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# **Air Base Defense - Vegetation Control**

1961 - 1973, Roger P. Fox, Office of Air Force History

United States Air Force, Washington, D.C.

1979. Pages 73 - 78 and Pages 214 - 217

**“No element of the Vietnamese environment was more detrimental to base defense than the invincible ground cover described earlier. This rampant vegetation hid the enemy, shut off friendly observation and fields of fire, neutralized fencing and other defense barriers, slowed security forces, and nullified detection by sentry dog teams. The need to control this jungle was evident and urgent how to do it was the sticking point.”**

“Clearing approaches to the base was the first order of business. This meant defoliating a zone around the outside circumference of the installation, an area outside the Air Force's accepted defense responsibility.”

“Another critical area calling for the most complete defoliation was the air base perimeter. Here physical factors crippled or canceled out progress.”

**“Rarely if ever charted, the minefields of the perimeter barrier prohibited use of manual labor to cut and remove the vegetation. The mines, fencing, and wiring prevented mowing or scraping by mechanized equipment. Burning was unsatisfactory on several counts. Vegetation was highly fire resistant, particularly during the rainy season when growth was most rapid. It ignited slowly, even if sprayed with a flammable such as contaminated jet fuel. Because fire hardly ever consumed the vegetation, the residue went on obscuring the barrier system and offering cover to penetrators. Burning also detonated or destroyed mines and flares within the complex.”**

“Next in importance was defoliation of the base interior. Here too, the ideal was to clear the ground cover that concealed penetrators and reduced surveillance by defense forces. For example, the defense vegetation negated sentry dog detection-the base's most reliable alarm. And the exertion in plowing through this thicket sapped dog and handler. Because the interior was without the perimeter's hazards or obstructions, it seemed that the clearing methods mentioned earlier could be given full play. In practice this was not the case. Safety factors forbade burning in or near fuel and munitions storage areas. The immense labor entailed in clearing a sizable area in a reasonable time curtailed manual cutting. Cutting by hand nonetheless left the root system intact, and so was well-suited to Cam Ranh Bay's very unstable soil. Elsewhere, however, an undisturbed root system meant rapid regrowth of vegetation. Even though scraping served well in the base interior, the conventional USAF civil engineer squadron usually lacked the needed mechanized equipment.

**"In light of these facts, the answer to vegetation control in the base interior as on the perimeter appeared to be herbicides."**

"By the time the Air Force turned to herbicides for base vegetation control, they were in full-scale military use in support of other ground operations. The dispensing of defoliant centered on foliage along thoroughfares to deny the enemy ambush cover."

"The use of these herbicides was a GVN program supported by the United States. The U.S. Ambassador and COMUSMACV acted jointly on GVN requests for herbicide operations on the basis of policy formed by State and Defense Departments and approved by the President. 50 Senior U.S. Army advisors at ARVN corps and division level were delegated authority to approve requests in which dispersal of the herbicides was limited to hand or ground-based power-spray methods."

"A herbicidal defoliation request from a USAF air base was prepared and documented by the base civil engineer, using a set checklist. It was then processed through U.S. military channels to the senior U.S. Army headquarters in the corps tactical zone. If approved there, it was sent on to the ARVN commanding general of the same CTZ for military approval and political clearance. It was at this point that delay most frequently occurred, due to opposition from the district and/ or province chief. These officials were influenced by such things as superstition, concern for local crop damage, and possible propaganda value to the VC/NVA. Final action on requests for ground-delivered herbicides was taken at this level. If aerial delivery was desired, the request could only be approved at USMACV/ JCS level. There are similar more detailed checklists and required reports in MACV 525-1 for defoliation and crop destruction missions.

See the official report for "Checklist for Defoliation Requests" and illustrations.

Indemnification will be made by the Republic of Vietnam for accidental damage to crops.

SOURCE: Library of Cong Report, 8 Aug 69, to the House Subcommittee on Science and Astronautics, 91st Congress, 1st session, A Technological Assessment of the Vietnam Defoliant Matter: A Case History, p 19."

"Approval and execution of herbicidal defoliation projects were time consuming and uncertain. In February, 1968 Phan Rang requested defoliation of a 200-meter strip both inside and outside the perimeter, around the entire circumference of the base. The approving authority reduced the scope of the project to one-half the perimeter.

**In addition, problems in obtaining herbicide and other obstacles delayed completion of the project for 1 year.<sup>52</sup> "**

**"Excessive vegetation at Tan Son Nhut and Bien Hoa hindered the base defenders throughout the 1968 Tet attacks.<sup>53</sup> At Bien Hoa the approval process for aerial defoliation was termed "hopelessly complicated," one that might take two or more months. Plant growth meanwhile continued unabated. Even when authorized, a project was apt to be fettered with restrictions. Thus aerial delivery of Orange was denied at Bien Hoa, and only parts of its perimeter were approved for chemical defoliation. Accordingly, because Blue and White were not suited to local conditions, Orange had to be dispensed from a tank truck by a power spray that did not reach beyond the second fences. Local terrain made it impossible to go outside the third and fourth fence and spray inward.<sup>54</sup> "**

**"As noted earlier, Binh Thuy faced the most extreme defoliation problem. Here the one herbicide approved for use was Blue, which killed only those portions of plants with which it came in contact. With the root systems left intact, regrowth was rapid. In 1 month, 2,420 gallons of Blue valued at \$22,000 were sprayed over limited areas of the interior and a narrow zone around the perimeter of the 550-acre installation without making any significant inroads against the teeming vegetation.<sup>55</sup> "**

**"Herbicides for air base defense seldom if ever improved the horizontal view at installations by the desired 40 to 60 percent.<sup>56</sup> Defoliation needs of the 10 primary bases were specific, permanent, and known in advance.**

**Still no ongoing long-term program to satisfy them was ever set up. Instead the job was done piecemeal, with each base handling defoliation requests. Despite administrative and technical controls, chemical agents remained the single sure way to control vegetation in places where other means could not-notably in the critical perimeter complexes. As the war drew to a close; however, curbs on the use of herbicides grew more and more rigid. The last herbicide mission by fixed-wing aircraft was flown on 7 January 1971."**

**"On 1 May, a presidential directive ended all U.S. herbicide operations.<sup>57</sup> In the ensuing months, mines killed eight and injured seven Army personnel who were trying to clear vegetation by hand from wire entanglements and fields of fire.<sup>58</sup> With the Ambassador's full backing, COMUSMACV urged Washington to alter at once the ban on chemical herbicides because immediate defoliation was "essential to security of bases."<sup>59</sup>**

“On 18 August the President permitted the resumption of chemical defoliation until 1 December 1971. He authorized the use of Blue and White but not Orange. Approved herbicide operations were restricted to the perimeters of firebases and installations, with delivery limited to solely helicopter or ground-based spraying equipment, under the same regulations applied in the United States.<sup>60</sup> As the expiration date for this authority neared, COMUSMACV asked for an extension. On 26 November 1971 the President authorized continued use of herbicides and set no termination date. At the same time, he stipulated that U.S. defoliation assistance to the Government of Vietnam be confined to “base and installation perimeter operations and limited operations for important lines of communications.” This policy prevailed until the last U.S. forces departed RVN in 1973.<sup>61</sup>”

While this report in the Air Base Defense History provides substantive detail related to the justification for continued use of herbicides, its description of the use of the policy pertains only to South Vietnam or else indirectly conflicts with the actual document, the Ranch Hand History, and other declassified reports. Additionally, it seeks to suggest that the program was a Vietnamese program, while the Ranch Hand History provides overwhelming evidence that the program was initiated, planned, expanded and supplied by the United States and more particularly the military, the President, and senior administrative officials of the government.

**At least for the purpose of vegetation control, this history’s conclusion was that while there were no effective ways to clear vegetation, it did not stop military command from continuing their use.**

“No defoliant method tried for air base defense purposes in South Vietnam proved to be at once efficient, economical, and politically acceptable. The practical value of herbicides was much impaired by technical, administrative, and political constraints. For chiefly technical reasons, the same could be said for techniques such as burning and scraping. For the United States-as it had for France-vegetation remained a major unresolved problem.”

## **Summary**

The above report on vegetation control illustrates the problems and issues related to the use of herbicides in S.E.A. (Vietnam.) Thailand would have the same problems and issues. In our research, any report on use of herbicides in Thailand remain classified “Secret” as the USAF CHECO Report “Base Defense in Thailand” by the same USAF offices that maintain the above report.

**re: “Connecting the dots”**

An extract release was declassified on or about 21 September 2007 and from those excerpts we were able to prepare the following correlations and conclusions.

# USAF CHECO Report "Base Defense in Thailand" Declassified: extract release for pages noted only

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## Chapter III Physical Defenses and Limitations

### Introduction

This chapter briefly considers four aspects of physical defenses as they existed in Thailand from 1968 to 1972.

[No] effort is made to duplicate concepts discussed in PACAFM 207-25,

[Two] CHECO reports on base defense [concepts and measures](#) in the Republic of Vietnam **provide additional information**. See footnote 123.

### Active and Passive Defense Measures

The first "ring of defense" within the bounds of USAF responsibility was the **base perimeter**, usually composed of fence lines and other integrated [next page]

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[defenses,] **all designed to expose the enemy** to an increased risk of observation and detection. **No base considered itself secure because of an impenetrable perimeter[.]**  
See footnote 124.

**[To] further aid in observation, herbicides were employed to assist in the difficult task of vegetation control. Use of these agents was limited by such factors as the ROE and supply problems.**

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### Limitations

Geographic constraints provided many problems in the USAF base defense posture in Thailand. Contiguous population centers at many of the bases severely limited opportunities for both observation and effective counterfire. **Further, tropical vegetation sided by seasonal monsoon rains grew almost faster than it could be controlled. Dense jungles were rated as the greatest threat to the defenses at U-Tapao.** See footnote 137. Other natural features such as streams [next page]

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U.S. Embassy's ROE also provided several limitations on physical defenses. [Soil sterilization and herbicide use was also approved in 1969, but these were subject to extensive coordination with local RTG authorities and final permission from the Embassy. They could only be used on areas within the perimeter and under no circumstances could the vegetation control agents be used to clear areas of observation to fire off-base. This lengthy [next page]

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[process,] and the inability to go beyond the fences, significantly limited the use of those agents at many bases. See footnote 145.

The 1969 ROE required advanced approval of the Ambassador for all "new weapons" introduced into Thailand. See footnote 146.

### Base Analysis

#### Korat RTAFB

Vegetation control was a serious problem at this base in 1972, especially in the critical RTAF area near the end of the runway. The dense growth offered opportunity for concealment in the area of contiguous to the unrevetted KC-135 parking ramp. Further, vegetation was thick in many sectors of the concertina wire on the perimeter. The base had received Embassy permission to use herbicides and just began that program in June.

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#### Nakon Phanom RTAFB

NKP had the usual rainy season vegetation problems, but heavy use of herbicides kept the growth under control in the fenced areas. Interior vegetation was usually kept closely cut.

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Ubon had undertaken a unique approach to solve one of its problems, that of controlling off-base vegetation. The ROE prohibited the use of herbicides outside the perimeter, but Base Civic Action undertook the project of having vegetation cleared 100 meters from the MMS area fence and had additionally contracted with local villagers to clear 150 meters of dense underbrush from around the base perimeter. The project was inexpensive, cleared a wide

field for observation, and put money into the local village, thereby helping to create good will. See footnote 160.

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Vegetation control was all but impossible over the entire reservation. Vegetation control was further hindered by the inability of the base to get herbicides through supply channels during the first half of 1972.

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## Chapter IV

### Conclusion

In 1968, air base defense in Thailand was in its infancy. A series of sapper attacks over the next four years did much to hasten the evolution of defense concepts that were adapted in the effort to protect vital USAF resources from such surreptitious assaults.

### Footnotes (Declassified)

[Omitted] Reference to [Footnote 116](#) See footnote 123.

[Footnote 122](#). (C) Maj Strayer U-Tapao Interview.

### Footnote 123

Chapter III (S) CHECO Report, RVN 66-68 Base Defense; (C) CHECO Report, Local Base Defense in RVN, January 1969-June 1971, Hq USAF, 14 Sep 71. (Hereafter cited: CHECO Report: RVN 69-71 Base Defense)

Footnote 124 (C) Maj Barger NKP interview.

Footnote 137 (C) Maj Strayer U-Tapao interview.

Footnote 145 (C) Maj Strayer U-Tapao interview.

Footnote 146 (C) US Embassy 1969 ROE.

Footnote 160 Not released, classified.



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Chapter II Base Defense Personnel and Programs - Limitations  
Rules of Engagment (Pg-31) ROE remains classified Secret and not made available.  
See FOIA request 20 Dec 07 for related ROE plans.

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(Draft/interviews (see Footnotes) to final form; distributed to commands and military schools.)

CHECO is a Contemporary Historical Examination of Current Operations  
for the United States Air Force  
Southeast Asia Project (7th Air Force)

Source for Declassified Extract Release:

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## **JUSMAG/Thailand (MACTCS) Policy Memo on Base Defense in Thailand (Declassified 7 Secember 2007)**

**In this document dated 1 November 1969, there are two specific directives associated with the use of herbicides in Thailand that are important to reference.**

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[Directive] E. **All new base defense planning, arrangements and major joint exercise proposals are to be coordinated in advance with the US Embassy so that due account can be taken of the vital necessity to balance political and military factors in base defense.**

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[Directive] J. **Approval to conduct soil sterilization and/or defoliation operation on or around US occupied installations will be obtained from the US Embassy. Coordination be affected with the local US consul where applicable.**

Air Base Defense - Vegetation Control

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re: "Connecting the dots" (Continued)

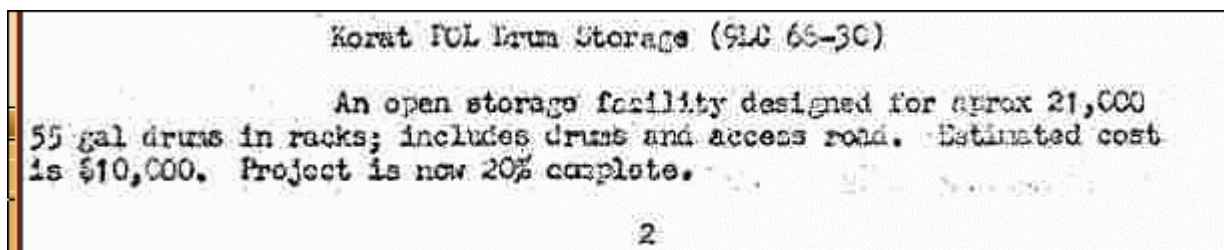
Colonel F. Scott Boyd, USAFR in the Office of the Secretary of the Air Force (SAF) at the Pentagon in Washington, D.C. on 30 June 2005, the Office of Legislative Liaison, wrote in response to Congressman Lane Evans of Illinois a poignant example of the use of herbicides, and their (lack of) control (of the program) in Thailand, quote:

(5). Any information concerning spraying of vegetation with herbicides such as Agent Orange, Agent Pink, Agent Green, Agent Blue, Agent Purple, or Agent White at Takhli, Udon (or Udorn) or Nakhon Phanom bases or the Phu-mu Signal Site.

Answer: Because commanders were at liberty to use herbicides for defoliation around their activities using either handheld or vehicle mounted units, with no accountability required, we do not have any more specific information.

## 44th Engineer Group (Construction) - 1966 Operational Reports for POL Drum Storage Facility (Korat) Project 9LC 66-30 (9th Logistics Task Force)

The importance of these two After Action Quarterly reports of the 44<sup>th</sup> Engineer Group is the plans to create a storage facility for 55-gallon drums as early as 1966.



(2) Korat POI, Drum Storage Yard: This project consisted of the construction of twenty 70'x70' storage pads with drainage structures and protecting berms, although not complete to the extent indicated in the job directive, the project was subsequently cancelled by 9th Log Coad on 8 Sep 68.

re: "Brown Death"

In a major Veterans Appeal Court ruling where the claimant was a veteran of service in Guam, the judge specifically stated a form of guidelines for herbicide spraying noteworthy in this report, quote:

#### CONCLUSION OF LAW

Diabetes mellitus was **incurred in service**. 38 U.S.C.A. §§ 1110, 5102, 5103, 5103A (West 2002); 38 C.F.R. §§ 3.159, 3.303 (2004).

#### REASONS AND BASES FOR FINDINGS AND CONCLUSION

##### Analysis of Claim

[during] his personal hearing, the veteran alleged that he developed diabetes mellitus as a **result of his exposure to herbicide agents** while serving on active duty **in Guam**. His military occupational duties as an aircraft maintenance specialist allegedly required him to work in an air field, the **perimeter of which was continuously brown due to herbicide spraying every three months**. The veteran also alleges that he recalls **seeing storage barrels** at the edge of the base, which he now knows housed herbicides. Following discharge, Anderson Air Force base in Guam, where the veteran was stationed, underwent an **environmental study**, which showed a significant amount of **dioxin contamination in the soil** and prompted the **federal government to order a clean up of the site**.

**Service connection** may be granted for disability resulting from disease or injury **incurred in or aggravated by service**. 38 U.S.C.A. § 1110 (West 2002); 38 C.F.R. § 3.303 (2004). Service connection may also be granted for **any disease** diagnosed after discharge **when all of the evidence, including that pertinent to service**, establishes that the disease was incurred in service. 38 C.F.R. § 3.303(d).

[For] the showing of chronic disease **in service** there is required a combination of manifestations sufficient to identify the disease entity, and sufficient observation to establish chronicity at the time,

[When] the fact of chronicity in service is **not adequately supported**, then a showing of continuity **after discharge is required** to support the claim. 38 C.F.R. § 3.303(b).

In some circumstances, **a disease associated with exposure** to certain herbicide agents **will be presumed** to have been incurred in service **even though there is no evidence of that disease during the period of service at issue**. 38 U.S.C.A. § 1116(a) (West 2002); 38 C.F.R. §§ 3.307(a)(6), 3.309(e) (2004).

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ROBERT E. SULLIVAN

Veterans Law Judge, Board of Veterans' Appeals

Citation Nr: [0527748](#) Decision Date: 10/13/05 DOCKET NO. 02-11 819

**Air Base Defense - Vegetation Control**

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**re: Direct Exposure to Herbicides and "Presumptive Diseases" recognized**

THE ISSUE

Entitlement to service connection for diabetes mellitus secondary to herbicide exposure.

Notwithstanding the aforementioned provisions relating to presumptive service connection, which arose out of the Veteran's Dioxin and Radiation Exposure Compensation Standards Act, Pub. L. No. 98-542, § 5, 98 Stat. 2,725, 2,727-29 (1984), and the Agent Orange Act of 1991, Pub. L. No. 102-4, § 2, 105 Stat. 11 (1991), the United States Court of Appeals for the Federal Circuit has determined that a **claimant is not precluded from establishing service connection with proof of direct causation**. *Combee v. Brown*, 34 F.3d 1039, 1042 (Fed. Cir. 1994); see also 38 C.F.R. § 3.303(d).

In order to prevail with regard to the issue of service connection on the merits, "there must be medical evidence of a current disability, see *Rabideau v. Derwinski*, 2 Vet. App. 141, 143 (1992); medical or, in certain circumstances, lay evidence of in-service incurrence or aggravation of a disease or injury; and medical evidence of a nexus between the claimed in-service disease or injury and the present disease or injury. See *Caluza v. Brown*, 7 Vet. App. 498, 506 (1995), *aff'd*, 78 F.3d 604 (Fed. Cir. 1996).

The veteran's service medical records reflect that, during service, the veteran did not report herbicide exposure. In addition, he did not receive treatment for and was not diagnosed with diabetes mellitus. His DD Form 214, DD Form 7 and Airmen Performance Reports dated in March 1968 and October 1968, however, confirm that he had active service from December 1966 to December 1970, including at Anderson Air Force base in Guam from December 1966 to October 1968.

The veteran did not serve in Vietnam; therefore, he is not entitled to a presumption of service connection for his diabetes mellitus under the aforementioned law and regulations governing claims for service connection for disabilities resulting from herbicide exposure. As previously indicated, however, the veteran may be entitled to service connection for this disease on a direct basis if the evidence establishes that his diabetes mellitus is related to the herbicide exposure.

Post-service medical evidence indicates that, since 1993, the veteran has received treatment for, and been diagnosed with, diabetes mellitus. One medical professional has addressed the question of whether this disease is related to such exposure. In June 2005, a VA examiner noted that the veteran had had the disease for 12 years, had no parental history of such a disease, and had served in Guam, primarily in an air field, which was often sprayed with chemicals. She diagnosed diabetes type 2 and opined that this disease was 50 to 100 percent more likely than not due to the veteran's exposure to herbicides between January 1968 and April 1970, when he served as a crew chief for the 99th bomb wing on the ground and tarmac. She explained that such exposure, rather than hereditary factors, better explained the cause of the disease given that the veteran's parents did not have diabetes.

As the record stands, there is no competent medical evidence of record disassociating the veteran's diabetes mellitus from his in-service herbicide exposure or otherwise from his active service. Relying primarily on the VA examiner's opinion, the Board thus finds that diabetes mellitus is related to the veteran's service. Based on this finding, the Board concludes that diabetes mellitus was incurred in service. Inasmuch as the evidence supports the veteran's claim, that claim must be granted.

ORDER

Service connection for diabetes mellitus secondary to herbicide exposure is granted.