallons of diesel
오렌지 - 1 에이커 당 3가론의 살초제와 디젤유 50가론을
oil per acre.
혼합 살포한다.

(3) BLUE - 3 gallons of agent with 50 gallons of water per acre.
부루 - 1 에이커 당 살초제 3가론과 물 50가론을 혼합한다.

b. Although none of the three agents being employed are toxic to
위 세가지 종류의 살초제가 인간에게 유독성이 있는것은 아니나
humans, skin irritations may be noticed during prolonged contact. All
장시간 접촉하면 피부를 자극시킬수도 있다.
personnel should take normal precautions to maintain personal cleanliness
모든 인원은 항상 몸을 청결하게 하고 살초제를 흡입하거나 장시간
and to avoid ingestion or prolonged skin contact with agents.
피부에 접촉시키지 않도록 평상시 취하는 방비책을 취해야 한다.

c. Spray equipment should be flushed after each days operation
살포 장비는 매일 사용후에는 살초제 용해물질로 씻어야
with the material used to dilute the agent.
한다.

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(1) Equipment used to apply Monuron and Agent BLUE will be

미뉴론. 과 부루. 작용제 살포에 사용된 장비는

flushed with water.

물로 씻어야 한다.

(2) Equipment used to apply Agent ORANGE will be flushed with

오렌지. 작용제 살포에 사용된. 장비는 디젤유로

diesel oil. Oil used to flush equipment will be placed in an empty

씻어야 한다. 장비를 씻는데 사용된 유류는 오렌지. 작용제가

Agent ORANGE barrel for use in the next day's mixing operations.

들어 있었던 통에 넣어 두었다가 익일 작용제 혼합작업에 사용한다.

d. When equipment is being changed over from use with Agent BLUE to

부루. 살초제 살포에 사용한 장비를 오렌지. 살초제 살포에 사용

use with Agent ORANGE, the equipment will be throughly flushed with water

하려면 해당 장비를 물로 구석구석이 세척한후 기름을 발라야 한다.

and then rinsed with oil. Oil rinse followed by water rinse will be used

그리고 오렌지. 살초제로부터 부루. 살초제 살포에 사용할때는 우선 물로

when changing from ORANGE to BLUE.

씻은후 기름을 바른다.

e. Caution must be taken to assure agents are not mixed together.

종류가 상위한 살초 작용제가 서로 혼합되지 않도록 주의해야 한다.

For example, if BLUE and ORANGE solutions were mixed, a solid material

예를들면, 만약 부루. 작용제와 오렌지. 작용제 용액이 혼합되면 단단한

would be formed which would clog equipment and would neutralize completely

물질로 화하여져서 장비의 분무 구멍이 막히게되고 또 살초제를 완전히

or partially both agents.

또는 부분적으로 중화시키게된다.

f. Empty agent barrels (BLUE and ORANGE) must not be left open

부루. 나 오렌지. 작용제가 들어 있었던 빈 통은, 통안에 잔여

until flushed to remove defoliant residue. When empty and no longer

작용제를 모두 물로 구석구석이 씻어낼때까지는 뚜껑을 열어둔채로둬서는 않된다.

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required for mixing operations they will be flushed at the application site
며 이상 살초제 혼합에 필요가 없는 빈 통은 살초제 사용장소에서 디젤이나
with diesel or water as appropriate. Intact drums will be sealed and
물로 세척한다. 사용하지 않은 통은 밀봉하고 야전군 임위로 차후
gathered intact at a centralized location for subsequent disposal and use,
처분 과 사용을 위해 일정한 장소에 모두 집결하여 촉수 엄금해 둔다.
as appropriate by FROKA.

g. Empty Monuron fiber drums will be destroyed by burning at the
빈 머뉴론. 화이바 통은 매일 작업완료후 사용 현장에서 불
end of each days operations at the application site. Under NO circum-
태워 버린다. 여하한 경우를 막론하고 머뉴론. 작용제 통의 재
stances will Monuron containers be salvaged for reuse.
사용을 위해 보관해 둬서는 않됨다.

h. Oil drums will not be used to mix agents. Agent/oil mixing
살초 작용제 혼합에 유류 통을 사용해서는 않됨다. 살초 작용제와
and agent/water mixing will be accomplished in agent drums, and/or drums
유류의 혼합이나, 살초 작용제와 물의 혼합은 반드시 살초제 도람통이나
provided for this purpose. Drums used for mixing purposes will be marked
이러한 혼합을 위해 마련됨 통으로 혼합해야 한다. 살초제 혼합에 사용됨
as Agent drums and will be disposed of as prescribed in paragraph 7f above.
도람 통은 화학 작용제 통이라 표시하고 위 7f 항에 의거 처리해야한다.

8. (C) Reporting:

(iii) 보 고 :

a. Unclassified telephonic reports will be submitted daily to Det L,
살초 작업을 완료했을때마다 그분단 앤. 파견대에 매일
KMAG, following each defoliation operation conducted. Reports will be
평문으로 유선 보고 한다. 제반 보고는 부록 에이에 명시됨 보고
submitted prior to 2400 hours using the report format provided at Annex A.
양식을 사용 당일 자정 까지 보고완료해야 한다.

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b. In cases where advisors observe violations of the restrictions outlined in paragraph 4 above, or observe violations about to be committed, the following actions will be taken:

상기 제 4조에 명시된 제한 사항에 위배되는것을 목격 하거나 이를 위반할 우려가 있음을 목격한 관계 고문관은 다음과 같은 조치를 취한다 :

(1) Call the violation to the attention of the application team commander, and point out the nature of the restriction being violated or about to be violated.

작용제 살포조 지휘관에게 위반사항을 지적해 주는 동시에 위반했거나 위반할 우려가 있는 제한 사항의 내용을 지적해 준다.

(2) Advise the team commander that he should issue orders to cease operations and that he should take corrective actions to assure compliance with the restrictions.

살포조 지휘관에게 작업중지 명령을 내리도록 건의하고 규정된 제한 사항을 준수토록 필요한 시정조치를 취하도록 건의 한다.

(3) If advise is promptly complied with, the advisor need take no further action in the matter, except that the incident must be included in the daily report.

고문관의 건의를 받아드려 이를 실천하면 고문관은 이 문제에 대해 더 이상의 조치를 취할 필요는 없으나 위반사항은 반드시 일일보고에 포함시켜야 한다.

(4) If the application team persists in committing the violation and the team commander takes no action to stop the violation, a report of the matter must be made immediately to Detachment L through the Forward

만일 살포조가 계속 위반을 하거나 살포조 지휘관이 위반 중지를 위해 하등의 조치를 취하지 않을 경우에는 이 사실을 가능한 가장 신속한 방법으로 전방 고문단 파견대장 경유 앨. 파견대에 신속히

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Detachment Commander, by the most expeditions means available.

보고 해야 한다.

9. (C) Coordinating Instructions:

(111) 협조 지시.

a. Detailed task organization and precise scheduling information

작업 담당 부대와 정확한 작업 계획에 관해서는 관계

will be obtained from the appropriate Corps and Division headquarters.

군단이나 사단 사령부로부터 획득 할것.

Senior Advisors will coordinate weather forecasts and other operational

수석 고문관은 매일 관계 군단이나 사단 사령부와 기상 예보와 기타

matters on a daily basis with the appropriate Corps or Division headquarters

작전 문제를 협조하고 계획된 작전에 관해 군단이나 사단을 조언해

and will advise them concerning scheduled operations. In cases where

줄것. 군단과 사단 사령부에 의해 작업이 취소되었을때는

operations are cancelled by Corps and Division Headquarters, contact with

고문단 대표는 작업조와 연락 작업 취소 명령 접수 여부를

application teams will be made by the KMAG representative to verify

확인 할것.

receipt of the cancellation order.

b. Weather forecast information will be obtained from the sources

기상 예보는 작전 기간중 매일 다음 출처로 부터

indicated below on a daily basis during the duration of the operation.

획득 할것.

Detachment L G-3 will inform forward detachments immediately upon receipt

앱. 파견대 작전처는 여하한 기상 예보의 변동사항을 접수한 즉시

of any changes to weather forecasts.

전방 고문단 파견대에 전달 할것..

(1) Weather forecast transmitted by 20th Weather Squadron.

제 20 기상대로 부터의 기상 예보.

Standard Operating Procedures for Vegetation Control (U)
식물 통제 예규 (보)

(2) Telephonic communications with G-3 or G-2, Detachment L.
엘. 파견대 작전처와 또는 정보처와의 유선 연락.

(3) Telephonic communications with Det L Avn, R-401 or the
엘. 파견대 항공과, 알-401또는 최기미 육군 비행대
nearest airfield with a US Army Aviation Detachment.
주둔 비행장과의 유선 연락.

(4) AFKN news and weather broadcasts. AFKN should be monitored
에이. 에프. 케이. 앤. 뉴스 및 기상예보. 기 예보팀 기상과의
during the day for any changes in the earlier forecasts.
여하한 기상의 변동을 청취하기위해 24시간 계속 청취해야 한다.

c. To assure communication between KMAG representatives and application
고문단 대표와 살초제 살포조 간의 의사소통을 보장하기 위해 1군은
teams, FROKA will provide at least one English speaking person with each
각 작업조에 최소한 1명의 영어회화 가능한 통역을 배치한다.
application team.

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Annex A (Format for Vegetation Control Operations Report) to Det L Vegetation Control SOP (U)

엘. 파견대 식물 통제 예규 (보) 부록 에이. (식물 통제 작전 보고 양식)

"LOCUST REPORT"

"메뚜기 보고"

ALPHA: (Date/time group - local time):_____

알파: (일/시 - 현지 시간):

BRAVO: (Date/time group of defoliation operation): FROM_____TO_____

브라보: (살포 작전 일/시): 부터 까지

CHARLIE (Monuron):

차아틱 (머뉴론):

LINE 1: (Area of Application) FROM_____TO_____

타인.원: (살포 지역) 부터 까지

LINE 2: (Amount of Agent Applied in Pounds):_____

타인.투: (작용제 살포량 - 파운드 단위로):

LINE 3: (Size of Area in Hectares):_____

타인.르틱: (살포 면적 - 헥타. 단위로):

LINE 4: (Violation of Employment Restrictions):_____

타인.포: (제한 사항에 대한 위반 사항):

DELTA (Agent ORANGE):

델타 (오랜지. 작용제):

LINE 1: (Area of Application) FROM_____TO_____

타인.원: (살포 지역) 부터 까지

LINE 2: (Amount of Agent Applied in Gallons):_____

타인.투: (작용제 살포량 - 개론. 단위로):

LINE 3: (Size of Area in Hectares):_____

타인.루틱: (살포 면적 - 헥타. 단위로):

LINE 4: (Violation of Employment Restrictions):_____

타인.포: (제한 사항에 대한 위반 사항):

ECHO (Agent BLUE):

에커 (부루. 작용제):

LINE 1: (Area of Application) FROM_____TO_____

타인.원: (살포 지역) 부터 까지

LINE 2: (Amount of Agent Applied in Gallons):_____

타인.투: (작용제 살포량 - 가론. 단위로):

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Annex A (Format for Vegetation Control Operations Report) to Det L Vegetation Control SOP (U)

앱. 파견대 식물 통제 예규 (보) 부록 에이. (식물 통제 작전 보고 양식)

LINE 3: (Size of Area in Hectares):_____

타인.루틱: (살포 면적 - 핵타. 단위로):

LINE 4: (Violations of Employment Restrictions):_____

타인.포: (제한 사항에 대한 위반 사항):

NOTE: This report format is classified CONFIDENTIAL and will not be

주 : 이 보고양식은 3급비밀이며 본 예규로부터 분리 시키거나

removed from the SOP or reproduced. Unclassified telephonic reports will

복사 할수 없다. 평문 유선보고는 아래 명시된 발음상의 명칭만을

be submitted daily using phonetic line identifiers only as outlined below.

사용 일일 보고 한다.

a. Lines 1 through 4 under the phonetic identifiers will be

발음상 호칭 타인.원.에서 타인.포.까지는 아래와 같이

completed as follows:

작성 보고한다:

(1) LINE 1: This line normally consits of grid coordinates

타인.원: 여기에는 통상 살포지역을 선상으로 표시하는

identifying a linear area of application. When Pricrity 2 areas are being

좌표로 된다. 만일 우선 순위 2 지역이 작전중(살포중)에 있을때는

treated, this line will consist only of the CP or OP number and NO

검문소나 관측소 번호만을 보고하고 실제로 좌표를 보고해서는

coordinates will be given.

않된다.

(2) LINE 2: This line consits of the pounds or gallons of

타인.루: 여기에는 살포된 작용제의 양을 파운드.나 가론.

agent applied, and should not be confused with the total volume of diluted

단위로 보고하며, 이것을 용해한 총량과 혼동해서는 않된다. 따라서

agent. Pounds or gallons of undiluted agent will be reported.

용해하지 않은 작용제의 실량을 파운드.나 개론.단위로 보고해야한다.

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Annex A (Format for Vegetation Control Operations Report) to Det L Vegetation Control SOP (U)

엘.파견대 식물 통제 예규 (보) 부록 에이. (식물 통제 작전보고 양식)

(3) LINE 3: The estimated size of the treated area in hectares

타인.쓰리: 작용제 살포 지역의 예상 면적을 헥타.단위로

will be reported on this line. One hectare is a 100 meters square, i.e. a

보고 한다. 일 (1) 헥타.는 가로 세로 각각 100미터 평방을 말한다. 즉,

piece of land 100 meters on each side or 10,000 square meters. For purposes

사방이 각각 100미터의 땅, 또는 만 미터. 평방을 말한다. 이를 대략

of mental reference two football fields laying side-byside is approximately

암산으로 계산하려면 1 헥타.는 축구장을 두개 붙여 놓은것으로 상상하면

on hectare.

용이하다.

(4) LINE 4: The report on this line will be keyed to paragraph

타인.포: 이 타인.의 보고 요령은 본 예규 제4조에 준하며

4 of the basic SOP, additionally, the precautions and requirements listed

추가적으로 제7조에 명시된 예방책과 요망사항은 필요할때에 보고

in paragraph 7 will be reported when applicable. When reference to

한다. 그리고 각 조항의 번호 참조만으로는 설명이 불충분하다고

paragraph numbers is considered insufficient for explanation, the statement

생각할때는 "설명 추가" 란을 추가하고 완전한 둘째 수단을 이용

"EXPLANATION FOLLOWS" will be added, and a complete second report will be

완전한 두번째 보고를 한다.

made by a secure communications system.

b. For example, a report involving application of 4 drums (50 lbs per

예를 들면, 머뉴론. 작용제 4도럼 (도럼당 50파운드) 살포시

drum) of Monuron in which there was a unexpected wind shift resulting in

예기치 못한 풍향의 전환으로 작용제가 비 무장지대내로 날아들어갈 우려가

possible drift of agent into the DMZ would be given as: "THIS IS MAJOR

있을때 하는 보고는 다음과 같이 한다: "보고자 도크스. 소령,

DOKES, DETACHMENT ZERO. LOCUST REPORT FOLLOWS. ALPHA - 071830 MAR 68;

제로.파견대 소속. 메뚜기 보고임. 알파 - 68년 3월 7일 18시 30분,

Annex A (Format for Vegetation Control Operations Report) to Det L Vegetation Control SOP (U)

앱. 파견대 식물 통제 예규 (보) 부록 에이. (식물 통제 작전 보고양식)

BRAVO - FROM 070800 MAR TO 071700 MAR 68; CHARLIE LINE 1 - FROM CS076366 브라보 - 68년 3월 7일 0800시 부터 3월7일 1700시 까지, 차아띠. 타임. 원. - 씨. TO CS080300, CHARLIE LINE 2 - 200; CHARLIE LINE 3 - 10; CHARLIE LINE 4 - 에스. 076366부터 씨. 에스. 080300까지, 차아띠. 타임. 투. - 200, 차아띠. 타임. 투터. - PARAGRAPH 4a (2) EXPLANATION FOLLOWS; END OF REPORT."

10, 차아띠. 타임. 쓰. - 제4조 에이. (2)항 설명추가함. 보고 끝."

ANNEX K

CONFIDENTIAL

SUMMARY OF AREA COVERAGE (U)

1. (C) I US Corps (GP) Area (Includes 2nd US INF Div, 98th ROK RCT, and 5th ROKMC BDE)

Materiel	Allocation	Coverage Capability	Actual Area Coverage Reported
Monuron UROX 22	145,000 lb	580 acres	580 acres
Agent Orange	7,425 gal	2,475 acres	2,475 acres
Agent Blue	15,070 gal	5,023 acres	5,023 acres

2. (C) FROKA Area

Materiel	Allocation	Coverage Capability	Actual Area Coverage Reported
Monuron UROX 22	245,000 lb	980 acres	2,624 acres
Agent Orange	13,475 gal	4,491 acres	3,792 acres
Agent Blue	19,305 gal	6,435 acres	3,626 acres
	TOTAL	19,984 acres	18,120 acres

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ANNEX M: ESTIMATED COSTS OF VEGETATION CONTROL (U)

1. (C) General

a. Data presented in estimating cost of defoliation was developed from statistics sampled from V ROK Corps area where two main battle area divisions conducted defoliant operations.

b. Data presented in comparing the cost of defoliation to manual clearing was developed from statistics obtained from FROKA in manual clearing of large areas in 1967.

c. Defoliant applications were conducted in three phases as follows:

(1) Monuron application: 18 April through 25 April 1968 (7 days)

(2) Agent Orange application: 3 June through 15 June 1968 (12 days)

(3) Agent Blue application: 15 June through 9 July 1968 (25 days)

d. The quantities of defoliants and area coverage accomplished were as follows:

(1) Monuron: 43,000 lb, 172 acres

(2) Agent Orange: 1,760 gallons, 586 acres

(3) Agent Blue: 2,695 gallons, 900 acres

e. 3,345 ROKA personnel were detached to assist in defoliant application. These figures include not only personnel utilized in actual operations, but also those involved in mixing and transporting material and gainfully engaged in direct support of the operation.

2. (C) Cost Estimates:

(C)

a. Manpower:

During the 44 day period ROKA personnel were applying defoliants, a total of 1,177,440 man hours were expended. Assuming that the daily average cost of ROKA labor is $1.50 per day, then 3,345 X 44 X $1.50 = $220,770 for total cost of labor.

b. Cost of Material:

(1) Agent Orange: 3 gal/acre x $7 per gal + 50 gal diesel x .16 per gal = $26.50 per acre. 586 acres x $26 per acre = $13,771

(2) Monuron UROX 22: 250 lbs/acre x .60 per lb = $150 per acre, 172 acres x $150 per acre = $25,800

(3) Agent Blue: 3 gal/acre x $5 per gal = $15 per acre. 900 acres x $15 per acre = $13,500

(4) Total area coverage: 1,658 acres
Total cost of Material: $53,071

c. Total costs (Funded and unfunded):

(1) Cost of Manpower:
3,345 man x 44 days x $1.50 per day = $220,770

(2) Cost of Material:
13,771 + $25,800 + $13,500 = $53,071

(3) Total Cost Manpower and Material = $273,841

(4) Cost per acre: $273,841 ÷ 1,658 acres = $165.16 per acre

d. If costs are estimated only on the basic costs of material considering that manpower is available at unfunded costs, then the cost of defoliant operations can be computed as follows:

(1) Average cost of defoliants per acre:
$150 + $26.50 + $15 ÷ 3 = $63 per acre

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CHAPTER VI

The Republic of Korea

In the spring of 1965 when the American Army first sent combat units to Vietnam, the principal threat to the country from the North Vietnamese was in the border areas of the Central Highlands. By July 1965 the North Vietnamese had shown that their main thrust was to come through the highlands, eastward by means of Highway 19, and out to Qui Nhon to split the country into two parts; they would then work from a central area to broaden their control in both northerly and southerly directions.

The critical highlands terrain in II Corps was primarily in Pleiku and Binh Dinh Provinces. Except for major towns, Binh Dinh was completely controlled by the North Vietnamese and Viet Cong. The most populated coastal province in the II Corps area, with roughly 800,000 people, Binh Dinh had been dominated by the Viet Cong for many years.

In August 1965, when American troops arrived, Qui Nhon was the only secure town in the province of Binh Dinh. All the highways leading out from Qui Nhon were controlled by the enemy. In Pleiku Province the roads out of Pleiku City were also controlled by the North Vietnamese or the Viet Cong. With the exception of the main towns in II Corps area, all the other communities were threatened and harassed because the enemy controlled routes of travel and communication. Thus, in August 1965 when the Americans began bringing their forces into the II Corps area, the situation was serious in the three major populated areas-the Central Highlands, Binh Dinh, and the Tuy Hoa area to the south of Qui Nhon. A demoralized South Vietnam Army compounded the need for quick, extensive military assistance. This assistance was provided by the United States and Free World countries such as Korea.

The Korean Commitment

In early 1954 the Republic of Korea's President Syngman Rhee offered, without solicitation, to send a Korean Army element to Vietnam to assist in the war against the Communists.

This proposal was made to Lieutenant General Bruce C. Clarke, ranking U.S. officer in Korea at the time, who relayed it to the Department of State where it was promptly turned down. Korean forces were not sent, nor was there any further action.

Ten years later, in May 1964, Major General Norman B. Edwards, Chief, US Joint Military Advisory Group, Korea, began preliminary planning to send a Korean Mobile Army Surgical Hospital to Vietnam. On 10 July 1964 the Korean Minister of National Defense, Kim Suing Eun, confirmed this planning in a letter to General Hamilton H. Howze, then Commander in Chief, United Nations Command, stating that the government of the Republic of Korea was prepared to send one reinforced Mobile Army Surgical Hospital and ten Tae-kwon-do (karate) instructors to

the Republic of Vietnam upon the request of that government. On 16 July 1964, General Howze wrote Minister Kim that in his capacity as chief of the United Nations Command he would concur in the release of such personnel as would be required to staff the mobile hospital and provide the Tae-kwon-do instructors. He further noted that the US Department of Defense would provide logistical support for the movement and continued operation of these deploying forces. The support was to be provided through Military Assistance Program channels in accordance with the applicable procedures of that program. Equipment, supplies, and services to be provided were to include organizational equipment listed in the mobile hospital table of distribution and allowances as approved by Headquarters, Provisional Military Assistance Advisory Group, Korea, beyond the capabilities of the Republic of Korea to provide, and subsistence and clothing for military personnel. Pay, travel, and per diem costs or other allowances for the personnel involved were not to be provided by the United States.

Following these discussions the Republic of Korea Survey (Liaison) Team, which included six Korean and five US officers, departed on 19 August 1964 for Vietnam. After a series of meetings with officials of both the Vietnamese Ministry of Defense and the US Military Assistance Command, Vietnam, working agreements were signed on 5 September 1964 at Saigon between the Korean and Vietnamese representatives. In essence, the agreements provided that the Republic of Vietnam would build and maintain the hospital and provide quarters; the Korean Army mobile hospital unit would operate the hospital; Korea would provide Tae-kwon-do instructors, and the United States would support the thirty-four officers and ninety-six enlisted men of the hospital unit and the ten instructors through the Mil-

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nary Assistance Program in accordance with Howze's letter to Minister Kim. Accordingly, on 13 September 1964, at the request of the Republic of Vietnam, the Republic of Korea deployed the Mobile Army Surgical Hospital and instructors.

In late December 1964, after a request from the Republic of Vietnam, the Korean government organized an engineer construction support group to assist the Vietnamese armed forces in restoring war-damaged areas in furtherance of Vietnamese pacification efforts. During the period February to June 1965, a Korean construction support group, a Korean Marine Corps engineer company, Korean Navy LST's and LSM's, and a Korean Army security company were dispatched. These elements, totaling 2,416 men, designated the Republic of Korea Military Assistance Group, Vietnam, were better known by their nickname, Dove Unit.

In early 1965, the government of Vietnam, aware that additional assistance was needed to combat the growing Viet Cong pressure, officially asked the Republic of Korea to provide additional noncombatants. The immediate reason for this request was that Vietnamese troops had been diverted to civic action projects related to the heavy flooding during the fall monsoon in 1964. The Korean government agreed that more support could be provided and undertook to supply a task force composed of the commander of the Republic of Korea Military Assistance Group, Vietnam; an Army engineer battalion; an Army transport company; a Marine engineer

company; one LST with crew; a security battalion; a service unit; a liaison group, and a mobile hospital (already in Vietnam).

Arrangements for arrival of the Dove Unit were completed by the Free World Military Assistance Policy Council on 6 February. In September a revised military working agreement was signed between the Korean Military Assistance Group and the Vietnam Air Force and on 8 February an arrangement between the commander of the Korean group and General Rosson. The arrangement between the Korean and Vietnamese governments included several unusual features. The Koreans were not to fire unless attacked, but in any event, could not fire on or pursue the enemy outside the area delineated for Korean operations. In case of a Viet Cong attack, the senior Vietnam Army commander in the area would provide assistance. Koreans were not to act against civil demonstrations unless forced to by circumstances and authorized by a Vietnam Army liaison officer. Operational control was not mentioned in these arrangements, although it was implied that in combat action the senior Vietnam Army

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officer would exercise control. The arrangements provided that both MACV and the Vietnam armed forces would provide logistical support for the Korean force. Equipment specified in tables of equipment would be provided through the Military Assistance Program and issued by the Vietnam Army. Maintenance services would be provided by the Vietnam Army. Basic Class I supplies, including rice, salt, tea, sugar, and shortening would be provided by the Vietnam government; supplemental rations and other necessary equipment not available through the Military Assistance Program would be supplied by MACV.

Command and control posed a problem for the three nations involved. At one point, the government of Vietnam stated that it desired full operational control by the appropriate corps commander over all Free World military assistance forces employed in Vietnam. In January 1965 Major General Lee Sae Ho, Senior Korean officer in Vietnam, declared that his government could not accept control by any national authority other than the United States. Using as a precedent the fact that the initial Korean element had been placed under the operational control of General Westmoreland, an agreement was reached whereby the Free World Military Assistance Policy Council was utilized as a combined staff to determine the general operational functions of the Korean force. This council was composed initially of the chief of staff of the US Military Assistance Command, Vietnam, the senior Korean officer in Vietnam, and the chief of the Vietnamese Joint General Staff. Later General Westmoreland took the place of his chief of staff. Various subordinate staffs handled day-today operations. Evidently, the three nations involved found these arrangements to be satisfactory. The military working arrangement between General Rosson and General Lee, signed on 8 February and revised in September, contained provisions which the council used to establish operating limits for the Dove Unit: command would be retained by General Lee, operational control would belong to General Westmoreland, and the force would be responsible to the senior commander in any given area of operations.

On 25 February 1965 the advance element of the Dove Unit arrived, followed on 16 March by the main party. The group was located at a base camp in Bien Hoa and during 1965 constructed three bridges, four schools, two dispensaries, and two hamlet offices, as well as accomplishing numerous other minor projects. Medical elements of the Dove Unit treated some 30,000 patients. In line with recommendations by Westmoreland, the Korean group was increased by 272 officers and men on 27 June and by

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two LSM's (landing ships, mechanized) on 9 July.

Further discussions between the US and Korean authorities on this dispatch of troops soon followed. At a meeting between the Korean Minister of National Defense and the Commander in Chief, United Nations Command, on 2 June 1965, the Korean Minister disclosed that as a result of high-level talks between President Johnson and President Park during the latter's visit to Washington in May 1965 the Korean government had decided to send an Army division to Vietnam. The division, minus one Army regiment but including a Korean Marine regiment, was to be commanded by a Korean Army general. Subsequently, Korea also proposed to send an F-86 fighter squadron to provide combat support for Korean ground elements.

Korean Defense Minister Kim also disclosed that a pay raise for Korean troops had been discussed, and although no firm commitment had been made, the inference was that the United States would help. Because Korea would have one of its divisions in Vietnam, Defense Minister Kim felt that the United States should not continue to entertain proposals to reduce US troop strength in Korea, and instead of suspending the Military Assistance Program transfer project should increase the monetary level of the assistance to Korea. Finally, the minister requested that the United States establish an "unofficial" fund to be administered by Korean officials and used in pension payments to the families of soldiers killed or wounded in Vietnam.

On 23 June 1965 Defense Minister Kim again met with Commander in Chief, United Nations Command, this time in the latter's capacity as Commander, US Forces, Korea, to discuss the problems connected with the deployment of the Korean division to Vietnam. Before concrete plans could be drawn up, however, the Korean Army needed to obtain the approval of the National Assembly. Although approval was not necessarily automatic, the minister expected early approval and tentatively established the date of deployment as either late July or early August 1965.

The minister desired US agreement to and support of the following items before submitting the deployment proposal to the National Assembly:

1. Maintenance of current US and Korean force ceilings in Korea.
2. Equipment of the three combat-ready reserve divisions to 100 percent of the table of equipment allowance and the seventeen regular divisions, including the Marine division, with

major items affecting firepower, maneuver, and signal capabilities to avoid weakening the Korean defense posture.

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3. Maintenance of the same level of Military Assistance Program funding for Korea as before the deployment of the division.
4. Early confirmation of mission, bivouac area, command channels, and logistical support for Korean combat units destined for service in Vietnam.
5. Establishment of a small planning group to determine the organization of the Korean division.
6. Provision of signal equipment for a direct and exclusive communication net between Korea and Korean forces headquarters in Vietnam.
7. Provision of transportation for the movement of the Korean division and for subsequent requirements such as rotation and replacement of personnel and supplies.
8. Provision of financial support to Korean units and individuals in Vietnam, including combat duty pay at the same rate as paid to US personnel, gratuities and compensations for line-of-duty deaths or disability, and salaries of Vietnamese indigenous personnel hired by Korean units.
9. Provision of four C-123 aircraft for medical evacuation and liaison between Korea and Vietnam.
10. Provision of a field broadcasting installation to enable the Korean division to conduct anti-Communist broadcasts, psychological warfare, and jamming operations and to provide Korean home news, war news, and entertainment programs.

Some years later, in January 1971, General Dwight E. Beach, who had succeeded General Howze as Commander in Chief, United Nations Command, on 1 July 1965, commented on the list.

The initial Korean bill (wish-list) was fantastic. Basically, the ROK wanted their troops to receive the same pay as the Americans, all new US equipment for deploying troops and modernization of the entire ROK Army, Navy and Air Force. I told them with the Ambassador's concurrence that their bill was completely unreasonable and there was no chance whatever of the US agreeing to it. The final compromise included a very substantial increase in pay for the troops deployed, as much good equipment as we could then furnish and a US commitment that no US troops would be withdrawn from Korea without prior consultation with the ROK. The latter, to the Koreans, meant that no US troops would be withdrawn without ROK approval. Obviously, the latter was not the case as is now evident with the withdrawal of the 7th US Division from Korea.

The US Department of State and Department of Defense ultimately resolved the matter of the Korean requirements.

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The request that three combat-ready reserve divisions be equipped to 100 percent of their authorized table of organization and equipment was, the commander of US forces in Korea stated, heavily dependent upon the availability of Military Assistance Program funds. The

dispatch of the Korean division to Vietnam might affect Military Assistance Program funds, but whether adversely or not could not be predicted. Under consideration was the possibility of using Korean Military Assistance Program funds to finance the readying and dispatch of the division and for the division's support while it was in Vietnam. Early confirmation of mission, bivouac areas, and other routine requirements was dependent upon information from the Commander in Chief, Pacific. The requirement to provide men for a small planning group to determine the organization of the Korean division met with immediate approval.

The request for signal equipment for direct communication between Korea and the Korean division in Vietnam was not approved. Although high-frequency radio equipment was available, the commander of US forces in Korea, General Beach, felt that a better solution was for the Koreans to use the current US communication system on a common-user basis. The commander agreed that the United States should provide transportation for the division but, depending upon the availability of US shipping, certain Korean vessels might have to be used.

The request for financial support to Korean units and individuals in Vietnam met with disapproval. The US commander in Korea did not favor combat duty pay--especially at the same rate paid to US troops-but was in agreement with the payment of an overseas allowance. If the United States had to pay death benefits or make disability payments, the rates should be those presently established under Korean law on a one-time basis only. The United States would not pay directly for the employment of Vietnamese nationals by Korean forces but was in favor of including such expenses in the agreements between the Republic of Korea and the Republic of Vietnam. Since the request for four C-123 aircraft appeared to overlap a previous transportation request, the commander felt that the United States should provide only scheduled flights to Korea or reserve spaces on other US scheduled flights for Korean use.

At first glance, the request for a field broadcasting installation appeared to conflict with the psychological warfare programs already in operation in Vietnam, but final resolution of the matter would have to await an on-the-ground opinion.

On 13 July 1965 the US State Department authorized the

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US Ambassador to Korea to offer a number of concessions to the Korean government to insure the prompt deployment of the Korean division to Vietnam. The United States agreed to suspend the Military Assistance Program transfer project for as long as the Korean government maintained substantial forces in Vietnam. The United States also agreed to offshore procurement from Korea for transfer items such as petroleum, oil, lubricants, and construction materials listed in the fiscal year 1966 Military Assistance Program. Subsequently, and during the period of the transfer program, the United States would determine offshore procurement from Korea on the basis of individual items and under normal offshore procurement procedures.

These concessions to the Korean government were made, however, with the understanding that the budgetary savings accruing to Korea from the actions taken would contribute to a substantial military and civil service pay-raise for Koreans. Actually, the Korean government would not incur any additional costs in deploying the division to Vietnam but would secure a number of economic benefits. On the other hand, the cost to the United States for Koreans already in Vietnam approximated $2,000,000 annually, and first year costs for the operation of the Korean division in Vietnam were estimated at $43,000,000.

In a later communication on 16 July 1965, the Commander, US Forces, Korea, informed the Commander in Chief, Pacific, of other decisions that had been made in resolving the Korean requests. With respect to the reduction of US force levels in Korea, the US Commander in Korea and the American Ambassador to Korea, Winthrop D. Brown, prepared a letter assuring the Korean government that President Johnson's earlier decision that there would be no reduction in US force levels remained unchanged, and that any further redeployment of US forces from Korea would be discussed with the Korean government officials beforehand.

By August agreement had been reached with the Korean government on the force structure of the division and support troop augmentation, but the military aspects of control and command and the proposed unified Korean headquarters were still under discussion. Consolidated equipment lists for the Korean division, understrength, and the Marine force, as well as the table of allowances for a Korean field support command had been developed and were to be forwarded to General Westmoreland. In logistics, initial and follow-up support of Class II, IV, and V supplies had been settled, but the matter of Class III supplies could not be resolved until information had been received

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from MACV on the availability and receipt of storage for bulk petroleum products. Class I supplies were still under study. A maintenance policy had been worked out for the evacuation of equipment for rebuild and overhaul. All transportation problems had been solved and, finally, training plans had been completed and disseminated. .

Because of the unpredictable outcome of Korean plans to deploy a division to Vietnam and the urgent need to have another division there, the Military Assistance Command, Vietnam, informed the Commander in Chief, Pacific, through US Army, Pacific, that if deployment of the Korean division did not take place by 1 November 1965, a US Army division would have to be sent to Vietnam instead. Since planning actions for the movement of a division from either the Pacific command or the continental command would have to be initiated at once, the joint Chiefs of Staff asked Admiral Sharp's opinion on the best means of getting a substitute for the Korean division if the need arose.

Admiral Sharp's view was that the two US divisions then in Korea constituted an essential forward deployment force that should not be reduced. Commitment of the 25th Infantry Division to Vietnam-except for the one-brigade task force requested in the event of an emergency-would

deplete Pacific command reserve strength at a critical time. Moreover, the 25th Infantry Division was oriented for deployment to Thailand, and if moved to Vietnam should be replaced immediately with another US division. With deployment of the Korean division to Vietnam, the 25th Infantry Division would be available as a substitute for the Korean division in Korea.

On 19 August 1965 the Korean National Assembly, finally passed a bill authorizing the dispatch of the Korean division. The division was to deploy in three increments: the first on 29 September 1965; the second on 14 October 1965; and the third on 29 October 1965. Initial equipment shortages were not expected to reduce the combat readiness of the division.

Definitive discussion between US and Korean authorities on the dispatch of troops began immediately. As a result, the first combat units, the Republic of Korea's Capital (Tiger) Infantry Division, less one regimental combat team, and the 2d Marine Gores Brigade (Blue Dragon) and supporting elements, totaling 18,212 men, were sent during the period September through November 1965.

The Korean government then sought reassurance that sending troops to Vietnam would neither impair Korean defense nor adversely affect the level of US military assistance to Korea. It

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also sought agreements on the terms of US support for Korean troops in Vietnam. Resulting arrangements between the United States and Korea provided substantially the following terms.

1. No US or Korean force reductions were to take place in Korea without prior consultation.
2. The Korean Military Assistance Program for 1966 was to include an additional $7 million to provide active division equipment for the three Korean Army ready-reserve divisions.
3. Korean forces in Korea were to be modernized in firepower, communications, and mobility.
4. For Korean forces deployed to Vietnam, the United States was to provide equipment, logistical support, construction, training, transportation, subsistence, overseas allowances, funds for any legitimate noncombat claim brought against Republic of Korea Forces, Vietnam, in Vietnam, and restitution of losses of the Korean force not resulting from the force's negligence.

General Westmoreland also agreed to provide the Korean force with facilities and services comparable to those furnished US and other allied forces in Vietnam. Korean forces in Vietnam had custody of the equipment funded by the Military Assistance Program brought into Vietnam and equipment funded by the Military Assistance Service and provided by General Westmoreland. Equipment funded by the Military Assistance Program that was battle damaged or otherwise attrited was replaced and title retained by the Republic of Korea. In an emergency redeployment to Korea, the Koreans would take with them all equipment on hand. In a slower deployment or rotation, equipment would be negotiated, particularly that held by Koreans in Vietnam but not compatible with similar equipment held by Korean forces in Korea and items extraneous to the Military Assistance Program.

Prior to the arrival of the Korean division, considerable study of possible locations for its deployment took place. The first plan was to employ the division in the I Corps Tactical Zone, with major elements at Chu Lai, Tam Ky, and Quang Ngai; Korean troops would join with the III Marine Amphibious Force, and perhaps other Free World units to form an international Free World force. Subsequently, this idea was dropped for several reasons. First of all, support of another full division in that area would be difficult logistically because over-the-beach supply would be necessary. Deployment of the division in the I Corps Tactical Zone would also necessitate offensive operations since the enclaves were already adequately secured by elements of the III Marine Amphibious Force. Offensive, operations might, in

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turn, provoke problems of "face" between the two Asian republics, Vietnam and Korea, especially if the Korean forces turned out to be more successful during encounters with the Viet Cong and the North Vietnamese. There were still several other possible locations at which Korean troops could be stationed. Affecting each of the possibilities were overriding tactical considerations.

The 2d Korean Marine Brigade (the Blue Dragon Brigade) was initially assigned to the Cam Ranh Bay area but did not remain there very long because the security requirements were greater elsewhere. Hence shortly after its arrival the 2d Brigade was moved up to the Tuy Hoa area where the enemy, the 95th Regiment of the North Vietnam Army, had been deployed for several weeks. This enemy unit had been pressing more and more on the population in and around Tuy Hoa and was threatening the government as well as the agriculture of that area.

The Capital Division, affectionately called by the Americans the Tiger Division, arrived at its station about six miles west of Qui Nhon during November 1965, initially with two regiments. The area was chosen, among other reasons, because it was not populated and would therefore not take agricultural land away from the local inhabitants. It was, moreover, high ground that would not be adversely affected by the rains. These circumstances would give the Koreans an opportunity to spread out their command post as much as they wished and allow the first troop units some training in operating against the enemy.

Another reason for not stationing the Capital Division nearer Qui Nhon was that Qui Nhon was to become a major logistic support area, eventually providing the base support for both Korean divisions as well as for the US 1st Cavalry Division (Airmobile) and the 4th Infantry Division. All the land immediately surrounding Qui Nhon, therefore, was to be used for logistical purposes.

Placed as it was in the Qui Nhon area, the Capital Division would be able to move in several critical directions: it could keep Highway 19 open as far as An Khe; it would be close enough to protect the outskirts of Qui Nhon; it could move northward to help clean out the rice-growing area as well as the foothills to the northwest; and it could move southward on Highway 1 toward

Tuy Hoa and assist in clearing out the enemy from the populated areas along both sides of the highway.

The 1st Brigade, 101st Airborne Division, was sent to the Qui Nhon area prior to the arrival of the Capital Division to insure that the area was protected while the initial Korean units settled down and established camp.

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In early 1966 additional Korean troops were again formally requested by the Republic of Vietnam. Negotiations between the US and Korean governments on this request were conducted between January and March 1966. The Korean National Assembly approved the dispatch of new troops on 30 March 1966, and the Commander in Chief, United Nations Command, concurred in the release of the 9th Infantry Division-the White Horse Division. This unit, which began to deploy in April 1966, brought the strength of the Korean forces in Vietnam to 44,89'7.

The 9th Korean Division arrived in Vietnam during the period 5 September-8 October 1966 and was positioned in the Ninh Hoa area at the junction of Highways 1 and 21. Division headquarters was situated in good open terrain, permitting deployment of the units to best advantage.

Of the Korean 9th Division the 28th Regiment was stationed in the Tuy Hoa area, the 29th Regiment in and around Ninh Hoa, adjacent to division headquarters, and the 30th Regiment on the mainland side to protect Cam Ranh Bay. With these three areas under control, the 9th Division could control Highway 1 and the population along that main road all the way from Tuy Hoa down to Phan Rang, from Tuy Hoa north to Qui Nhon, and as far north of that city as the foothills of the mountains in southern Binh Dinh Province. *(Map* 7) A Korean Marine battalion and additional support forces arrived in Vietnam in 1967. In all, the Republic of Korea deployed 47,872 military personnel to Vietnam in four major increments.

Time Dispatched	***Organization***	***Strength***
1964- 1965	Medical and engineer groups (Dove)	2,128
1965	Capital Division (-RCT) with support forces and Marine brigade	18,904
1966	9th Division with RCT and support forces	23,865
1967	Marine battalion (-) and other support forces	2,963
1969	C-46 crews, authorized increase	12

Logistically, the United States had agreed to support fully the Korean operations in South Vietnam; there never was any doubt that the Koreans would get all the requisite support-the transportation, artillery support, extra engineer support, hospital supplies, food, aviation support, communications support-from the US bases in Vietnam.

Operational Control of Korean Troops

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When the Korean Army arrived in South Vietnam, Major General Chae Myung Shin assured General Westmoreland that

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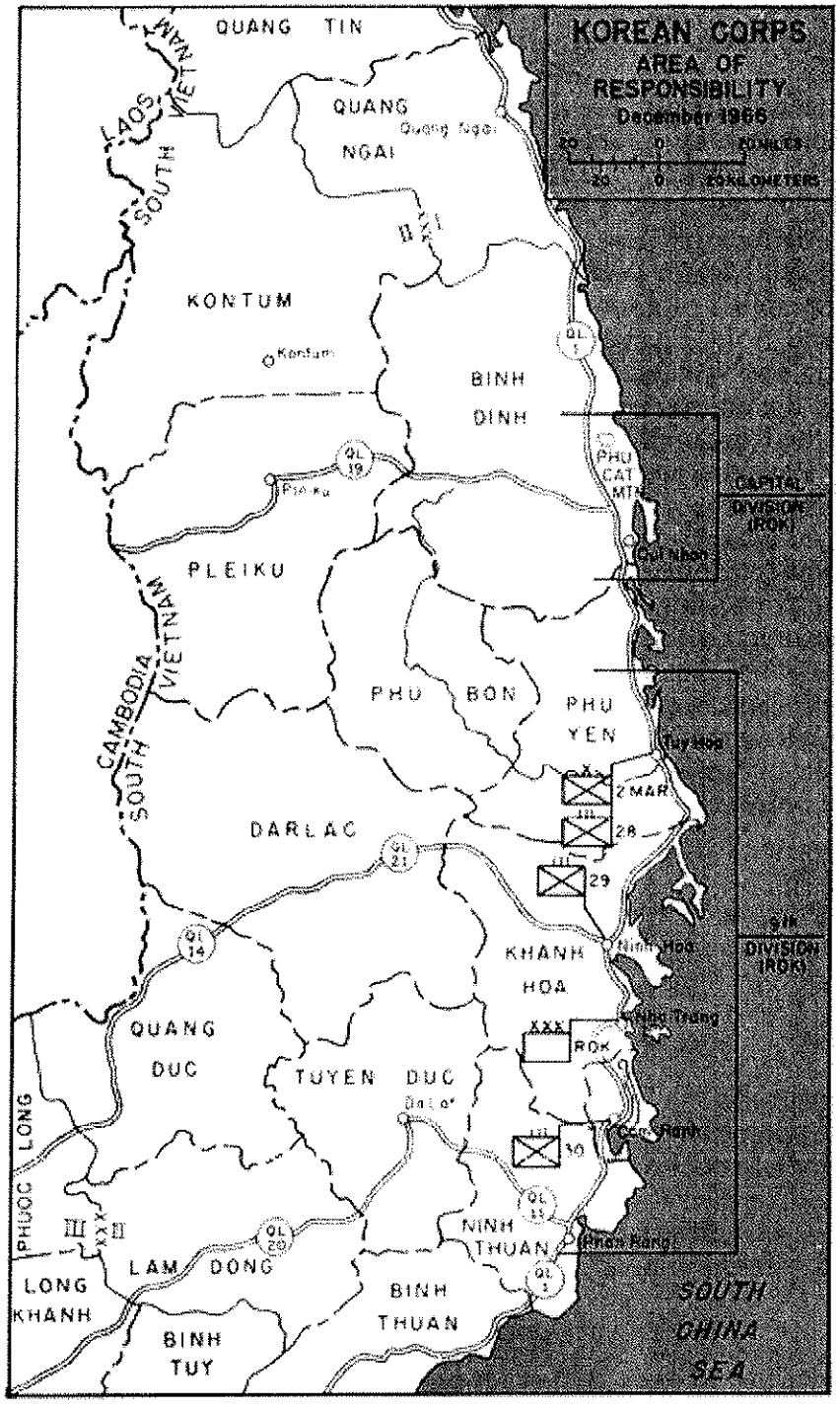
MAP 7 KOREAN CORPS Area of Responsibility December 1966



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whatever mission General Westmoreland gave him he would execute it as if he were directly under Westmoreland's operational control. There was a certain amount of confusion,

nonetheless, as to whether the Korean force in South Vietnam would actually come directly under US operational control or whether it would be a distinct fighting force working in close co-ordination with the other allies but under separate control. The confusion was perhaps based on misunderstanding since there never had been a clear-cut agreement between the Korean government and the US government concerning operational control.

On 2 July 1965 General Westmoreland had submitted to Admiral Sharp his views on the command and control organization to be used when a Korean division arrived in Vietnam. If a Korean regiment deployed to Vietnam before the establishment of a field force headquarters, MACV would exercise operational control of both Korean and US units through a task force headquarters located in the II Corps Tactical Zone. When the full Korean division arrived, the division would assume command of the Korean regiment and would come under the direct operational command of the field force headquarters.

General Westmoreland had no objections to a unified Korean command, provided the command was under his operational control and he retained the authority to place the Korean regiment, brigade, or division under the operational control of a US task force headquarters or US field force headquarters. Such an arrangement was necessary so that the US commander would have the authority to maneuver the Korean division or any of its elements to meet a changing tactical situation.

Under this arrangement, noncombatant Korean forces would continue to be under General Westmoreland's operational control through the provisions of the International Military Assistance Policy Council, later designated the Free World Military Assistance Policy Council. Inasmuch as General Westmoreland wanted the commanding general of the Korean division to be free to devote all his energies to tactical matters, he recommended that the Republic of Korea Military Assistance Group, Vietnam, be augmented so that it could assume the responsibilities of a Korean unified command.

After the arrival in Vietnam of the advance planning group for the Korean division and after a series of conferences, new working arrangements were signed between the Vietnamese armed forces and the Commander, Republic of Korea Forces, Vietnam, on 5 September and between General Westmoreland and the Commander of the Korean forces on 6 September. The

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new arrangements contained several interesting features. There was no reference to operational control. The only formally recognized control agency was the Free World Military Assistance Policy Council that continued in its policy-making role. Command, of course, remained with the senior Korean officer.

Since there was no provision for command and control in the military working arrangement signed between General Westmoreland and the commander of the Korean force, General Chae, on 6 September 1965, the policy council prepared a draft joint memorandum indicating that

General Westmoreland would exercise operational control over all Korean forces in Vietnam. General Westmoreland presented this proposed arrangement to General Chae and Brigadier General Cao Van Vien, chief of the joint General Staff, on 23 October. At that time, General Chae declared that he could not sign the arrangement without first checking with his government; however, in the interim, he would follow the outlined procedures. The Koreans submitted a revised draft of the command and control arrangement which, after study, General Westmoreland determined to be too restrictive. On 20 November the draft was returned to General Chae, who was reminded that the verbal agreement made on 23 October would continue to be followed.

After additional discussion with General Chae, General Westmoreland reported to Admiral Sharp that a formal signed arrangement could be politically embarrassing to the Koreans because it might connote that they were subordinate to, and acting as mercenaries for, the United States. General Westmoreland felt that a formal arrangement was no longer necessary since General Chae had agreed to de facto operational control by US commanders. Lieutenant General Stanley R. Larsen, Commanding General, I Field Force, Vietnam, and General Chae understood that although directives to Korean units would be in the form of requests they would be honored as orders. It was also thought appropriate that Korean officers be assigned to the field force staff to assist in matters relating to Korean elements. This would not constitute a combined staff as the Korean officers would serve as liaison officers.

There were several logical reasons for the Korean Army in South Vietnam to be constituted as a separate and distinct force. To begin with this was one of the few times in Asian history that a Far Eastern nation had gone to the assistance of another nation with so many forces. It was of great political significance for the Korean government to be able to send its army as an independent force. Many observers felt that the eyes of the world

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would be upon the Koreans and that, as a nation, the Koreans must succeed for the sake of their home country. The Koreans felt much attention would be focused on them to see how well they were operating in conjunction with US forces. If they were working independently, it would show the other countries that not only were the Koreans in a position to act on their own, but they were also freely assisting the United States. The United States could then point out that countries such as Korea, which they had helped for many years, were now operating freely and independently, and not as involuntary props of American policy. Korea's entry into the war in Vietnam showed the world that while Korea was not directly affected by the war it was, nevertheless, willing to go to its neighbor's assistance.

Another reason that the Koreans did not wish to come under *de jure* US operational control had to do with their national pride. Since Korea had received US assistance for so many years after the Korean War and had followed American tutelage on the organization and leadership of a large armed force, the Vietnam War was an opportunity to show that Koreans could operate on

their own without American forces or advisers looking over their shoulders. In effect, the Koreans desired to put into play the military art the United States had taught them.

Initial Developments

Assigned to the Qui Nhon area, the Capital Division initially was given the mission of close-in patrolling and spent its first days in South Vietnam getting accustomed to the surrounding terrain and to the ways of the Vietnamese. Though the Koreans and Vietnamese were both Orientals, their languages were completely foreign to each other. They handled people differently; the Koreans were much more authoritative. General Chae attempted to overcome the differences by working with government representatives to establish methods of bringing the Koreans and the Vietnamese together. For instance, the Korean soldiers attended the local Buddhist churches and also repaired facilities which had been either destroyed by enemy operations or suffered from neglect.

The first major operation in the fall of 1965 involving the Capital Division was an effort to protect Highway 19 up to An Khe from just outside Qui Nhon. The 1st Brigade, 101st Airborne Division, then stationed in the area, remained in place for about one month and gradually turned over its area of responsibility to the Korean division. Little by little, the Koreans moved into the river paddy area north of Qui Nhon where they en-

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gaged in small patrolling actions and developed their own techniques of ferreting out enemy night patrols.

The Viet Cong quickly learned that the Capital Division was not an easy target for their guerrilla small-unit tactics. Within two months following the Capital Division's entrance into Vietnam, tactical units of the two regiments and the division initially deployed to Vietnam had reached a position nearly halfway between Qui Nhon and Muy Ba Mountain, nicknamed Phu Cat Mountain after the large town to the west of it. The people in that area had been dominated by the Viet Cong for many years. In the process of mopping up the small enemy pockets in the lowlands and rice paddies, military action caused many hardships for the local populace, making it so difficult for them to live that the women and children-and eventually all the pro-government segment of the population-gradually moved out of the area.

By June of 1966 the Capital Division controlled all the area north of Qui Nhon to the east of Highway 1 and up to the base of Phu Cat Mountain. It extended its control also to the north and south of Highway 19 up to the pass leading into An Khe. Working south along Highway 1 down toward Tuy Hoa and within the province of Binh Dinh, the Capital Division sent out reconnaissance parties and carried out small operations as far south as the border between Binh Dinh and Phu Yen.

The Korean Marine brigade, assigned at first to the Cam Ranh Bay area in September and October 1965, was moved to the Tuy Hoa area in December of that year. The reason for the shift was the presence of the 95th Regiment near Tuy Hoa. This regiment, a North Vietnam divisional unit, had disappeared from the western area of South Vietnam and its whereabouts remained unknown for several weeks. It finally showed up in midsummer 1965 in the Tuy Hoa area where it began operations, threatening and dominating the outer regions of the Tuy Hoa area.

Tuy Hoa was a well-populated region, harvesting 60,000 to 70,000 tons of rice a year. The rice paddy land was poorly protected, wide open to control by the Viet Cong and North Vietnam's 95th Regiment. Since the Viet Cong and North Vietnamese utilized the area to supply rice to their own troops all the way up to the Central Highlands, the rice land had become a strategic necessity for the enemy. During the summer of 1965 the North Vietnamese 95th Regiment gained control of more and more of the rice production and by the middle of the wet season, October and November, a crisis had developed. The morale of

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Evaluation of Korean Operations

Evaluation by senior US officers of Korean operations during the period of the Koreans' employment in Vietnam tended to become more critical the longer the Koreans remained in Vietnam. Of several factors contributing to this trend, three were more significant than the others. First, the US commanders expected more of the Koreans as they gained experience and familiarity with the terrain and the enemy. Second, the Koreans persisted in planning each operation "by the numbers," even though it would appear that previous experience could have eliminated a great deal of time and effort. Third, as time went on the Korean soldiers sent to Vietnam were of lower quality than the "cream of the crop" level of the entire Korean Army which first arrived.

General Larsen's successor as Commanding General, I Field Force, Vietnam, General William B. Rosson, in his "End of Tour Debriefing Report" presented a number of insights into the problems of establishing effective teamwork between Korean and US and Korean and Vietnam forces. General Rosson stressed the "extraordinary combination of ROK aspirations, attitudes, training, political sensitivities and national pride" which culminated in the Korean characteristics of restraint and inflexibility that many US officers found so difficult to comprehend and to deal with. Rosson's experience led him to employ "studied flattery," which he used liberally and with success in establishing productive rapport, "but never to the point of meting out undeserved praise."

In addition General Rosson found certain other techniques in dealing with the Korean authorities: occasional calls on Korean officials junior to himself; encouragement of staff level visits between US and Korean unit headquarters; combined US Korean conferences on a no-commitment basis to consider subjects of common interest; planning and conduct of combined operations; fulfillment of Korean requests for support whenever possible; visits to Korean units during combat operations; personal, face-to-face requests for assistance from the Koreans.

One of these techniques-fulfillment of Korean requests

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whenever possible-has been challenged by later commanders. One other-planning and conduct of combined operations-has been one of the chief sources of criticism of the Koreans, who are very reluctant to enter into truly combined operations.

General Peers, who succeeded General Rosson, stated that it took some learning and understanding but that he found the Koreans highly efficient and a distinct pleasure to work with. He also stated that every effort was made to support Korean operations by providing additional artillery, helicopters, APC's, and tanks and that this practice proved of immense value in developing co-operation between the Koreans and adjacent US units.

A slightly different point of view was provided by Lieutenant General Arthur S. Collins, Jr., who was Commanding General, I Field Force, Vietnam, from 15 February 1970 through 9 January 1971. General Collins stated that the Koreans made excessive demands for choppers and support and that they stood down for too long after an operation. He equated the total effort from the two Korean divisions to "what one can expect from one good US Brigade."

General Collins, for the first eight months of his time, followed the policy of his predecessors in that he went to great lengths "to ensure that the ROK forces received the support they asked for." He felt that it was in the interest of the United States to do so. His final analysis, however, was that this was a mistake in that in spite of all-out support the Koreans did not conduct the number of operations they could and should have. He felt that a less accommodating attitude might have gained more respect and cooperation from the Koreans but did not venture to guess whether such a position would have made them any more active.

General Collins' successor, Major General Charles P. Brown, deputy commander and later commanding general of I Field Force, Vietnam, and commanding general of the Second Regional Assistance Command during the period 31 March 197015 May 1971 made this statement:

The ROK's spent relatively long periods planning regimental and division sized operations, but the duration of the execution phase is short.

The planning which leads to requests for helicopter assets to support airmobile operations is poor. This assessment is based on the fact that the magnitude of their requests for helicopters generally is absurdly high. Without disturbing their tactical plan one iota, their aviation requests can always be scaled down, frequently almost by a factor of one-half. . . .

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Execution is methodical and thorough, and there is faithful adherence to the plan with little display of the ingenuity or flexibility that must be present to take advantage of tactical situations that may develop. In other words, reaction to tactical opportunities is slow, and this is true not only within their own operations, but also is true (to an even greater degree) when they are asked to react for others.

In terms of effort expended, they do not manage as many battalion days in the field as they should, yet they are loath to permit others to operate in their TAOR.

In summary, however, General Brown stated that "while the preceding tends to be critical, the facts are that results (especially when one considers the relatively short amount of time devoted to fighting are generally good, and this is what counts in the end."

Other senior officers noted the great political pressure the Seoul government placed on the Korean commander and its effect on Korean military operations. Since the Korean government was not fully attuned to the changing requirements of the ground situation, its policy guidance often hampered the optimum utilization of Korean resources. Specifically this resulted at times in a strong desire on the part of the Koreans to avoid casualties during periods of domestic political sensitivity as well as sudden changes in their relations with the people and government of South Vietnam.

General Creighton Abrams has indicated that from a purely professional point of view the Koreans probably outperformed all of our allied forces in South Vietnam. In response to a question from Vice President Spiro T. Agnew regarding the performance of the Koreans in comparison with the Vietnamese, General Abrams made this statement:

There were some things in which the Koreans, based purely on their professionalism, probably exceeded any of our allied forces in South Vietnam. An example of this would be when they decided to surround and attack a hill. A task of this sort would take one month of preparation time during which a lot of negotiating would be done to get the support of B-52's, artillery and tanks. Their planning is deliberate and their professional standards are high. The Korean planning is disciplined and thorough. In many other fields, however, particularly in working close to the population, the Vietnamese show much more sensitivity and flexibility than the Koreans. In short, the kind of war that we have here can be compared to an orchestra. It is sometimes appropriate to emphasize the drums or the trumpets or the bassoon, or even the flute. [The] Vietnamese, to a degree, realize this and do it. The Koreans, on the other hand, play one instrument- the bass drum.

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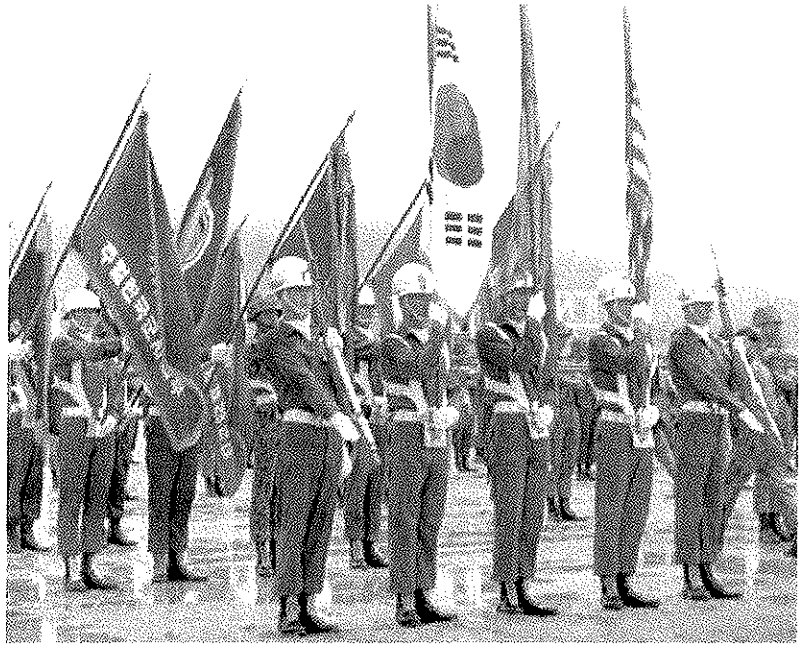

COLOR GUARD DISPLAYS FLAGS *at ceremonies commemorating third anniversary of Korean forces in Vietnam.*

In summary, it appears that Korean operations in Vietnam were highly professional, well planned, and thoroughly executed; limited in size and scope, especially in view of assets made available; generally unilateral and within the Korean tactical area of responsibility; subject to domestic political considerations; and highly successful in terms of kill ratio.

Tactics

Korean units, without exception, employed tactics in line with established US Army doctrine. Squad, company, and battalion operations were characterized by skillful use of fire and maneuver and by strict fire discipline. A basic rule, which seemed to be followed in all observed instances, involved having one element cover another whenever a tactical movement was under way. During search and destroy operations, companies moved out to their assigned areas with platoons on line, separated by 150 to 200 meters, depending on the type of terrain encountered. One platoon usually remained behind as security for

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GENERAL ABRAMS PRESENTS BRONZE STARS *to soldiers of the Tiger Division.*

the headquarters element and also acted as the company reaction force in the event of contact. Within platoons, a V-formation or inverted wedge was usually employed. This formation lent itself to encircling an enemy force or a village. The lead squads would envelop right and left; the remainder of the platoon would search or attack as the situation required.

The Korean troops' searching was thorough and precise. They took their time and moved only when units were ready. They prepared sound plans; everyone knew the plan; each element was mutually supporting. It was not unusual for the same area to be searched three or four times and by different platoons. Areas of operation for platoons and companies were usually smaller than those assigned to U.S. units. The units remained in each objective area until commanders were satisfied that it had been thoroughly combed. This persistence paid off time and again in rooting out the Viet Cong and finding their weapons and equipment.

As the hamlet was being searched, civilians were collected and moved to a safe central location where they were guarded

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and exploited for information of immediate tactical value. Civilians were segregated according to age and sex. Women and children were usually interrogated in two separate groups. Men were questioned individually. The Koreans used rewards routinely to elicit information. They fed and provided medical attention to those people from whom they sought information. They also used bribes of food, money, candy, and cigarettes to soften the more likely subjects (women and children).

Detainees were a valuable source of information. They were retained in one central area until the Koreans were convinced they had been properly exploited. There was no rush to release the people to return to their homes, the theory being that if held long enough they would provide the desired information. The villagers themselves were employed to point out Viet Cong dwellings and the location of weapons, booby traps, and enemy equipment.

Ambushes

The usual ambush force was a squad, reinforced with one or more machine guns. An on-line formation was used with the automatic weapons on the flanks, about twenty meters off the selected trail. The position had been thoroughly reconnoitered before dark and was occupied at last light or in darkness. All unnecessary equipment was left at the company base. Faces were blackened and all equipment carried was taped or tied down.

Ambush sites were not altered by cutting fields of fire or by digging in. Absolute light and noise discipline was maintained. Until contact was made, communication between squad members was accomplished through tugs on a length of rope or radio wire, strung between positions. No firing was permitted until the enemy was well within the killing zone. Troops in the ambush force remained quiet and awake throughout the period of ambush, be it all day or all night. All individuals appeared to remain awake and alert with no help from squad leaders.

In summary, the factors contributing to the success of Korean forces were the following: discipline, aggressiveness, training, patience, and physical fitness of the Korean soldiers; outstanding leadership; adherence to the same tactical doctrine taught at US service schools and written in US manuals; thorough planning; careful initial reconnaissance; time taken to develop tactical situations; sealing and blocking of selected areas prior to entrance; use of interpreters at company level (interpreters were the product of division school training).

The criteria listed above should not suggest that the Koreans

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MEDIC OF TIGER DIVISION TREATS VILLAGE BOY

were outstanding in every respect; actually there were deficiencies noted, but despite these the Koreans demonstrated a sure grasp of tactical fundamentals, and their discipline, their patience, their persistence in attaining an objective, and their physical fitness, were admirable.

Pacification Efforts

Korean pacification efforts have been the subject of a certain amount of controversy over the years. Early comments by commanders of all levels were highly favorable. Later, however, questions as to the over-all effectiveness of Korean pacification efforts were raised. As a result, from 5 July to 23 August 1968, the evaluation branch of CORDS (Civil Operations Revolutionary Development Support.) analyzed the influence of the Army of the Republic of Korea upon the pacification programs in the 11 Corps Tactical Zone which were supported by CORDS. The

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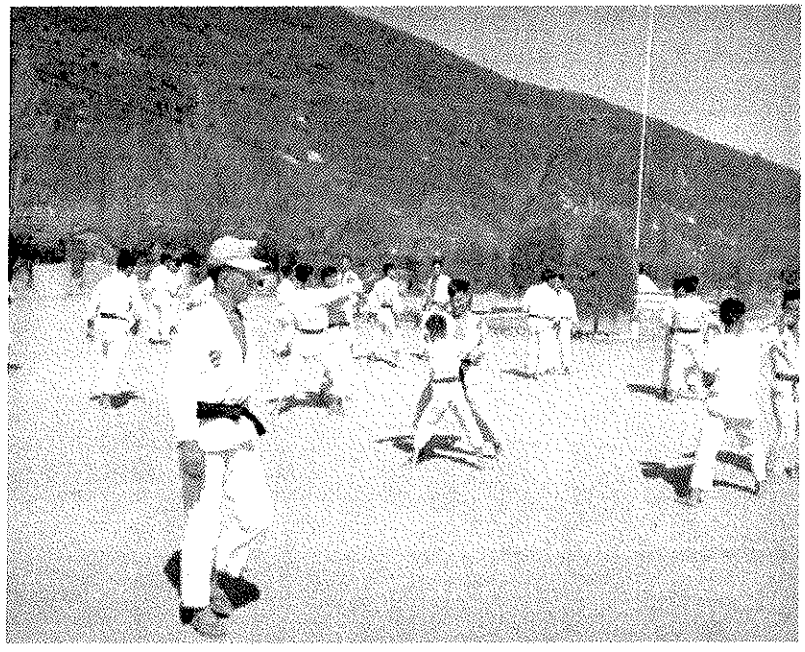

KOREAN INSTRUCTOR IN TAE-KWON-DO *watches Vietnamese practice after class.*

evaluation was based on personal observations of two tactical operations and the pacification efforts of both Korean divisions, interviews of most of the district chiefs in the Koreans' area of responsibility, all US district senior advisers and their deputies, both Korean division G-5's, and most regimental and battalion S-5's. The report, critical of Korean Army pacification performance in certain areas, noted that Korean units provided excellent local security but devoted scant attention to upgrading Vietnam government territorial forces and countering hamlet regression. Though devoting much effort to the attack on the Viet Cong, the Koreans' neutralization activities were shrouded in secrecy. Korean support of the National Police and revolutionary development cadre program was held to be inadequate, as were Korean civic action and psychological programs. The report also alleged corruption on the part of Korean officers and units. The Korean *Chieu Hoi,* refugee, and civilian war casualty programs were praised. These programs helped to change the somewhat unfavorable first image of the Korean troops held by the Vietnamese.

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The report, however, was not totally accepted. Other evaluators emphasized the combat skill and efficiency of the Koreans and pointed to their tactical successes within their area of operations. What was not disputed was the initial report's evidence of the improved security the Koreans provided. Subsequent evaluations by CORDS tended to corroborate the initial conclusions: while the Korean Army troops provided excellent local security and operated effectively against Viet Cong forces, there was still insufficient rapport and co-ordination between the Koreans and Vietnamese (civilian and military) to maximize pacification efforts.

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The pacification techniques of the Korean Army were closely linked with their combat operations. After Korean Army units occupied an area and drove out the enemy, Korean civic action teams would begin their training programs and provide medical assistance in an attempt to gain the allegiance of the people.

The Korean Marine Corps pacification program also received mixed ratings. Again the major problem was insufficient rapport with the Vietnamese people and incomplete coordination of efforts with the Vietnamese Army.

An analysis of the over-all Korean contribution to the pacification program leads to the conclusion that Korean combat forces had their greatest success with small unit civic action projects and security operations within their Korean tactical area of responsibility. Complete success eluded the Koreans, however, because of their insufficient coordination and co-operation, and the initial impression they made in dealing with the Vietnamese.

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The Quiet War: Combat Operations Along the Korean Demilitarized Zone, 1966–1969*

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Nicholas Evan Sarantakes

FROM 1966 to 1969, American and South Korean troops fought a series of skirmishes against North Korean soldiers in an undeclared war along the demilitarized zone (DMZ) separating the two Koreas. The "Quiet War," as South Koreans came to refer to these incidents, had important ramifications in Vietnam and Washington. The fighting, originally seen as a nuisance rather than a serious danger, eventually threatened to explode into a crisis of the first magnitude. On several occasions, the peninsula teetered on the edge of war. The United States tried to contain this danger, while South Korea attempted to enflame the crisis. These differences reflected divergent political goals, and eventually forced the two countries to cancel military plans in Vietnam at a critical juncture in that conflict.

This period in U.S.-Korean relations has received little attention from historians. Combat operations in Korea are never mentioned in the fine work of H. W. Brands and the equally good compilations edited by Diane B. Kunz, and Warren I. Cohen and Nancy Bernkopf Tucker on the foreign policies of the Johnson administration.[1] Vandon E. Jenerette, a

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1. H. W. Brands, *The Wages of Globalism: Lyndon Johnson and the Limits of American Power* (New York: Oxford University Press, 1994); Diane B. Kunz, ed., *The Diplomacy of the Crucial Decade: American Foreign Relations During the 1960s* (New York: Columbia University Press, 1994); Warren I. Cohen and Nancy Bernkopf

major in the U.S. Army, wrote an article on the Quiet War, using a number of military documents. This piece is informative, but Jenerette goes beyond his cited evidence, contending that the attacks were an attempt by the North Koreans to create a "second front" for the United States and draw American resources from Vietnam. He bases his interpretation on a speech Kim Il-sung gave on the need for communist nations to aid Vietnam in its struggle against the United States. In a portion of the speech that Jenerette does not quote, Kim makes it clear that he wanted other countries to send combat troops to Southeast Asia. Robert Scalapino and Chong-sik Lee briefly mention the Quiet War in their study of Korean communism. Taking the raids out of a Cold War context, Scalapino and Lee look at this period as just one of the many efforts the North made over time to unify the peninsula on its terms. According to these two scholars, the North Koreans attempted to use the raids into the South as a way of inducing a general insurrection similar to the effort of the National Liberation Front in Vietnam.

It is important to remember that the division of Korea after World War II had no historical basis and that each of the two regimes, the Democratic People's Republic of Korea (DPRK) and the Republic of Korea (ROK), claimed to be the sole government of the peninsula and had supporters on both sides of the DMZ. Although the motivation for North Korean actions will remain uncertain until researchers have access to the archives in Pyongyang, it is important to note that what little documentation is available supports the Scalapino and Lee interpretation. These sources also indicate that communist ideology led the North Koreans to underestimate the foundation of support that existed in the South for the Republic.[2] The most extensive study of the subject is Daniel Bolger's *Scenes from an Unfinished War*. Bolger, a major in the U.S. Army, focuses on the development of low intensity doctrine and operational responses to the North Korean raids. His "economy of force" argument that the Vietnam War forced the allies to fight in Korea with the limited means available requires some modification. This thesis accurately describes the American response, but not that of the South Koreans.[3]

Tucker, eds., *Lyndon Johnson Confronts the World: American Foreign Policy, 1963–1968* (New York: Cambridge University Press, 1994).

2. Vandon E. Jenerette, "The Forgotten DMZ," *Military Review* 58 (May 1988): 32–43; Robert Scalapino and Chong-sik Lee, *Communism in Korea*, vol. 1, *The Movement* (Los Angeles and Berkeley: University of California Press, 1972), 638n–639n, 647–53.

3. Daniel Bolger, *Scenes from an Unfinished War: Low Intensity Conflict in Korea, 1966–69*, Leavenworth Paper No. 19 (Fort Leavenworth, Kans.: Combat Studies Institute, U.S. Army Command and General Staff College, 1991).

In 1953 the belligerent nations in the Korean War signed an armistice that created the demilitarized zone and perpetuated the division of the peninsula. The military demarcation line along the 38th parallel served as the actual boundary between the Democratic People's Republic of Korea in the north and the Republic of Korea in the south. The DMZ, or "the Z" in the slang of the American troops serving in the area, was a two-kilometer-deep zone on either side of the demarcation line that ran across the entire width of the peninsula. The armistice signatories established a number of rules governing activity in the zone. Each side could and did send small, lightly armed patrols to monitor the region, but the agreement prohibited the deployment of mortars, artillery, tanks, or any other type of heavy weapons. The settlement also prohibited the construction of fortifications in the DMZ.[4] In the years following the armistice, there were a few scattered exchanges of gunfire. These episodes resulted in eight American fatalities, but were isolated and never precipitated a major crisis.[5]

This stable, but semi-dangerous, state of affairs began to change in the fall of 1966. In October, North Korean troops began making small, armed incursions across the demarcation line. A Central Intelligence Agency (CIA) map of these confrontations shows that these raids occurred almost equally in the eastern, central, and western sectors of the demilitarized zone. The North Koreans attacked only South Korean units, killing twenty-eight soldiers. American troops were not involved in these engagements.[6]

These raids infuriated the South Korean military, and the ROK Army quietly began planning a retaliatory raid. The Koreans never told their Americans allies anything about this operation. Nevertheless, General Charles H. Bonesteel III, American commander in Korea, heard rumors about the planned raid. Bonesteel served as both the commanding general of the U.S. Eighth Army and Commander-in-Chief United Nations (UN) Command. In this latter position he had operational command of all Korean combat forces. On 20 October, Bonesteel met with Kim Sung-eun, the Minister of National Defense, and told him that an attack could have severe and unintended political and diplomatic impact on the pending visit of President Lyndon B. Johnson to the peninsula and a scheduled UN General Assembly debate on Korea. In Bonesteel's own words, the minister's reaction was "non-committal." Two days later,

4. Walter G. Hermes, *Truce Tent and Fighting Front* (Washington: GPO, 1966), 422–35, 516–17.

5. Jenerette, "The Forgotten DMZ," 34.

6. "CIA Intelligence Memorandum: Armed Incidents Along the Korean DMZ," 8 November 1966, Korea Memos vol. 3, box 255, Korea Country File, National Security File, Lyndon Baines Johnson Presidential Library (hereafter referred to as LBJL), Austin, Texas.

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Bonesteel met with General Kim Kae-wan, the Chief of Staff of the ROK Army, and delivered the same message. The warnings of the tall, gaunt, one-eyed general were ignored. On 26 October, American officers in Bonesteel's command began receiving fragmentary information about a raid into North Korea. The Americans quickly confirmed a "highly successful" foray in the eastern sector of the DMZ that resulted in thirty North Korean casualties. Bonesteel was unable to learn if the raid went beyond the northern edge of the demilitarized zone. He quickly ordered Lieutenant General Suh Jyong-chul, his Korean subordinate, to conduct an investigation and discipline the responsible "hot-headed junior officers."[7]

When Johnson arrived in Korea, President Park Chung-hee downplayed the attacks and probes. He stated that the North normally staged a number of incidents and incursions during key moments in international affairs to distract the public of the South. According to the American record of the conversation, Park told his guest that "these incidents are an irritating factor, but not a serious danger." The Korean president did, however, warn his American counterpart: "If fighting increases in Vietnam, there may be increased and more sustained pressure at the DMZ."[8]

Only hours after this meeting ended, the North Koreans responded to the ROK raid. At 3:15 a.m. on 2 November, an enemy squad ambushed an eight-man patrol from the U.S. 2d Infantry Division. Two American four-man squads had combined after one of their radios became inoperative. As the group moved under the light of a full moon, they walked into a trap. North Korean troops quietly marched parallel to the Americans, swung in front of them, set up a hastily prepared position, and then began throwing grenades and firing on the Americans. Explosive fragments tore forty-eight holes into Private First Class [redacted] b6 knocking the unconscious man down a hill. The patrol fought back, but the North Koreans cut the group apart. The noise of the gunfire was heard back at the patrol's base, and a motorized unit responded.[9]

As the relief patrol approached, the North Koreans began stripping the American bodies of ammunition, weapons, and souvenirs. Covered

7. General Charles H. Bonesteel III to Joint Chiefs of Staff, 3 November 1966, Korea Cables vol. 3, box 255, Korea Country File, National Security File, LBJL.

8. "Meeting Between President Johnson and President Park (with staffs), in Seoul, November 1, 1966," 7 November 1966, Asian Trip October 17–2 November 1966, box 48, Appointment File [Diary Backup], LBJL.

9. Jenerette, "The Forgotten DMZ," 35–36, 43; Bolger, *Unfinished War*, 37–39; *Washington Post*, 4 November 1966; *St. Louis Post Dispatch*, 2 November 1966; U.S. Ambassador to Korea Winthrop G. Brown to Secretary of State, 2 November 1966, Korea Cables vol. 3, box 255, Korea Country File, National Security File, LBJL.

in blood at the bottom of a hill, Bibee could hear the North Koreans talking as they moved among the dead. "One of them came up and shined a light in my face—a red light," he later told reporters. "He shined it down on my wrist and he jerked my watch off. I played like I was dead," he explained. "The only reason I'm alive now, is because I didn't move." After pillaging the bodies, the North Koreans dragged their dead and wounded from the scene. When the motorized patrol arrived, Bibee was the sole survivor. Seven Americans and one Korean soldier on augmented duty with the patrol were dead.[10]

When the President woke in the morning, Bonesteel briefed him and Secretary of State Dean Rusk on the attack. He also informed them of the South Korean strike into the North.[11] Since the ambush was the first attack on American troops and came during Johnson's trip to Korea, it was the lead story in newspapers across the United States. Several papers ran banner headlines. The *Seattle Post-Intelligencer* ran its headline at the top of the page, even above its masthead. According to the editorial board of the *Washington Post,* the ambush was "another warning that no reliance can be put on any arrangements with Asian communism that are not self-enforcing or buttressed by power."[12]

The United States responded with a public relations offensive. The Army let Bibee talk to reporters after he spent two days in the hospital. That same day, the Army announced that one of the dead soldiers was being posthumously nominated for the Medal of Honor. On 5 November, at a previously scheduled meeting of the military armistice commission at the village of Panmunjom, Major General Richard G. Cicolela delivered a stern warning to the North Koreans. "Make no mistake. The path of self-destruction that you have toed is leading toward more bloodshed. The responsibility for whatever course may develop from continued acts of hostility will rest clearly on your side." The General intended for these remarks to convey a strong and firm warning, while avoiding specific threats. "The United Nations command will not shirk its duties under whatever conditions exist. Your side is now traveling on a collision course. My mission is to stay at this table until you understand the gravity of the present situation." When the North Korean representatives argued that no engagement had occurred, Cicolela offered to fly them to the location and let them inspect the site on their own. A helicopter then

10. Brown to Secretary of State, 2 November 1966, Korea Cables vol. 3, box 255, Korea Country File, National Security File, LBJL.

11. Bonesteel to Joint Chiefs of Staff, 3 November 1966, ibid.

12. *Chicago Tribune,* 2 November 1966; *Washington Post,* 2 and 3 November 1966; *St. Louis Post Dispatch,* 2 November 1966; *Seattle Post-Intelligencer,* 2 November 1966; Baltimore *Sun,* 2 and 3 November 1966.

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landed at Panmunjom. The North Koreans declined the flight.[13] Cicolela had outplayed the communists in the propaganda arena.

President Johnson also joined the public relations offensive. He said nothing about the attack when he left Korea, or when he arrived in Alaska. He did make some remarks when his plane landed at Dulles International Airport outside Washington, D.C., on 2 November (3 November in Korea). He said the seven dead Americans were killed doing their duty to keep others free: "They died because there are men in this world who still believe that might makes right. They use force. They won't let other people live in peace." Two days later at a White House press conference, his comments were sharper. He called the ambush "totally unjustified murder." Johnson, however, ended his remarks with words of restraint: "The United States of America does not plan to violate the terms of [the] armistice."[14]

These gestures and statements were directed toward several different groups. The North Koreans were one, and the American public was another. South Korea, however, was the most important audience. With two ROK Army divisions and the bulk of the U.S. Army fighting in Vietnam, the last thing Americans wanted was a second front or a rear guard action on the peninsula. The United States had to make it clear to the South Koreans that it would stand with them in this moment of crisis, but the Americans also had to restrain their allies from escalating the situation.

North Korean attacks on South Korean and American troops continued after the 2 November ambush. There were, however, few attacks in the winter months, when the bitter cold and the lack of foliage for cover made combat operations difficult. All told, there were a total of forty-two incidents in 1966. In March and April 1967, when the temperature increased, the attacks started again. The engagements in the spring were small and involved lightly armed patrols, but grew in size and intensity in the summer.[15] This seasonal pattern held throughout the Quiet War.

13. The soldier in question did not receive the Medal of Honor, and procedures for nominating service personnel for this decoration were later changed to prevent premature disclosures such as this one. *Washington Post*, 4 and 5 November 1966; *New York Times*, 5 November 1966; Brown to Secretary of State, November 2, 1966, Korea Cables vol. 3, box 255, Korea Country File, National Security File, LBJL.

14. Remarks at Dulles International Airport Upon Returning from the Asian-Pacific Trip, 2 November 1966; The President's News Conference, 4 November 1966, *Public Papers of the Presidents of the United States: Lyndon B. Johnson, 1966*, vol. 2 (Washington: GPO, 1967), 1303–4, 1320.

15. Military Armistice Commission (MAC) to Joint Chiefs of Staff, 27 January 1968, Korea-Pueblo Incident Military Cables vol. 1, box 263–264, Korea Country File, National Security File, LBJL.

The frequency and intensity of these incidents exploded in 1967, expanding to include encounters in the air and on the water. North Korean jets crossed into South Korean airspace. North Korean shore batteries fired on and sank a South Korean ship in January. The ROK Navy sank several ships attempting to land infiltrators in April. Two ship-to-shore firefights, one in the South and one in the North, followed later that year. In the summer months North Korean units forced the residents of small, southern villages to attend political indoctrination meetings. In August North Korean artillery fired on a South Korean army barracks, and communist commandos blew up a train well south of the demilitarized zone. Amphibious assaults occurred near depots that stored nuclear weapons. "Boy, this was an eye-opener as to what you could do with this porous [guerrilla] warfare," Bonesteel observed. The U.S. Army quickly built heavy bunkers for the storage of these weapons, which had several layers of chain link fences to prevent the North Koreans from destroying them with shoulder-launched missiles. Observers paying close attention realized the situation in Korea was becoming more and more daunting. "The sun never sets on the danger spots on which the Johnson administration has to keep a wary eye," declared the editorial board of the *New York Times*.[16]

Korea had become a combat zone. "There's a war here, too," a soldier from California told a newspaper reporter. The U.S. Joint Chiefs of Staff agreed. The Chiefs quietly approved a request to classify the area north of the Imjin river and south of the DMZ as a hostile fire zone. American troops serving in Korea were made eligible for combat medals and awards, although the criteria for awarding these decorations were stricter than those for troops serving in Vietnam. As a result, unit commanders created unauthorized combat badges to recognize service in Korea. The 7th Infantry Division designed a decoration similar to the official Combat Infantryman Badge (CIB). The division badge incorporated a bayonet and the division patch in the center of a wreath, instead of the horizontal infantry musket.[17] In 1968, the regulations for the official awards were revised and made less stringent.[18]

16. *New York Times*, 13, 20, and 21 January; 2 February; 6, 13, 17, 20, and 29 April; 22 and 28 May; 2 and 30 June; 4, 5, 15, 16, and 25 July; 11, 13, 21, 23, and 29 August; 14 September (all dates in 1967); MAC to Joint Chiefs of Staff, 27 January 1968, Korea-Pueblo Incident Military Cables vol. 1, box 263–264, Korea Country File, National Security File, LBJL; Gen. Charles H. Bonesteel III oral history, 353, Senior Officers Debriefing Program, U.S. Army Military History Institute (hereafter referred to as USAMHI), Carlisle Barracks, Carlisle, Pa.

17. *New York Times*, 29 January 1968; Jenerette, "The Forgotten DMZ," 40.

18. Bolger, *Unfinished War*, 76–77.

American soldiers found duty difficult in the demilitarized zone, with its ever-present danger. "It's a terrible mixture of boredom and dodging bullets," a sergeant remarked. In the Quiet War the North Koreans had the initiative, picking the time and locations of engagements, which the Americans found particularly frustrating. "At night when you hear a can rattling or an animal moving you think this is it—they're coming across," another noncommissioned officer said. American and South Korean troops soon began initiating combat operations, rather than waiting to be ambushed. According to reports sent to the White House, UN Command troops would often fire on North Korean patrols before they crossed the military demarcation line.[19]

As difficult and dangerous as the Quiet War was for the soldiers fighting and dying in the DMZ, it remained a minor, but troubling issue for the United States. Vietnam was the major American concern in Asia at the moment, and the Republic of Korea had been extremely supportive of that effort, sending two army divisions to Vietnam in 1965 and 1966. These units were the largest allied military commitment to Vietnam and quickly proved themselves able fighters. In a speech to one division, General William C. Westmoreland, commander of American troops in Vietnam, commented, "Perhaps the best compliment to your effectiveness comes from the North Vietnamese Army and the Viet Cong by their hesitancy to engage you in battle. You have earned a reputation among communist forces as men to fear, respect . . . and avoid."[20] The United States underwrote much of the expense for these Korean soldiers, just as it did for the rest of the ROK Army. These troops cost less than American ones and helped reduce the political burden the Johnson administration faced each time it sent more military units to Vietnam. In December 1967, and in the first weeks of 1968, repeated American efforts to get a third Korean division in Vietnam were beginning to produce results. President Park met with Johnson while the two were in Canberra, Australia, and agreed to send an additional light division. The

19. *New York Times*, 29 January, 29 September 1968; Bonesteel to AIG, 27 January 1968; Bonesteel to AIG, 28 January 1968, Korea-Pueblo Incident Military Cables, vol. 1; Ambassador William Porter to Secretary of State Dean Rusk, 12 February 1968; Porter to Rusk, 13 February 1968; Porter to Rusk, 18 February 1968, Korea-Pueblo Incident Military Cables, vol. 12, box 263–264, Korea Country File, National Security File, LBJL.

20. Robert M. Blackburn, *Mercenaries and Lyndon Johnson's "More Flags": The Hiring of Korean, Filipino, and Thai Soldiers in the Vietnam War* (Jefferson, N.C.: McFarland, 1994), 31–66; Brian VanDeMark, *Into the Quagmire: Lyndon Johnson and the Escalation of the Vietnam War* (New York: Oxford University Press, 1991), 109; General Earle G. Wheeler to Johnson, 17 October 1968, Vietnam Allies 5D(3), box 91, Vietnam Country File, National Security File; "General Westmoreland's Farewell Address to ROK 9th Division," 21 May 1968, Korean Speech, box 17, Papers of William C. Westmoreland, LBJL.

United States accepted a Korean proposal that civilians workers be given the assignments of noncombatant service troops, who would then be replaced with combat troops. With this personnel maneuver, Korea could introduce another division without significantly increasing the total number of its military personnel in Vietnam. In January 1968, American and Korean negotiators were beginning to work out the details of this arrangement. The goal for the arrival in Vietnam of the new ROK Army division was March, just two months away.[21]

North Korean actions quickly scuttled this agreement. On Thursday, 18 January, the thirty-one men of the 124th Army Unit, 283rd Army Group, North Korean People's Army crossed over the military demarcation line and silently passed through an American-monitored sector. The group traveled only at night, keeping to mountain ridges. Each man in this unit was an officer in his mid-twenties who had been training for this mission for two years. These commandos were well armed with grenades, automatic weapons, and explosives. According to Bonesteel, the squad was "loaded to the gills." As they traveled south, the commandos ran into a group of woodcutters. Instead of killing the men, the commandos gave them an indoctrination speech, telling them that the North Korean Army was preparing to come south, unify the country, and rescue their southern brethren from their American exploiters. The timber men went straight to the police when the commandos finished their session. The ROK Army quickly sent out search-and-destroy missions, but the North Koreans used intercepted radio transmissions to dodge the patrols and reach the outskirts of Seoul. A survivor later said infiltrating the South was quite easy.[22]

The target of the raid was the Blue House, the official residence of President Park. The mission was simple: assassinate Park. The unit had practiced their raid for two weeks at a replica of the executive mansion. The group would break down into six squads when they reached their target. Two would attack the guard houses; another two would strike the mansion itself; and the last two teams would destroy the staff offices and procure automobiles for their withdrawal. A secondary target was the U.S. embassy. On 21 January, a thousand yards short of their objective, a suspicious police officer stopped the commandos and quickly exposed the North Koreans. The commandos killed one policeman and retreated as a running firefight broke out in the middle of Seoul.[23]

21. William P. Bundy to Johnson, 16 April 1968, Vietnam Allies 5D(3), box 91, Vietnam Country File, National Security File, LBJL.

22. Bonesteel oral history, 339–40, MHI; *Chosun Ilbo*, 23 January 1968; MAC to Joint Chiefs of Staff, 27 January 1968, Korea-Pueblo Incident Military Cables vol. 1, box 263–264, Korea Country File, National Security File, LBJL.

23. Ibid.

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The government reacted forcefully, imposing a dusk-to-dawn curfew for the area north of Seoul; the ban lasted from 10 P.M. to 4 A.M. in the capital city itself. The former general in Park Chung-hee came to the fore as he directed the pursuit of the commandos from the Ministry of National Defense. The North Koreans split into small groups as they fled into the mountains north of Seoul. An alerted civilian population made hiding difficult. Reports from civilians helped American and South Korean patrols track down the remnants of the 124th Unit. One North Korean broke into a house demanding food from a terrified housewife. Having finally tasted white rice, the commando went into another room and shot himself. The woman ran away and brought back the police. Second Lieutenant Kim Shin-jo, another member of the 124th Unit, was more fortunate. The commander of the ROK patrol that cornered Kim noticed the southern accent that Kim had inherited from his southern-born parents. His speech probably made him a valuable asset to 124th Unit, making it easier for the group to pass themselves off as southerners. As it turned out, the inflection of his voice saved his life. The South Korean officer was from the same village as Kim's parents, walked out in the open to talk with him, and convinced him to surrender. Kim was the only member of the infiltration team taken alive. A few made it back across the DMZ, but most were killed in isolated exchanges of gunfire with South Korean and American patrols.[24]

The day after his capture, Lieutenant Kim was the focus of a press conference, which only exacerbated the differences between the South Koreans and their American allies. Still dressed in the gray jacket and black pants he wore when he was captured, Kim sat in a chair with his hands cuffed behind his back throughout the entire interview. He explained the purpose of the raid and the training he received, while South Korean officials showed off the weapons they had taken from Kim and his dead comrades. American officials watching the conference noticed Kim's accent, and unaware of the nature of his surrender, suspected that he was a South Korean double agent and that their allies were trying to start another war.[25]

A day later North Korea scored a major coup, when it captured the USS *Pueblo*. The North Korean Navy surrounded and then boarded the ship, while it was sailing off the eastern coast of the peninsula on a mission to collect electronic signal information. This incident was the first

24. *Chosun Ilbo*, 23 and 25 January, 1968; *St. Louis Post Dispatch*, 22 January 1968; *New York Times*, 27 January 1968; Porter to Rusk, 24 January 1968, Folder: 1/1/68, Box 2258, File 33-6, Central Foreign Policy Files, 1967–69, Record Group (RG) 59, National Archives, College Park, Maryland (hereafter referred to as NA).

25. *Chosun Ilbo*, 23 January 1968; Vice Admiral John V. Smith oral history, 428–31, Naval Historical Center, Washington Navy Yard, Washington, D.C. I am indebted to Mitch Lerner for alerting me to the existence of this oral history.

time in 150 years that a foreign foe had captured an American ship. Clark Clifford, the new Secretary of Defense, observed that the news of the *Pueblo* nearly broke the will of President Johnson, who thought the seizure of the ship was a communist effort to overextend American resources.[26]

A number of other American observers realized these incidents in Korea had just made American foreign policy in Asia much more complicated. An editorial in the Baltimore *Sun* noted, "The one thing sure is that they serve as a sharp reminder that Vietnam is not the only place that has to be watched in Asia and elsewhere, and not the only region where a deeper American involvement might suddenly be required." Commenting on the Blue House raid, the editorial board of the *Washington Post* noted, "There can be little doubt that North Korea is ready to accept the risk of another war."[27]

American officials were particularly worried that South Korean leaders would initiate a second Korean war in retaliation for these attacks. Long before the Blue House raid in January 1968, President Park was on record favoring strong retaliatory strikes. On 16 September 1967, Bonesteel briefed Park and National Defense Minister Kim on DMZ infiltrations. In a presentation in both English and Korean that took over an hour, Bonesteel covered the enemy threat, conventional and subversive; allied reaction to the DMZ incidents and North Korean guerrilla activity in the interior of South Korea; and developments and responses expected to occur in the future. Park listened and then remarked that the UN Command's response was strong, but doomed to fail; as long as the allies maintained a defensive posture, the attacks would continue. A former division commander on the DMZ, Park could speak with some expertise. According to an American summary of his statement, he insisted that "whenever the North Koreans violate the armistice they must be made to pay by retaliation." Park said if something were not done, the Korean people would demand action. Although he stated that the ROK Army would not move in secret or attempt to undermine Bonesteel's operational authority over Korean troops, his words had a hollow ring, given that the ROK Army raid in 1966 had been taken without Bonesteel's knowledge. The general warned Park that his orders were to protect the south and enforce the armistice. The UN Command gave the Republic of Korea a legitimacy in international relations that North Korea did not enjoy, but unilateral action would only discredit the UN Command. Park retreated a bit. He said if the U.S. government failed to

26. Clark Clifford, *Counsel to the President: A Memoir* (New York: Random House, 1991), 466.

27. Baltimore *Sun*, 24 January 1968; *Washington Post*, 24 January 1968.

grant Bonesteel the authority to wage small-scale retaliatory actions, the attacks would continue.[28]

The Blue House Raid and the *Pueblo* incident only strengthened the urge to respond. On 24 January 1968, Ambassador William Porter met with an enraged Park. The President, in Porter's words, "vehemently" insisted on action. He suggested an allied strike against either the base of the commando unit that conducted the Blue House raid, or the air and naval stations along the east coast. Park said the ROK Army would wait before acting, but retaliatory raids were inevitable. "I think we have what we want from him in the way of assurance," Porter reported in a cable to Washington, "but if there is another incident all bets are off."[29] South Korean public statements underscored Porter's comment. Park warned, "There's a limit to our patience and self restraint." Foreign Minister Choi Kyu-ha added, "The end of the *Pueblo* incident won't solve the Korean Crises."[30]

In the United States, the primary concern remained Vietnam rather than Korea. In nationally televised remarks on the Quiet War, Johnson made this point clear. According to the President, North Korea was trying to intimidate the South: "These attacks may also be an attempt by the communists to divert South Korean and United States military resources which together are now successfully resisting aggression in Vietnam." Agreeing with him, the editorial board of the *New York Times* declared that the raids were an effort to keep Korea from sending more troops to Vietnam: "South Korea's Foreign Minister may not have been wrong in his warning that the *Pueblo* incident is less important than the infiltration across the 38th Parallel. A price is being paid for South Korean involvement in the Vietnam war."[31]

With time, the sentiment among southern leaders grew stronger. Bonesteel and Porter met with Prime Minister Chung Il-kwon, Foreign Minister Choi, and National Defense Minister Kim. The Koreans warned the Americans that they were planning retaliatory measures. If there were another major infiltration, ROK armed forces would respond. In a report to the State Department, Porter dismissed this warning, asserting that Park was in control and favored a measured policy of restraint. Porter nevertheless noted that "at this point ROKs need careful watching." Two days later, after a lengthy meeting with the South Korean president which he later characterized as a "tirade," Porter realized his

28. Cable from Ambassador Porter, 19 September 1967, Korea Memos and Cables vol. 5, box 255, Korea Country File, National Security File, LBJL.

29. Porter to Rusk, 24 January 1968, ibid.

30. *New York Times*, 4 February 1968.

31. *New York Times*, 3 February 1968; "The President's Address to the Nation: The Situation with North Korea," 26 January 1968, *Public Papers of the Presidents of the United States: Lyndon B. Johnson, 1968*, vol. 1 (Washington: GPO, 1970), 77.

assessment of Park was wrong. Park told the ambassador that the South did not want another war, but could no longer remain "passive" in the face of continued northern raids. Park told Porter that a retaliatory strike would likely start another war in Korea, and American and Korean forces should begin preparing for the coming conflict. "Foregoing indicates pent-up emotions of ROK president at this point and he gave me two and a half hours of it," the ambassador noted. After returning to the embassy, he advised that the United States had to do something about Park: "On most important matter of restraining ROKs, we may well be at point where we should repeat injunction to Syngman Rhee who at one time also felt need to go north. There is enough danger now without more provocation from NKs [North Koreans] but situation will become very much worse if that happens."[32]

Knowing the importance the Johnson administration placed on Vietnam, Porter urged in another cable that the United States delay on the issue of a third ROK Army division. The ROK Joint Chiefs of Staff had just asked Bonesteel to begin planning for the return of the Korean units currently fighting in Vietnam. The embassy staff in Seoul believed this was a normal request for contingency planning, but called for a cautious response: "For U.S. to press ROKs at present juncture might well result in decision against dispatch, which remains quite reas[ona]ble in my opinion provided there is a satisfactory outcome to *Pueblo*/North Korean armistice violation problem."[33]

Back in Washington, officials were equally concerned about events in Korea and their impact on troop deployments for Vietnam. On 7 February, General Earle G. Wheeler, Chairman of the Joint Chiefs, warned the National Security Council (NSC): "The problems in Korea are such that it will be hard to get the South Koreans to even send the light division they had promised."[34] A third Korean division became even more important when Westmoreland asked for additional troops in the wake of the Tet Offensive. This request forced a profound debate of American policy in Vietnam.[35]

Lyndon Johnson decided he would use foreign troops to avoid the domestic problems an increase would otherwise cause. "Let's assume we

32. Porter to Rusk, 6 February 1968, Folder: U.S.-ROKG Discussions, Box 2261; Porter to Rusk, 6 February 1968; Porter to Rusk, 6 February 1968, Folder 2.8/68, Box 2255, File 33-6, Central Foreign Policy Files, 1967–69, RG 59, NA.

33. Air Force Chief of Staff to subordinate commands, 29 January 1968, Korea-Pueblo Incident Military Cables vol. 1, box 263–264, Korea Country File; Porter to Rusk, 30 January 1968, Vietnam Allies 5D(3), box 91, Vietnam Country File, National Security File, LBJL.

34. Notes of the President's meeting with the National Security Council, box 2, Tom Johnson Notes of Meetings, LBJL.

35. Clifford, *Counsel to the President*, 476–86, 492–501.

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have to have more troops," the President said at another NSC meeting. "I think we should now tell the allies that we could lose Southeast Asia without their help. The first to tell is Park. Tell him that none of us want defeat. If it takes more men to avoid defeat let's get them." Former Secretary of Defense Robert McNamara said that this idea was unrealistic. "One thing we have to do is put more support in Korea," he said.[36]

Concern that the South might either take some retaliatory action on its own or recall its divisions from Vietnam prompted Johnson to send Secretary of the Army Cyrus R. Vance to Seoul. In the Oval Office the President told Vance that his mission was to convince Park that the United States was as concerned about the raids as it was about the seizure of the *Pueblo,* and that the Americans were determined to seek a peaceful resolution of the crisis. The United States would consult with the Republic of Korea before it took any military action and expected the same consideration in return. Vance was instructed to get the South Koreans to reaffirm that they would observe Bonesteel's authority as Commander in Chief United Nations Command. The South Koreans took a different view of the Vance mission. At a ROK Army dinner thrown in Vance's honor when he first arrived in Seoul, several Korean generals, lubricated with liquor, talked of the vengeance they hoped to exact in the coming march north. The next day, Vance, Porter, and Bonesteel had a conference with Park and his foreign policy team. In this meeting and in individual talks with Foreign Minister Choi and Prime Minister Chung, Vance stressed the common interests of the United States and South Korea, and pointed out the dangers and problems that would come with the actions Park favored. Park backed away from his earlier statement that strikes against the North would result in another war; however, he continued to favor retaliation. "While the President's sincerity was not in doubt," Porter commented, "it was evident that his specific proposals were the product of emotion rather than finished staff work."[37]

Vance had little to offer the South Koreans. "Raiders are nasty business, but no real threat to the stability of South Korea, since most of them are killed or captured," Samuel D. Berger, Assistant Secretary of State and former ambassador to South Korea, declared in a cable to Porter. The main concern in Washington was Vietnam. The State Department believed that any removal of Korean units from Vietnam would be a North Korean victory. "It follows from this thread of argument that

36. Tom Johnson to Lyndon Johnson, 9 February 1968, March 31 Speech, vol. 7, box 49, NSC Histories, National Security File, LBJL.

37. A note on a memo clearly states that President Johnson personally gave Vance his instructions. Memorandum: "Themes for the Mission of Cyrus Vance," 9 February 1968, Folder 2/8/68; Porter to Rusk, 12 February 1968 (five separate communications), Unmarked Folder, Box 2255, File 33-6, Central Foreign Policy Files, 1967–69, RG 59, NA; Bolger, *Unfinished War,* 74.

when things settle down in South Korea, Pa[r]k could win a moral and psychological victory over Kim Il-sung, show his contempt for Kim, and confidence in himself and his country, if he could announce that additional forces will be sent to Viet-Nam," Berger reasoned.[38]

The Vance mission and Berger's argument had little influence on the South Koreans. American hopes for a third division ended on 22 March, when the U.S. embassy in Seoul reported that Foreign Minister Choi had announced that South Korea would not send any more troops to Vietnam.[39] The United States would have to deal with the manpower issue without any Korean assistance. Three weeks later, as if to confirm the wisdom of the ROK decision, the North Koreans started their raids into the south again.[40]

The United States and South Koreans worked to make the attacks more difficult. The allies started using searchlights, electronic sensors, and night scopes. Army engineers also used heavy diesel plows and defoliants to remove much of the shrubbery along the military demarcation line, making it harder for enemy troops to hide and ambush American and South Korean patrols. Bonesteel ordered the construction of a chain-link fence across the DMZ. While officers and officials in the Pentagon on the other side of the Pacific dismissed the fence as "Bonesteel's Folly," the General defended the barrier. "Damned if it didn't play a very real and useful role," he said. "It was hard to get through one way or the other without leaving traces." Engineers also planted buckwheat fields in front of the Bonesteel fence. The white flowers of this grain made it easier for night scopes to detect the thermal signatures of humans. The ROK Army electrified portions of the chain link fence, but Bonesteel thought little of this effort after the fence electrocuted several South Korean soldiers. "I figured that the best counter-infiltration devices were the eyes, ears and brains of the G.I.," Bonesteel remarked.[41]

The Quiet War continued after Lyndon Johnson left office in 1969. The new President, Richard M. Nixon, inherited a dangerous situation. The North Korean attacks resumed again after the spring thaw.[42] In the early morning hours of 15 April, the North Koreans shot down a U.S.

38. Samuel D. Berger to Embassy in Seoul, 12 February 1968, Unmarked Folder, Box 2255, File 33-6, Central Foreign Policy Files, 1967–69, RG 59, NA.

39. Porter to Rusk, 22 March 1968, Korea-Pueblo Incident Cables vol. 2, box 261–62, Korea Country File, National Security File, LBJL.

40. *New York Times*, 14, 18, 20, 22, 23, 28, and 30 April; 1 and 15 May; 26 June; 13, 23, and 31 July; 14, 15, 20, 25, 27, 29, and 31 August; 3, 7, 20, 21, 26, and 28 September; 5, 8, 13, 18, 20, 26, and 29 October; 5 November 1968.

41. Bonesteel oral history, 332–34, 336–39, USAMHI; Jenerette, "The Forgotten DMZ," 40–41.

42. *New York Times*, 8 and 25 April; 21, 24, and 26 May; 6 June; 13, 22, and 27 July; 11 August; 1 September 1969.

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Navy EC-121 electronic reconnaissance aircraft off the east coast, killing all thirty-one aboard. This attack caused the largest loss of American life in Korea since the end of the war in 1953. The plane was on a routine mission with orders to fly no closer than forty nautical miles to the North Korean coast; it was ninety miles away when it disappeared from radar screens. Nixon was informed about the attack that morning. In his memoirs, Henry A. Kissinger, the National Security Advisor, called it the first major crisis of the new administration. "We were being tested, and therefore force must be met with force," Nixon declared. Given the rhetoric of the 1968 presidential election, White House Chief of Staff H. R. "Bob" Haldeman noted in his diary that the "P[resident] almost has to retaliate in some fairly strong fashion."[43]

Haldeman's diary makes it clear that the issue dominated the next two days. Kissinger contends that the administration considered how to react to the downing of the plane at a "leisurely pace," which was another carryover from campaign speeches. Nixon had blasted Johnson for his crisis mentality, charging that he thought he could manage world affairs from the Situation Room in the White House basement. Nixon, on the other hand, claims he delayed, hoping that someone, even the North Koreans, might rescue some survivors.[44]

Two factions quickly developed in the administration over how to respond. Kissinger, his staff, Vice President Spiro T. Agnew, Haldeman, and Nixon formed one group that favored military retaliation. Secretary of State William P. Rogers and Secretary of Defense Melvin R. Laird opposed this option, advised caution, and suggested—oblivious of events of the past two and a half years—that the downing might be an isolated incident. The options that emerged were either to launch a retaliatory strike against North Korean air bases, or to continue the reconnaissance flights with armed escort. "Neither option was ideal," Nixon admitted. Other responses such as bombing Cambodia or making a simple protest were quickly ruled out. On 16 April, after two long meetings of the NSC, Haldeman recorded in his diary: "Probably will bomb the North Korean airfield." The ramifications of any decision were quite high. Haldeman and Kissinger believed a show of strength would galvanize the public and impress foreign officials with American resolve, making it easier to negotiate an agreement to end the war in Vietnam. The White House Chief of

43. Richard Nixon, *RN: The Memoirs of Richard Nixon* (New York: Grosset & Dunlap, 1978), 382–83; Henry Kissinger, *White House Years* (Boston: Little, Brown, 1979), 313–16; 16 April 1969 entry, H. R. Haldeman, *The Haldeman Diaries: Inside the Nixon White House—The Complete Multimedia Edition* (Santa Monica, Calif.: Sony Electronic Publishing, 1994).

44. Nixon, *RN*, 382–83; Kissinger, *White House Years*, 313–19; 16 and 17 April 1969 entries, Haldeman, *The Haldeman Diaries*.

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The North Korean attack on the EC-121 grabbed the attention of the U.S. public, but as this cartoon shows many individuals had little awareness that the incident was part of a larger confrontation on the peninsula. (Paul Conrad in the *Los Angeles Times*, 17 April 1969. Copyright, 1969, Los Angeles Times Syndicate. Reprinted by permission.)

Staff also admitted that the strike was extremely risky and could easily result in a second Korean war.[45]

A previously scheduled press conference for Friday, 18 April, was the deadline for a decision. Korea dominated the event. In the course of the conference, Nixon announced, "I have today ordered that these flights

45. Nixon, *RN*, 382–84; Kissinger, *White House Years*, 313–19; 16 and 17 April 1969 entries, Haldeman, *The Haldeman Diaries*.

be continued. They will be protected. This is not a threat; it is simply a statement of fact."[46]

Even after the press conference, Nixon continued to consider a retaliatory strike. After the press conference and some ceremonial duties in the White House Rose Garden, the President talked individually with Kissinger and Haldeman. According to his Chief of Staff, Nixon weighed alternatives and considered the ramifications of a retaliation. "No decision, but I'd bet now against Korea strike, reversal of last night's view," Haldeman noted. Kissinger privately polled Rogers, Laird, and Richard M. Helms, director of the CIA. All three opposed an attack. A meeting on Saturday resolved the issue. After Rogers and Laird said they would quit if Nixon bombed North Korea, the President relented. In private, he railed against Rogers, Laird, and Helms, threatening to replace them at the first opportunity. For the time being, though, all he could do was order a carrier task force to sail off the eastern coast of North Korea as a show of force.[47]

Nixon retained ambiguous feelings about his decision. He realized he had few options: "As long as we were involved in Vietnam, we simply did not have the resources or public support for another war in another place." Nevertheless, Nixon could never stomach the fact that he had few choices. He remarked to Kissinger, "They got away with it this time, but they'll never get away with it again." He later told General Alexander M. Haig that his handling of the crisis "was the most serious misjudgment of my Presidency, including Watergate."[48]

The downing of the EC-121 was the last major incident of the Quiet War. The North Koreans shot down an American helicopter in August and held the crew captive for three and a half months, but raids across the DMZ began to fade in number. The North Koreans ended the Quiet War for the same mysterious reasons they started the conflict. In 1970 the Nixon administration believed the peninsula was secure enough to remove the 7th Infantry Division, and informed the South Korean government of such an intention in July. The withdrawal started in 1971. The next year, after some American prodding, the two Koreas began holding talks on unification. Although the promise of these years would prove deceptive and false, the DMZ in the early years of the new decade was no longer the site of regular armed confrontations between small

46. Nixon, *RN*, 383–84; Kissinger, *White House Years*, 317–19.

47. Kissinger, *White House Years*, 320–21; 17 and 18 April 1969; 4 May 1972 entries, Haldeman, *The Haldeman Diaries*.

48. Nixon, *RN*, 384; interview with Alexander Haig, 14 January 1986, quoted in Nguyen Tien Hung and Jerrold L. Schecter, *The Palace File* (New York: Harper & Row, 1986), 31; 4 May 1972 entry, Haldeman, *The Haldeman Diaries*; *New York Times*, 8 and 25 April; 21, 24 and 26 May; 6 June; 13, 22, and 27 July; 11 August; 1 September 1969.

units. Moments of crisis would visit the Korean peninsula again and again in the following decades, but these dangerous encounters were different from the Quiet War, involving neither intelligence operations or fears of another northern invasion. In neither type of incident were the fatalities as extensive as those suffered during the Quiet War.[49]

Americans had every reason to be grateful when the Quiet War ended. The North Korean raids had strained the U.S. alliance with the Republic of Korea and threatened to explode into a full-fledged crisis, or even a second Korean war. The motivation for the incursions remains unclear, although it seems that the North hoped to use the attacks to induce an insurrection in the South. While the reasons for this undeclared border war remain uncertain, the impact of these military confrontations is quite clear. The raids forced South Korea to cancel plans to send another ROK Army division to Vietnam at a critical juncture in that conflict, complicating even further a confusing war for the United States. This fact highlights a basic truth about coalition warfare—no matter how close the relationship, nations have differing reasons for entering into an alliance and these reasons can often be at odds with the interests of their partners. Events in Korea during the late 1960s certainly prove this point.

49. *Philadelphia Inquirer,* 3 December 1969; John K. Singlaub with Malcolm McConnell, *Hazardous Duty: An American Soldier in the Twentieth Century* (New York: Summit, 1991), 359–60; 29 October 1972 entry, Haldeman, *The Haldeman Diaries*; *New York Times,* 8 and 25 April; 21, 24, and 26 May; 6 June; 13, 22, and 27 July; 11 August; 1 September 1969; 9 July 1970; Baltimore *Sun,* 14 August 1972; *U.S. News and World Report,* 17 July 1972; *San Diego Union,* 1 July 1972; *Time,* 17 July 1972. For an extensive study of these later confrontations, see Don Oberdorfer, *The Two Koreas: A Contemporary History* (Reading, Mass.: Addison-Wesley, 1997). At the end of his study, Bolger notes that the United States has participated in a number of military engagements since 1945. Only the Vietnam War lasted longer than the Quiet War, and the fatalities of this confrontation rank fourth for this period behind the Korean War, the Vietnam War, and the American intervention in Lebanon. For a comparison of the casualties between the Quiet War and the later skirmishes, see Bolger, *Unfinished War,* 112, 125.

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Eff 10/1/65
cancelled by 4150.7, 7/27/70

NUMBER 4150.7
DATE July 23, 1964

Department of Defense Instruction

ASD(I&L)

[redacted] 66
1 77156
see Parker, 77471

SUBJECT Pest Control Operations at Military Installations

Refs.: (a) DoD Instruction 4165.9, "Program for Management of Real Property Maintenance Activities," June 23, 1955
(b) DoD Directive 4100.15, "Commercial or Industrial Activities," March 5, 1963
(c) DoD Instruction 4100.33, "Commercial or Industrial Activities, Operation of," March 8, 1963
(d) DoD Instruction 4150.7, "Insect and Rodent Control," June 7, 1955 (hereby cancelled)

I. PURPOSE

This Instruction supplements references (a) and (b) by establishing standards for (1) the safe and efficient control of animal reservoirs and vectors of disease and of pests that cause discomfort to personnel or damage materiel, and (2) the prevention of excessive pesticide contamination of military installations or adjacent areas.

II. APPLICABILITY

The provisions of this Instruction apply to the Military Departments and cover entomology and pest control services at all military installations in the United States and overseas.

III. CANCELLATION

Reference (d) is hereby superseded and cancelled.

IV. STANDARDS

A. Supervision

Military pest control shall be directed by professional personnel to assure that control programs are carried out with maximum safety and efficiency.

B. Control Operations

Control operations at military installations shall provide for the supervision, execution, and evaluation of all measures for the safe and efficient control and quarantine of insects, rodents, and other pests. These operations shall be conducted as a scheduled part of the installation maintenance program, and include the following:

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1. Surveillance inspections to determine the need for and effectiveness of control measures;
2. Establishment of construction and maintenance criteria for prevention of pests;
3. Drainage, clearing and control of vegetation for the elimination of pests;
4. Application of pesticides in buildings, on grounds, and as soil treatments;
5. Use of wood preservatives;
6. Fumigation and disinfesting of stored supplies;
7. Control of pests of grasses, ornamentals, and trees;
8. Control of pests affecting woodland and wildlife management programs;
9. Dispersal of pesticides from aircraft; and
10. Maintenance and safe storage of pesticides and pest control equipment.

C. Materials and Equipment

Only standard issue pesticides and equipment shall normally be used in pest control operations. Pesticides and/or equipment proposed to be substituted for those listed in the Federal Supply Catalog shall be approved in accordance with instructions of the Military Department concerned.

D. Training

1. Training of operational personnel shall include:

   a. Safe storage, mixing, transportation and application of pesticides;
   b. Changes in techniques due to development of new and improved materials and equipment;
   c. Keeping of records of pesticides dispersed; and
   d. Related information.

2. A certificate shall be issued to operating personnel who successfully complete the required training.

E. Safety

1. Pesticides shall be dispersed, and other pest control operations shall be performed, only by or under the direct supervision of trained and certified personnel.

2. Protective devices such as masks, respirators, gloves, safety shoes, goggles and protective clothing shall be provided for all persons engaged in handling pesticides.

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3. Facilities for the safe storage and mixing of pesticides, decontamination of personnel, and the storage and the minor repair of equipment shall be provided.

4. Adequate provision for security of toxic pesticides during transportation shall be provided as necessary, e.g., special use vehicles, locked chests.

F. Records

Operation and costs records will be maintained in sufficient detail to provide the necessary information pertaining to the use of pesticides at military installations, to insure adequacy and safety of the program.

G. Contractual Services

1. Pest control operations accomplished on a contract basis shall be in accordance with the policy and criteria established in references (b) and (c). Examples of operations normally to be considered for contracts are:

   a. One-time fumigation of entire buildings, railway freight cars, or ships;
   b. Utilization of wood preservatives by pressure methods;
   c. One-time or sporadic application of pesticides to trees during pest outbreaks; and
   d. Anti-termite soil treatment in new military construction.

2. Contracts for pest control operations shall receive professional and technical review prior to approval. All work shall be performed under the supervision of certified personnel.

V. IMPLEMENTATION

This Instruction, and any changes thereto, shall be implemented by the Military Departments within 60 days after date of publication and, immediately thereafter, two copies of the implementing instructions shall be forwarded to the Deputy Assistant Secretary of Defense (Properties and Installations). Should a Military Department choose not to implement completely this Instruction, and any changes thereto, in a single document, a statement that full implementation has been accomplished and an outline of the method of implementation shall be furnished to the Deputy Assistant Secretary of Defense (Properties and Installations), accompanied by two copies of all implementing documents.

Thomas D. Morris

THOMAS D. MORRIS
Assistant Secretary of Defense
(Installations and Logistics)

~~CONFIDENTIAL~~

DECLASSIFIED
20 May 1976
from [illegible]

6.(C) Vegetation Control. Good fields of fire and fields of observation are essential to DMZ operations. Various methods including chemicals, mechanical devices and hand labor may be used to clear these fields. Each method is effective, but conditions and location will dictate which should be employed.

a. Chemical defoliants may be applied directly to plant growth in which case the plant which is treated is killed, but the soil is not contaminated to the extent that regrowth will not occur. Application is normally by spray in which case wind drift may cause undesired contamination in adjacent areas. The chemical can also be carried to other areas by streams and rivers and by watershed drainage due to rainfall. Defoliant application requires relatively small amounts of chemicals, costs on the average of $40 per acre, and would require at least two applications annually to be effective.

b. Plant growth may be killed at the roots through the application of chemical soil sterilants. These soil sterilants may be applied by spray or broadcast in granular form. The effect is relatively long lasting, up to 12 to 24 months. Spray application is subject to the full effect of wind drift while granular application is diffused to a lesser degree. Should heavy rains fall before the sterilants are absorbed by the soil, the problem of undesired contamination caused by run-off could be acute. Soil sterilants are more costly per application than defoliants, but their effects are longer lasting. Depending on the rate of application, an average cost would be $135 per acre.

c. A method of clearing equally effective as the application of chemical herbicides is by mowing or hand-cutting. This method eliminates the problem of undesired contamination. This method is relatively short lasting and would require tow or more cuttings per year. In the heavier types of vegetation, mechanical equipment ranging from a typical farm-type mowing cycle to the heavy duty bulldozer-attached Rome Plow may be used. Each would be more costly than hand-cutting which is by far the most economical, the average cost being about $3 per acre per cutting. There are certain areas where manpower cannot be utilized, for example, a minefield. In these areas chemical herbicides may be the only practicable method of clearing.

DOWNGRADED TO CONFIDENTIAL
IAW DoD DIR 5200.10

Extracted from EUSA Study, Analysis of DMZ and Contiguous Operations (U), VOLs I & II, 20 Dec 66. (SECRET) NOTE: REFERED TO AS THE "RICE REPORT."

DOWNGRADED AT 12 YEAR INTERVALS

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~~CONFIDENTIAL~~

a. (1) (C) Tests conducted by the 3d Brigade, 2d Infantry Division, favor use of a herbicide called TELVAR HONURO which can be applied by use of the Power-Driven Decontamination Apparatus. Other herbicides were considered either ineffective of creative of undesirable effects outside the area of interest.

(2) If the barrier is not mined, growth control can be accomplished economically by hand labor.

(a) The use of chemical herbicides may cause imagined or real damage to crops and aquatic wildlife outside the boundary of the barrier. Real damage may result due to drifting spray or surface run-off. Blame may be placed on the applier of herbicides even when damage is in fact due to other causes. Political repercussions may result in either case; as some of the rivers in the DMZ area flow from South Korea into North Korea.

(b) Growth control can be accomplished at a relatively low cost by hand labor. For the approximately 650 acres of the 2d Division barrier, the annual cost of application of TELVAR HONURO is estimated at $41,500 and approximately 5,000 man-hours. A Korean service contract is estimated to cost no more than $11,700 for six cuttings and one burning annually.

b. Tests are planned for spraying the wire with waste oil or diesel oil as a preservative. Results remain to be seen.

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IAW DoD DIR 5200.10

Extracted from EUSA Study, Analysis of DMZ and Contiguous Operations (U), VOLs I & II, 20 Dec 66. (SECRET) NOTE: REFERED TO AS THE "RICE REPORT."

DOWNGRADED AT 12 YEAR INTERVALS

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[Translation]

Final Report

SCIENTIFIC EVALUATION OF THE RESULTS OF THE THIRD EPIDEMIOLOGICAL STUDY ON DEFOLIANTS

December 11, 2006

The Korean Society for Preventive Medicine

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Document for Submission

Dear Minister of Patriots & Veterans Affairs,

We submit the "Scientific Evaluation of the Results of the Third Epidemiological Study on Defoliants" commissioned by your Ministry.

December 11, 2006

[redacted] b6

Chief Director of the Korean Society for Preventive Medicine

List of Members of the Scientific Evaluation Committee

Chairman

[redacted] Department of Preventive Medicine, College of Medicine, Dongguk University

Evaluation Committee

[redacted] : Department of Preventive Medicine, School of Medicine, Kyungpook National University

[redacted] : Department of Preventive Medicine, School of Medicine, GyeongSang National University

[redacted] : Department of Preventive Medicine, School of Medicine, Eulji University

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[redacted] : Department of Preventive Medicine, College of Medicine, Catholic University of Daegu

[redacted] : Department of Preventive Medicine, College of Medicine, Chosun University

[redacted] : Department of Preventive Medicine, College of Medicine, Cheju National University

[redacted] : Department of Preventive Medicine, College of Medicine, Hanyang University

[redacted] : National Cancer Center, Cancer Registration and Epidemiological Research Institute

[redacted] : Department of Preventive Medicine, College of Medicine, Dongguk University

[redacted] : Department of Preventive Medicine, College of Medicine, Konyang University

[redacted] : Department of Preventive Medicine, College of Medicine, The Catholic University of Korea

[redacted] : Department of Preventive Medicine, College of Medicine, Inje University

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[redacted] : Department of Preventive Medicine, School of Medicine, Ewha Womans University

Table of Contents

I. Grounds for Study and Study Objectives

In October 2006, the Ministry of Patriots & Veterans Affairs (the "Ministry") asked the Korean Society for Preventive Medicine (the "Society") to conduct a scientific evaluation of the "Epidemiological Study on Damages Caused by Defoliants," (the "Ohrr Study Report") commissioned by the Ministry and written by Professor [redacted] et al. of the Department of Preventive Medicine in the College of Medicine at Yonsei University. In 1997, the Ministry requested the Society to conduct a scientific evaluation of the "Epidemiological Study on the Adverse Health Effects of Defoliants on the Korean Army Dispatched to Vietnam," published by [redacted] et al. of the Graduate School of Public Health at Seoul National University. Also, the Ministry commissioned the Society to review the 2001 report of the "Epidemiological Study on Damages Caused by Defoliants," conducted by Professor [redacted] et al. of the College of Medicine at Yonsei University. The Society, therefore, followed the examples of 1997 and 2001 and created an academic committee with Professor [redacted] of the College of Medicine at Dongguk University as the chairman. The evaluation committee for the [redacted] Study was led by Professor [redacted] and consisted of fifteen academic committee members and experts of epidemiology and toxicology.

The purpose of this scientific evaluation of the [redacted] Study Report is to provide expert verification since the results of the Epidemiological Study on Defoliants would lend support for compensating those exposed to defoliants and garner international attention such as in the United States and in Australia, and thus require an investigation into the credibility of the Third Epidemiological Study Report on Defoliants. Therefore, the committee determined if the substance of the report was scientifically plausible and attempted to suggest supplemental research when necessary.

In order to comprehensively evaluate whether the content of the Third Epidemiological Study Report was medically and scientifically plausible, the committee members first examined the appropriateness of the selection of the subject matter of the study. The committee evaluated the substance of the study, namely the exposure index to defoliants, surveys, analyses of development of cancer and mortality rate, and analyses of the general population and the prevalence of diseases in that population. Second, the committee determined whether the methods for selecting study subjects, investigating, and analyzing statistics were appropriate. Third, the committee determined whether it was appropriate to infer a causal connection from the correlation between exposure to defoliants and development of diseases. Fourth, the committee examined the necessity of supplemental epidemiological research on defoliants and recommended policy proposals. The committee limited the review of American, Australian, and other international methods for recognizing defoliants to review of documents included in Chapter 8 of the Third Epidemiological Study.

The committee attempted to investigate the existence of additional diseases that called for compensation in addition to those diseases which are already being compensated. But, as in the Second Scientific Evaluation, the committee could not suggest any diseases because the causation between defoliants and diseases cannot be determined by obtaining results from one or two studies. In the future, it is a matter for the Expert Committee within the Ministry of Patriots & Veterans Affairs to review based on studies in Korea as well as in other countries.

II. Materials and Methods

Chapter 1. Study Materials

1. Review of Appropriateness of Study Subjects

A. Development of Exposure Index to Defoliants
B. Analysis of Dioxin in Blood and Validity of Exposure Index
C. Evaluation of Exposure through Surveys
D. Level of Exposure and Mortality
E. Level of Exposure and Development of Cancer
F. Exposure to Defoliants and Disease Prevalence

2. Review of Appropriateness of Each Study Method

A. Selection of Subjects
B. Survey Method
C. Statistical Analysis
D. Interpretation

3. Review of Appropriateness of Suggestions on Epidemiological Study on Defoliants

4. Content and Necessity of Additional Studies

Chapter 2. Study Methods

1. Individual Evaluation

A. Suggestion on Review Following Evaluation of Member Reports
B. Combination of Review Opinions and Suggested Opinions by Assigning Members to Each Chapter

2. Joint Conference

A. Collection of Review of Reports by All Members on Combined Opinions of Members and Chapters
B. Discussion of Reviewed Opinions in three Joint Conferences

3. Report Evaluation

The criteria for evaluating the report, which followed the example of the Paper Deliberation Standards of the Korean Society for Preventive Medicine, are as follows.

1. Is the hypothesis or study purpose described clearly?
2. Is the study method described properly?
3. Is the study method reasonable?
   - Is the selection of study subjects appropriate?
   - Is the number of study subjects appropriate?
   - Is the study method appropriate?
   - Is the subject for comparison reasonable?
   - Is the analysis method appropriate?
   - Is the discussion on the study method appropriate?
4. Is the presentation (tables and figures) of study results appropriate?
5. Were the study results driven by study findings?
6. Were the study results interpreted properly?
7. Is the discussion on the study results appropriate?
8. Were the sources up-to-date and cited appropriately?
9. Is it appropriate to add the diseases which the report highlighted as requiring extra attention to those diseases that qualify for defoliant compensation under law?
10. Are the recommendations for future studies appropriate?
11. What are the possible studies that could be conducted? Would they be feasible in Korea?
12. What are the policy recommendations?

III. Progress Report

1. Study Contract

○ On October 10, 2006, the committee entered into a service contract regarding the "Scientific Evaluation of the Results of the Third Epidemiological Study on Defoliants," ordered by the Ministry of Patriots & Veterans Affairs, with the Korean Society for Preventive Medicine (Chief Director: [redacted] b6).

○ The study period was 2 months, from October 10, 2006 to December 11, 2006. The evaluation committee consisted of the academic committee chairman who served as the evaluation committee chairman, and fifteen experts in epidemiology and toxicology including the academic committee members who served as the evaluating committee members.

2. First Conference

○ The committee distributed a copy of the results of the Third Epidemiological Study on Defoliants to individual committee members and reviewed the overall report and gathered individual committee member's opinions.

3. Second Conference

○ On October 27, 2006, all evaluation committee members including the committee chairman gathered in the Fall Academic Congress of the Korean Society for Preventive Medicine held in Kyungju Education and Culture Center and discussed their opinion of the report.

○ In order to review the report in detail, the committee formed teams of expert committee members and assigned them to chapters related to their fields of expertise, and designated one person as the individual in charge of facilitating an effective review process.

○ The committee discussed the future committee schedule in detail, and decided to share the content of the report on the Second Epidemiological Report.

4. Third Conference

○ On November 21, 2006, the Third Conference was held in the conference room of the Daejeon Division of the Korea Railroad Corporation.

○ Each chapter representative presented the review opinions gathered from each team,

and discussed this with other committee members.

5. Final Report (Proposal)

○ Based on the results of the Third Conference, each chapter representative gathered the opinions of the committee members by November 27 and drafted the final report.

6. Final Report

○ After each evaluation committee member had reviewed the final report (proposal), the committee prepared the final report.

IV. Results

Chapter 1. Introduction

1. Report Summary

A. The Vietnam War and Participation of Korean Armed Forces

The participation of Korean Armed Forces in the Vietnam War began with the dispatch of moving surgical hospitals and Taekwondo instructors in 1964. Korea dispatched combat troops in 1965, and by 1973 when Korean Armed Forces were withdrawn from Vietnam, a total of 320,000 soldiers had participated in the Vietnam War annually.

B. The Vietnam War and Defoliants

From 1962 to 1971, the U.S. Army utilized defoliants for strategic military purposes in Vietnam. The purpose of this strategy, referred to as Operation Ranch Hand, was to defoliate the jungle of infiltrated areas thereby reducing the food supply of North Vietnam.

The defoliants were named after the color of strips painted on the drum in which the defoliants were contained, and of these defoliants the largest amount sprayed was Agent Orange. The four main compounds of the defoliants were 2,4-D, 2,4,5-T, picloram, cacodylic acid, etc. However, the toxicity of these four chemicals has been reported to be low. Nevertheless, controversy over the toxicity of dioxins including 2,3,7,8-TCDD, which constitute the impurities from the production of 2,4,5-T, arose. Summarizing the study results up to the present, the committee can generalize that TCDD contributes to the development of cancer through processes such as enzyme activation, cell proliferation, cell destruction, and cell information exchange, etc. rather than posing genetic toxicity.

C. Korean Armed Forces' Participation in the Vietnam War and Use of Defoliants

Since 1968, Korean Armed Forces began to use defoliants in Vietnam supplied by the U.S. Army. Defoliants were sprayed using U.S. Air Force transport planes and helicopters or through Korean troop manpower. The amount of defoliants sprayed by Korean Armed Forces in the operation area is still unknown. Inferring from the data of the Capital Division and the 9th Division, the amount of defoliants sprayed by Korean Armed Forces is about 500,000 gallons, 2.5% of the total amount sprayed in the Vietnam War of approximately 20 million gallons.

D. Matters to be Considered in the Epidemiological Study of Korea on Damages Caused by Defoliants

In order to understand the causal relationship between defoliants and various diseases, there must be evidence of 1) the existence of a statistical relationship between exposure to defoliants and suspected diseases, 2) records of an increased risk of the likelihood that individuals exposed to defoliants would develop such diseases, and 3) occurrences that can biologically explain the relationship between exposure to defoliants and diseases, or evidence of other causal relationships.

All this must be preceded by the measurement of exposure to defoliants and also the identification of diseases resulting from exposure. Exposure to defoliants may be assessed by first equating participation in the Vietnam War with exposure to defoliants; second, by collecting objective data such as inferring the circumstances of the use of defoliants found in military records; third, developing an exposure index by looking at individual exposure experiences; and fourth, by measuring the internal body concentration level of dioxin congeners including TCDD. However, none of these methods can provide definitive results.

E. Study on Defoliants in Korea

Beginning in the 1990s when news of Vietnam War veterans from other countries having been exposed to defoliants and receiving compensation became known in Korea, issues regarding Vietnam War veterans and defoliants and the resulting negative health effects received attention from Korean society. Despite the existence of many international studies on defoliants and their related negative health effects, those that studied Koreans were very rare. In Korea, [redacted] published a document examination in 1993 and a report using preliminary epidemiological studies in 1996. [redacted] also published a study on the children of veterans in the Busan area. In the Second Epidemiological Study on Damages Caused by Defoliants conducted from 1998 and 2001, the committee endeavored to select a representative sample, and reviewed the correlation between defoliants and diseases using medical examinations, surveys, document reviews, etc.

F. The Third Epidemiological Study on Defoliants

It is difficult to ascertain the adverse heath effects of defoliants from the results of the First and Second Epidemiological Studies alone. Instead, long term studies/research should be conducted in Korea to monitor the relationship between defoliants and diseases as done in other countries. Additionally, while it is true that most of the policy decisions thus far have been formulated based on study results from foreign countries, it is imperative to investigate diseases which are more prone to develop in Koreans due to their unique characteristics, and such results should be reflected in policies regarding defoliants.

The limitations of the previous First and Second Studies called for a new epidemiological study to determine the relationship between exposure to defoliants and disease development in war veterans.

G. The Purpose of the Third Epidemiological Study on Defoliants

The purpose of the Third Epidemiological Study on Defoliants was to assess the correlation between exposure to defoliants and adverse health effects, and to provide a basis for compensation of Vietnam War veterans. The specific objectives of the study are as follows:

First, the compilation of data on diseases which are highly correlated with exposure to defoliants and dioxin; second, the development of an appropriate exposure index; third, the compilation of data on principal causes such as smoking, drinking, socio-economic level, etc; fourth, the close examination of causes of death to ascertain correlation between exposure to defoliants and death; fifth, the investigation into cancer development to determine correlation between cancer and exposure to defoliants; sixth, the investigation of the use of medical treatment to determine correlation between exposure to defoliants and adverse health effects; and seventh, the examination of diseases which are suspected to be correlated to defoliants in the surveys of the Second and Third Epidemiological Studies.

1) The Purpose of the Study in the First Year

The purpose was to develop an appropriate index of exposure to defoliants, and to compile data on confounding factors in assessing the correlation between exposure to defoliants and diseases.

2) The Purpose of the Study in the Second Year

The main goals were to develop an exposure index which is most applicable to Korean Vietnam War veterans, to review the status of confounding factors in assessing the correlation between exposure to defoliants and diseases, and to compile data to monitor the relationship between defoliants and diseases.

3) The Purpose of the Study in the Third Year

The purpose was to evaluate the correlation between exposure to defoliants and its adverse health effects through epidemiological investigation, and to provide a basis for compensation to Vietnam War veterans. The primary goals were to use data compiled over a period of two years to evaluate individual exposure levels of Vietnam War veterans and to utilize such exposure levels to probe into the relationship between exposure to defoliants and diseases.

2. Report Evaluation

A. The Vietnam War and Participation of Korean Armed Forces

The report serves as a good summary of the history of Korean participation in the Vietnam War.

B. The Vietnam War and Defoliants

While the report addresses the critique of the Second Report and provides a detailed description of the components of dioxin, the report does not sufficiently describe research results on the correlation between War veterans and defoliants.

C. Korean Armed Forces' Participation in the Vietnam War and Use of Defoliants

Some military units have records on spraying of defoliants while others lack such records. Instead of inferring an exposure index from units which did not maintain records, it is important to conduct supplemental analysis using documents only from those units which have preserved well-kept records.

D. Matters to Be Considered in the Epidemiological Study on Defoliant Damages Conducted in Korea

The report notes that the identification and measurement of exposure to defoliants and diseases resulting from such exposure is the most important yet most difficult matter to be considered in the Epidemiological Study Conducted in Korea on Damages of Defoliants. However, the substance of the report does not discuss the assessment of diseases, but is limited to the evaluation of the four types of exposure. The discussion on methods of evaluating exposure presupposes that all four methods are not entirely reliable, and explains the limitations of each method. Such disavow for the exposure evaluation methods in the introduction can prove to be self-contradictory since an exposure index is used as the important method for evaluating exposure in the later sections of the research. It would be good to briefly describe the method for evaluating exposure in the introduction before delving into the particulars of the research methods in the later sections.

E. Study on Defoliants in Korea

It is necessary to include a brief description on a substantial number of studies related to dioxin which have recently been published in Korea.

F. The Third Epidemiological Study on Defoliants

Since the main content of this section considerably overlaps with the aforementioned research on defoliants in Korea, it would be better to incorporate this section's contents into the preceding and subsequent sections.

G. The Purpose of the Third Epidemiological Study on Defoliants

The report asserts that the ultimate objective of the Third Epidemiological Study on Damages of Defoliants is to evaluate the correlation between exposure to defoliants and its adverse health effects through epidemiological study, and to provide a basis for the compensation of Vietnam War veterans. It would then be appropriate to include an explanation on the current compensation system (aftereffects/suspected aftereffects) and also on the causal relationship between exposure to defoliants and those diseases categorized as aftereffects and suspected-aftereffects. While the Second Epidemiological Study indicated that it would further examine the difference between veterans who participated in medical examinations and surveys and those who did not participate, the report does not mention this. Therefore, an explanation on such examinations is necessary.

3. General Opinion

The introduction gives a systematic account of the research progress thus far and various matters regarding Vietnam War veterans and defoliants to aid one's understanding of the overall progress of the study. However, in sections on the Vietnam War and defoliants, while there are many detailed descriptions of the components of dioxin, the explanation of the research on the correlation between veterans and defoliants is insufficient. Also, there is scarce discussion of the assessment of diseases caused by exposure to defoliants, an important matter to be considered in epidemiological studies on damages caused by defoliants in Korea. Additionally, it would be better to briefly mention the methods for evaluating exposure for the report to proceed logically into a detailed discussion of the research methods. The report should, with respect to the basis for compensation of Vietnam War veterans, examine the current compensation system (aftereffects/suspected aftereffects) and also should investigate the causal relationship between exposure to defoliants and diseases included within the current compensation structure. While the Second Epidemiological Study on Defoliants called for the difference between veterans who participated in medical examinations and surveys and those who did not, the report lacks such comparison and thus requires further explanation.

Chapter 2. Development of Defoliant Exposure Index

1. Report Summary

A. Introduction

It is important to accurately differentiate between the exposed group and non-exposed group in drawing the relationship between exposure to defoliants and diseases. A large group of study subjects is necessary to divide the exposed group into groups based on the degree of their exposure and to perceive microscopic differences among the sub-groups. However, a relatively small group of study subjects may suffice to reveal adverse health effects if one could accurately determine the extent of exposure to toxic substances and could classify the exposed group. The preciseness of the research and its statistical power analysis are directly connected to the accuracy of the extent of exposure and its assessment.

It would be difficult to evaluate the relationship between defoliants and diseases by comparing death and disease incidence rates in War veterans and the general male population due to the healthy worker effect. Thus, it is necessary to determine whether there are differences in death and disease incidence rates among War veterans in distinct levels of exposure to defoliants.

There are three general methods for assessing exposure to defoliants. In the first method of comparing the exposed group to the non-exposed group, one runs the risk of diluting or underestimating the actual effects of hazardous substances by studying the entire group when only a part has been was exposed. The Second Epidemiological Study demonstrated the difficulty in using death and disease incidence rates comparison to evaluate the relationship between defoliants and diseases because of the healthy worker effect.

Second, a qualitative evaluation of exposure was carried out using self-reported information and service and military records, and by categorizing veterans into high, medium, or low exposure groups and non-exposed groups. However, such qualitative evaluation of veterans using military records and self-reported information may not be recognized as appropriate.

Third, in a quantitative evaluation of exposure, if the estimation of individual levels of exposure were possible, the degree of exposure may be retroactively reconstructed from operational or health records. If it is impossible to quantitatively estimate the degree of individual exposure, assuming that individual levels of exposure within the same period of exposure is consistent, then we may use this exposure period for estimation. If a quantitative assessment of exposure using biomarkers for the selected substance is conducted a long while from initial exposure, this would undermine the validity of the assessment and would not be any better than the qualitative assessment of exposure.

A new exposure index should be developed for the following reasons: 1) in the Second Epidemiological Study, the subjective index of exposure using self-reported information and the objective index of exposure using military records rarely corresponded, 2) it is possible that people with a higher number of diseases will tend to exaggerate their exposure, and 3) individual exposure levels were inferred from the amount of defoliants

sprayed on combative and tactical areas of responsibility. However, estimating serum dioxin and other dioxin congener levels using biomarkers are problematic due to high cost and the possibility of a false negative diagnosis.

Considering available data and the appropriateness of the current exposure index, the most appropriate and feasible exposure index of defoliants is the reconstruction of past exposure to defoliants by examining military records.

B. Methods

1) Index of Self-Reported Exposure

Classify in detail the exposed group according to responses to the following six questions regarding exposure to defoliants.

(Questions)
1 Have you ever personally sprayed defoliants in Vietnam?
2 Have you ever been in contact with defoliant spraying instruments or defoliant containers in Vietnam?
3 Have you ever been present in defoliant spraying areas in Vietnam without having personally sprayed defoliants yourself?
4 Have your skin or clothes been in contact with defoliants in Vietnam?
5 Have you ever traveled through an area in Vietnam in which defoliants were sprayed?
6 Have you ever been exposed to defoliants in Vietnam by any other means?

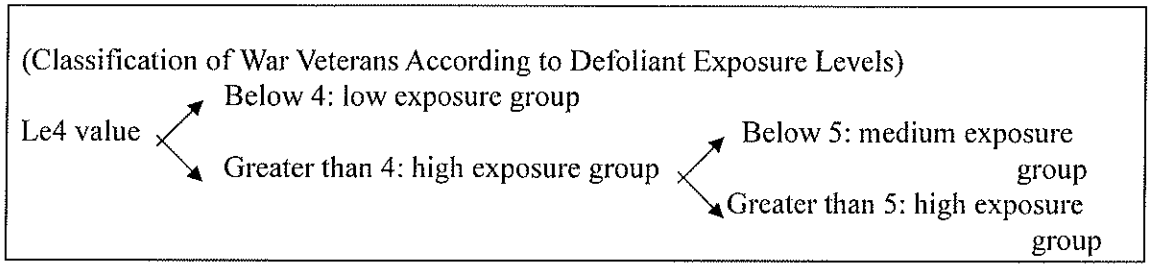
(Evaluation of Response)
· Non-Exposed Group: All "no" or "I don't know"
· Low Exposure Group: "No" to 1~4, "Yes" to either 5 and/or 6
· Medium Exposure Group: "No" to 1,2, "Yes" to either 3 and/or 4
· High Exposure Group: "Yes" to either 1 and/or 2

2) Index of Exposure to Defoliants Resulting from the Reconstruction of Past Exposure

A) Study the exposure characteristics of Vietnam defoliants using the geographic information system developed by Professor Stellman's team.

B) Obtain all necessary information regarding veterans, period of participation, troops' bases, and tactical areas of responsibility using military records of Korean Vietnam War veterans.

C) With the aid of the exposure data provided by Professor Stellman's team, categorize each participating unit according to amount of daily exposure of defoliants (E4) to calculate an index of exposure to defoliants of the veterans. To measure the amount of exposure to defoliants, calculate by adding the amount of daily exposure to defoliants of veterans throughout the period of participation in their unit. To this calculated value indicating the amount of exposure i.e. E4, add 1 and take the log of this sum and obtain Le4. This value, Le4, which would be used as the index of veterans' exposure to defoliants, would give the amount of exposure when observing quantitative continuous variables of veterans' exposure to defoliants. To determine the amount of exposure to defoliants (Le4), examine the distribution of amount of exposure of division/regiment (military record) of 156,657 War veterans and battalion/squadron (survey results) of 96,126 veterans, and determine the relationship between exposure and the likeliness of development of diseases using this data.



C. Conclusion

In the Third Epidemiological Study on Defoliants, a new index measuring exposure to defoliants was developed by reconstructing the past exposure experiences of veterans; individual exposure levels of each veteran were constructed using a continuous exposure opportunity index developed by Professor Stellman's team, and connecting the coordinates of Korean military unit participation and length of participation in the Vietnam War.

Biomarkers should be used to quantitatively measure exposure and test the validity of the self-reported exposure index and index reconstructed from past exposure.

2. Report Evaluation

A. Introduction

Since the most important part of this study was the accurate classification of the exposed group and research on the correlation to diseases, the report described the necessity of selecting and investigating an appropriate exposure index. Therefore, the report should clearly present a reason for using a self-reported exposure index and an index reconstructed

from past exposure.

B. Methods

1) Self-Reported Exposure Index

The six simple questions asked to determine the self-reported exposure index may be inadequate to appropriately distinguish the exposed group. Therefore, the report should highlight the difficulties found in other ways of distinguishing the exposed group such as an elaborate classification based on the number of incidences of exposure or categorization based on diverse questions related to exposure.

2) Index Created from Reconstruction of Past Exposure Based on Stellman's Study

A) While Le4, the log of the amount of exposure, was used as a standard in dividing the low exposure group and high exposure group, the report lacked the reason for selecting Le4 as the standard and should address this issue.

B) Since the Le4 value of all study subjects shows low distribution, it needs to be compared with the study results based on other values (for example, 1-2) as the standard.

C) Since the Le4 values are very low (p. 40) compared to those of American soldiers, one should take into consideration the limits of conducting a comparative study among various exposure groups using low exposure group members as subjects.

3) Appropriate Use of Data on Military Units in Reconstructing Past Exposure

While it is important to use data on military units appropriately when reconstructing past exposure, a better exposure index could be established by obtaining data on rank, branch of service, expertise, period of service, etc. Therefore, there should be additional explanation or analysis on why such data was not used.

C. Conclusion

The report explained three general methods for assessing exposure to defoliants.

First, it is difficult to evaluate the correlation between defoliants and diseases by solely looking into whether or not one was exposed. Second, it was confirmed that the qualitative evaluation of exposure was inappropriate. Third, quantitative evaluation using biomarkers to reconstruct past exposure does not fair better than qualitative evaluation if there is a lapse in time. However, the conclusion states that the self-reported exposure

index and index created by the reconstruction of past exposure should be tested through a quantitative measurement using biomarkers. Since all three methods have identifiable weaknesses, the report should clearly present reasons for applying such methods. Thus, the conclusion should demonstrate the appropriateness of the self-reported exposure index and index created by the reconstruction of past exposure, which are used in the later sections of this study.

3. General Opinion

To determine the relationship between exposure to defoliants and diseases, it is most important to accurately distinguish the exposed group from the non-exposed group. In order to accurately distinguish them, one must first evaluate exposure to defoliants. Among the general methods for evaluating exposure to defoliants are evaluation of exposure between those who were exposed and those who were not, qualitative exposure evaluation, and quantitative exposure evaluation. However, because all these methods have weaknesses, it is necessary to develop a new exposure index. Therefore, it is going to be necessary to use the self-reported exposure index and the defoliant exposure index obtained by reconstructing past exposure, divide the exposed groups into detailed sub-groups, and assess the validity of the relationship between the two indices.

It is very difficult to accurately evaluate veterans' exposure to defoliants a long time after initial exposure. In this respect, considering that the Stellman method of using the exposure index obtained from reconstructing past exposure is the only method currently available, it would be wise to fully exploit this method. However, this report fails to provide a detailed explanation of how this method determined the degree of exposure and the content of the results of previous studies and examples of how these previous studies were utilized. Furthermore, the report fails to consider the fact that there is a lack of detailed information in Korea regarding defoliants in general and that the limitations of using study subjects who have only been exposed to a small amount of defoliants for the purpose of conducting this study, and thus also fails to provide measures to confront the limitations. Considering the fact that the index of reconstructing past exposure using the Stellman method constitutes a great portion of this study, the aforementioned weaknesses must be corrected before writing the final report.