

# Coming to Grips With SAM Sites July – Dec 1965

**Presented by**  
**W. Howard Plunkett**  
**Lt Col USAF (Ret)**



**7<sup>th</sup> Triennial  
Vietnam  
Symposium**  
**11 March 2011**

# July – Dec 1965

- **Significant Period in Air Power History**
- **First Combat With Surface-to-Air Missiles**
- **U.S. Slow to Recognize SAM Threat**
- **U.S. Paid a High Price in Men and Planes**
- **Anti-SAM Tactics & Equipment Developed**

# Prologue

## October 1962

### ■ Nuclear Missile Threat From Cuba

Fidel Castro - President of Cuba



Nikita Khrushchev - Premier of Soviet Union





SAM Site  
San Julian  
Airfield  
Cuba

- **Executive Committee – EXCOM – Developed U.S. Strategy on Cuban Missiles**



John F. Kennedy  
President



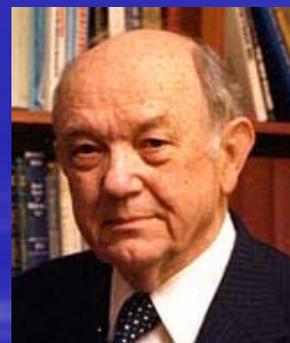
- **Key EXCOM Members Who Had Roles in SAM-Site Decisions in Vietnam:**



**Lyndon B. Johnson**  
Vice President



**Robert S. McNamara**  
Sec of Defense



**Dean Rusk**  
Sec of State



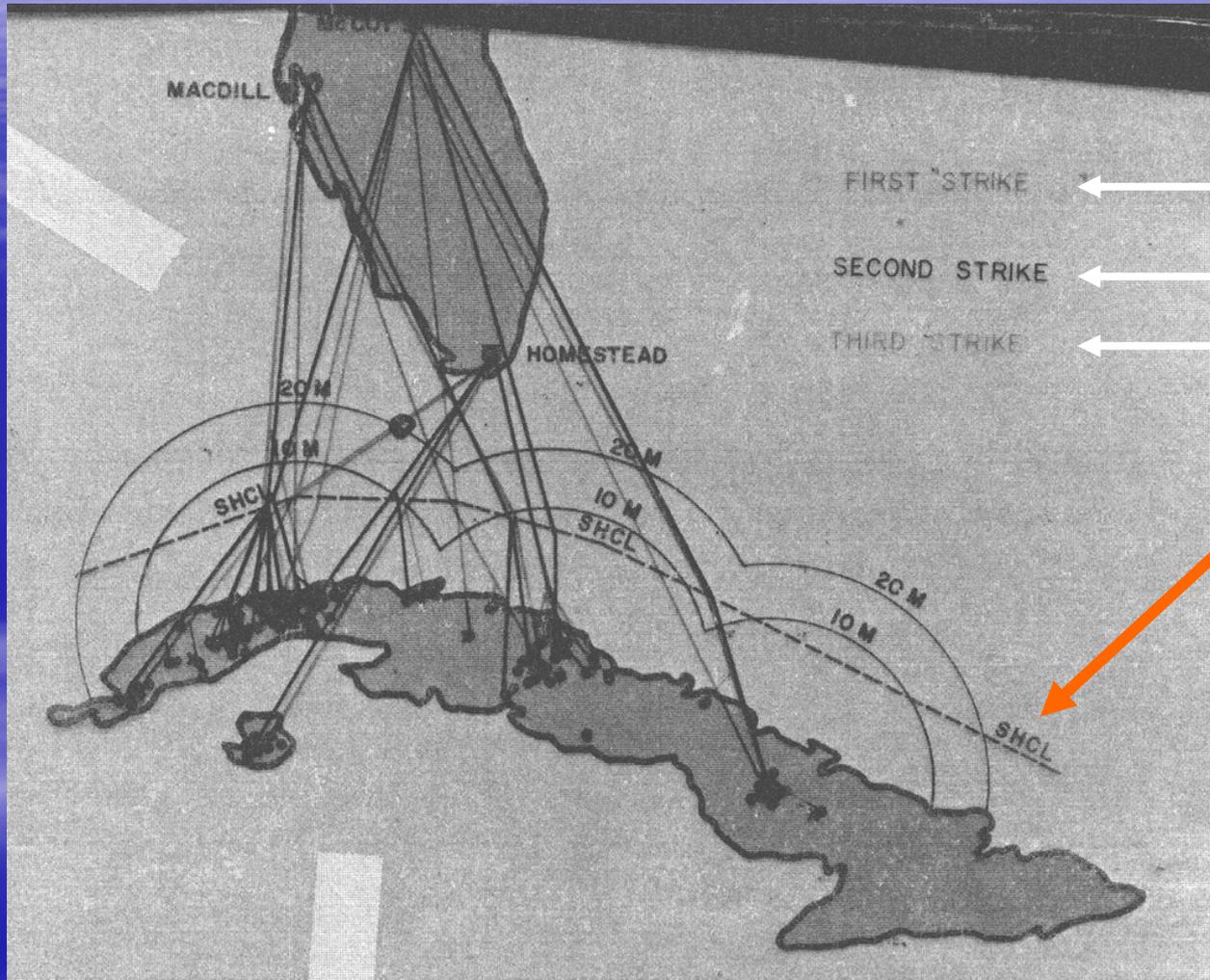
**Gen Maxwell Taylor**  
JCS Chairman

- **EXCOM Developed 2 Options:**
  - **Naval Blockade**
  - **Air Strikes ... Under CINCLANT **OPLAN 312****
    - **Then Invasion by 82<sup>nd</sup> & 101<sup>st</sup> ABN Divisions  
OPLAN 316**

## **CINCLANT OPLAN 312**

- **Complete Destruction of Cuban AOB**
- **SAM Radars No. 1 Priority**
- **Then EW/GCI, Aircraft, AAA Sites**
- **Three Strikes, Multiple Waves**
- **573 Strike Acft: F-105, F-100, F-84F, A-4D, AD (Skyraiders)**
- **Napalm, LAU-3, GAM-83, Iron Bombs**

# CINCLANT OPLAN 312 - USAF Strikes



SHCL =  
Strike Hour  
Control  
Line  
(Cuban Air  
Defenses)

- **21 Oct 62 – EXCOM Meeting**
- **Gen Sweeny (TAC CC) Briefed on OPLAN 312**
- **Kennedy: Be Prepared to Carry Out Attacks Within 24 Hours**

**Fortunately**

...

- **26 Oct 62 – Khrushchev Offered to Remove Missiles if U.S. Didn't Invade Cuba**

## However ...

- 27 Oct 62 – SAM Downed U-2
- Maj Rudolph Anderson, Jr. - KIA



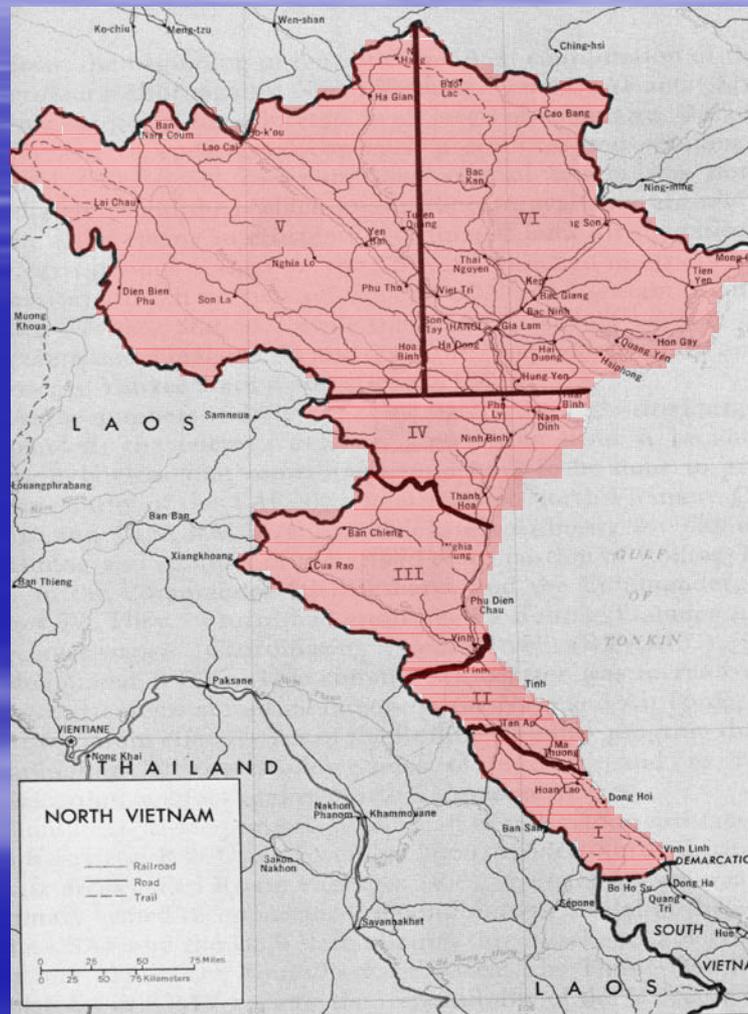
- 1<sup>st</sup> Person Awarded Air Force Cross



- **Kennedy: Don't Strike SAM Sites Yet**
  - **Give Diplomacy a Chance**
  - **28 Oct 62 – Khrushchev: Russia Will Dismantle Nuc Missiles**
- — — — —
- **Diplomacy Precluded SAM Site Strikes in Cuba**

# July – Dec 1965

## Air War Over North Vietnam



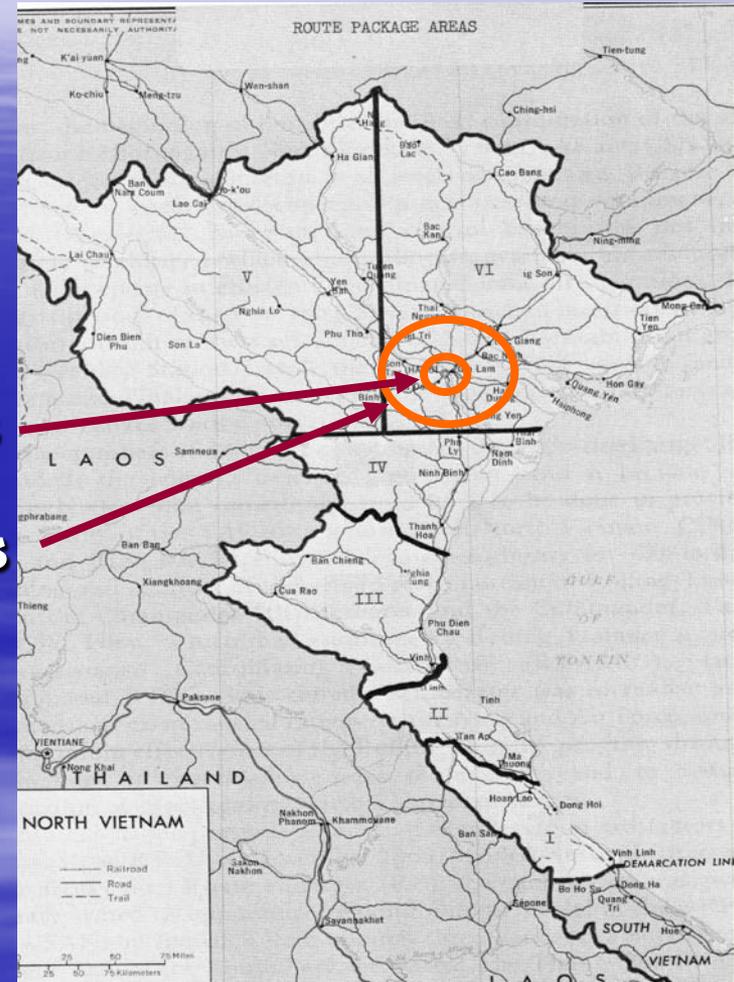
# Rolling Thunder

## Mar 1965 – Oct 68

- **Sustained, Graduated Bombing of NVN**
- **Numbered “Phases”**
- **Each Phase Specified Targets & Rules of Engagement (ROEs)**

# Rolling Thunder

- **Most Significant ROEs:**
- **Hanoi Zones**
  - Prohibited - 10 Nautical Miles
  - Restricted – 30 Nautical Miles
- **Strikes Directed by White House**

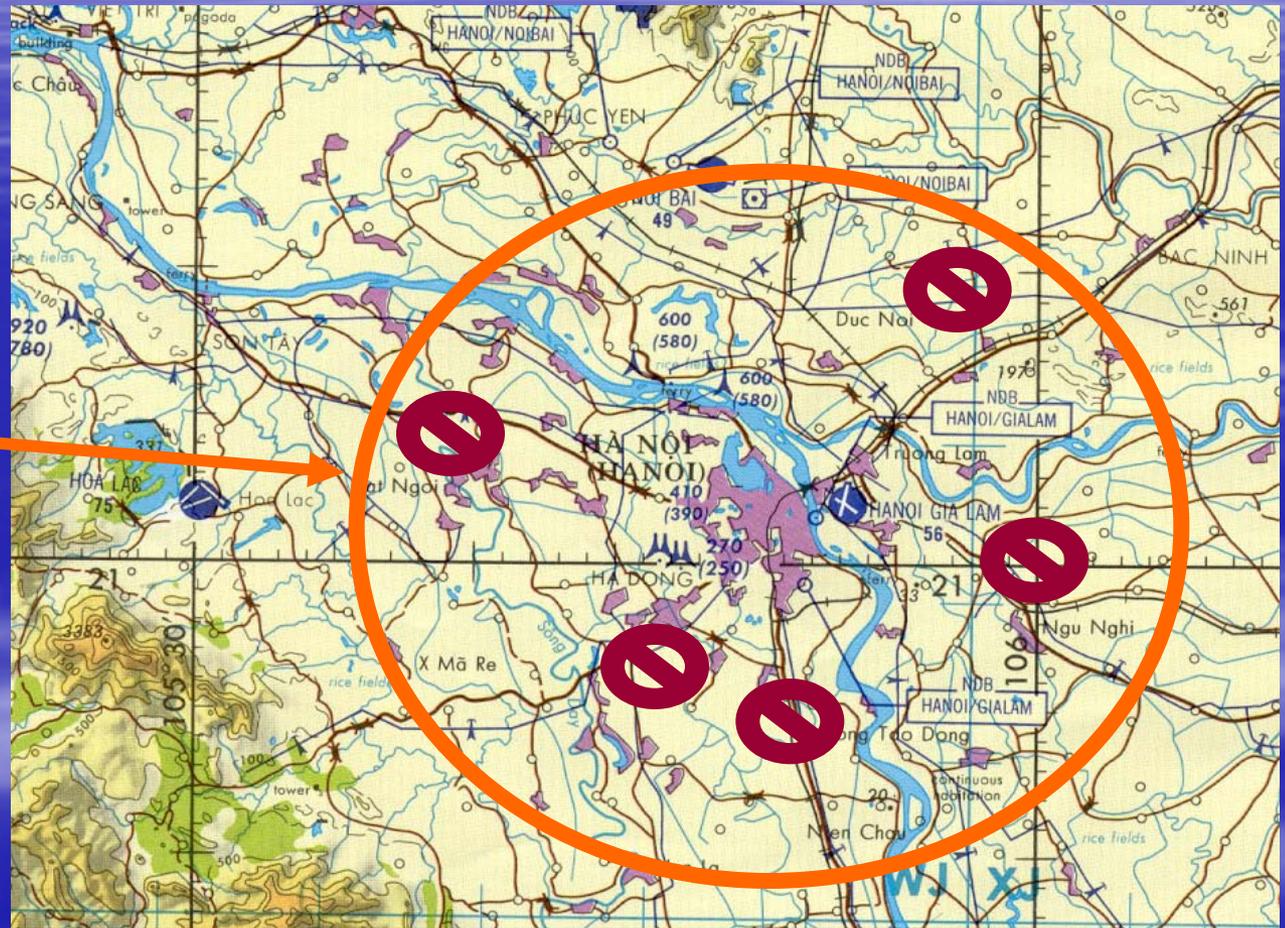


# April 1965

- U.S. Detected 5 SAM Sites in NVN ...

- All Within Hanoi's Prohibited Zone

- Missiles Not Yet Installed



# 3 May 1965

- **NVN 236<sup>th</sup> SAM Regiment Began Tng**
- **Formed 7 Jan 65**
- **Training Site Near Son Tay**
- **“... Highest National Priority”**
- **Seventy Soviet Missile Advisors**
- **Four Missile Launch Battalions ...**  
**61<sup>st</sup> 62<sup>nd</sup> 63<sup>rd</sup> 64<sup>th</sup>**

# April - May 1965

- **Two CIA Directors ...**



John A. McCone  
29 Nov 61 - 28 Apr 65



William F. Raborn  
28 Apr 65 – 30 Jun 66

## ... Recommended SAM Site Strikes

- **The President & DoD Ignored Advice**

## April - May 1965

- **EB-66s From Shaw AFB Arrived at Tan Son Nhut AB Then Went to Takhli RTAFB**



- **Detected SAM Radar Signals**

- **Warned F-105 & F-4 Strike Pilots**

# USAF Fighters



**F-105D**

**F-4C**



# April - June 1965

- **USAF Added Fighters to Thai Bases**
- 7 Apr – **45 TFS** 18 F-4Cs  
From MacDill to Ubon
- 8 Apr – **563 TFS** 18 F-105s  
From McConnell to Takhli
- 12 Jun – **357 TFS** 18 F-105s  
From McConnell to Korat
- 15 Jun – **12 TFS** 18 F-105s  
From Kadena to Korat
- 26 Jun – **80 TFS** 18 F-105s  
From Yokota to Takhli



# May - July 1965

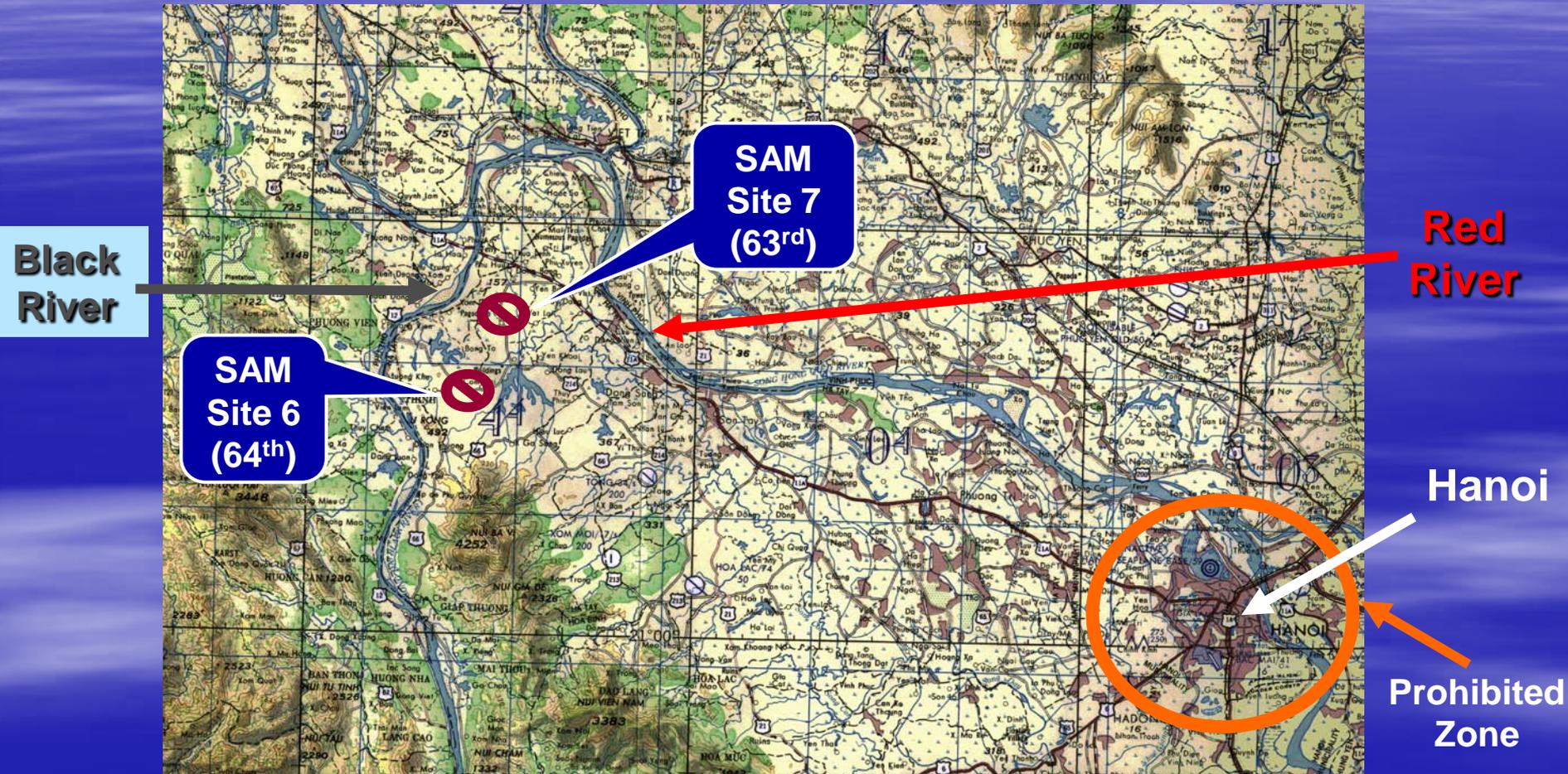
- **U.S. Gov't Refused to Strike SAM Sites**
  - **16 May** – Security Council Target Meeting. Pres Johnson: “How about SAM sites?” McNamara: “Go after MiG airfields With B-52s first.”
  - **25 May** – Rolling Thunder 16 Prohibited Strikes Against MiG Bases and SAM Sites
  - **27 May** – JCS Recommended B-52s Bomb SAM Sites. McNamara: “Not yet. SAMs had not interfered with Rolling Thunder.”
  - **26 June** – JCS to McNamara: Go After SAM Sites “... as they near operational status.” Denied.
  - **3 July** – JCS to McNamara: Strike SAM sites before they are completed. Denied.

# 18 July 1965

- **NVN's 236<sup>th</sup> SAM Reg. Completed Tng**
- **63<sup>rd</sup> & 64<sup>th</sup> Battalions Moved to Two New SAM Sites 30 Miles NW of Hanoi**
- **Ringed Both Sites With AAA ~ 130 Guns**
- **Located in Path of Rolling Thunder Strikes**

21 July 1965

Two New SAM Sites Completed



# SAM Site 7

Recon Photo  
Taken  
20 July 65



# NVN Sets Trap

- **“... send our missile forces outside the Hanoi area ...”**
- **“... secure the element of surprise ...”**
- **“... conduct a mobile ambush ...”**
- **Have Available “... fake missiles ... made from bamboo and bamboo matting ...”**

# 21 July 1965

## NVN's Trap

- **06:00 Hours**: AAA units “... were in position and ready to fight to protect the missiles ...”
- **20:30 Hours**: “... missile battalions were fully prepared and ready for battle ...”

**23 July 1965**  
**Friday**

- **1<sup>st</sup> Day of Rolling Thunder 24**
- **EB-66s Detected New Fan Song Signals West of Hanoi**

**Coincidentally ...**

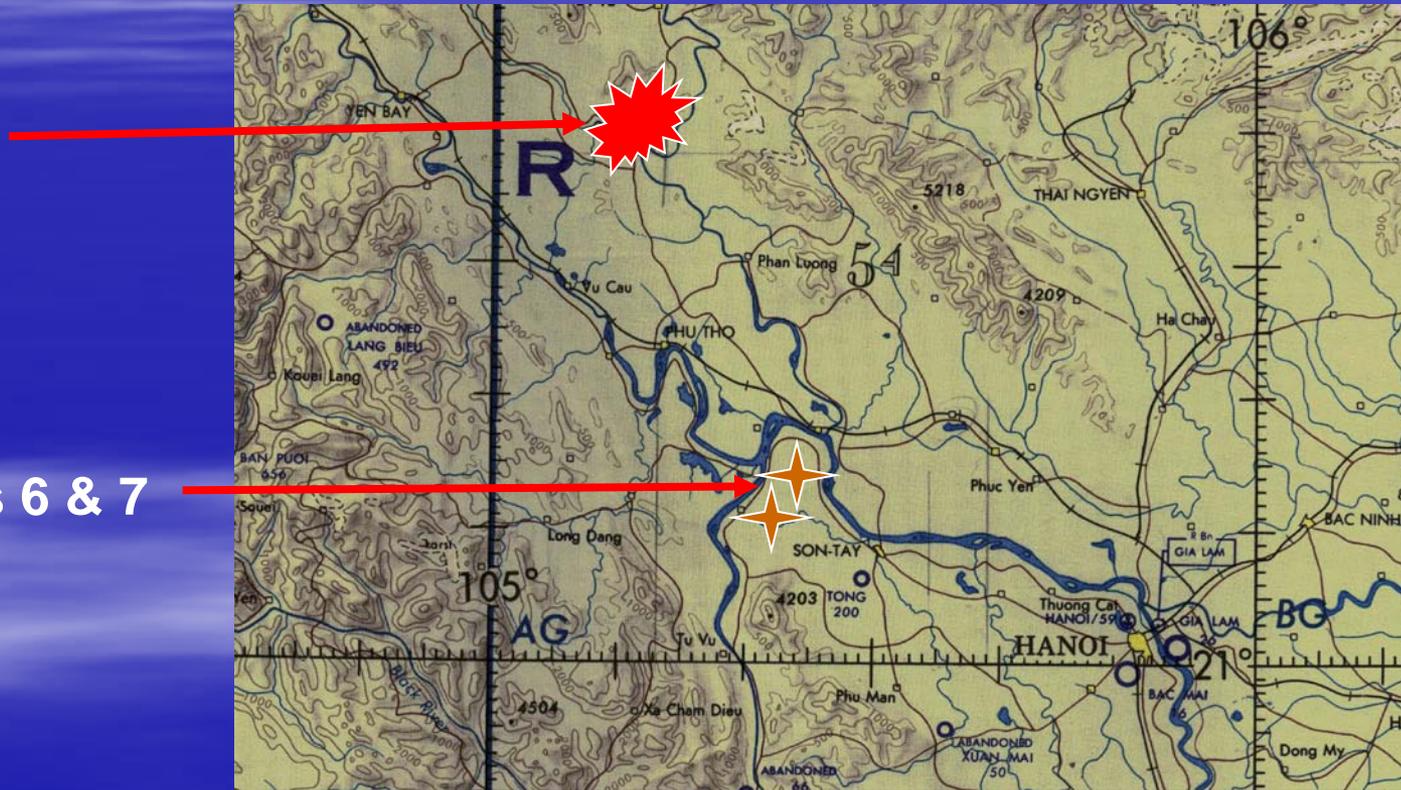
- **Advance Party of 47 TFS Arrived at Ubon to Replace 45 TFS (F-4Cs)**

# 24 July 1965

## Saturday

- Target: Lang Chi Munitions Factory (JCS 47.2)

Target



SAM Sites 6 & 7

# 24 July 1965

## Lang Chi Munitions Factory

- **Four Flights of F-105s from Takhli to Bomb Factory Storage Area**
- **Two Flights of F-4Cs From Ubon For MiG CAP**
- **F-4C Crew of “Leopard 02”:**  
**Capt Richard Paul “Pop” Keirn – 47 TFS**  
**Capt Roscoe Henry Fobair - 45 TFS**



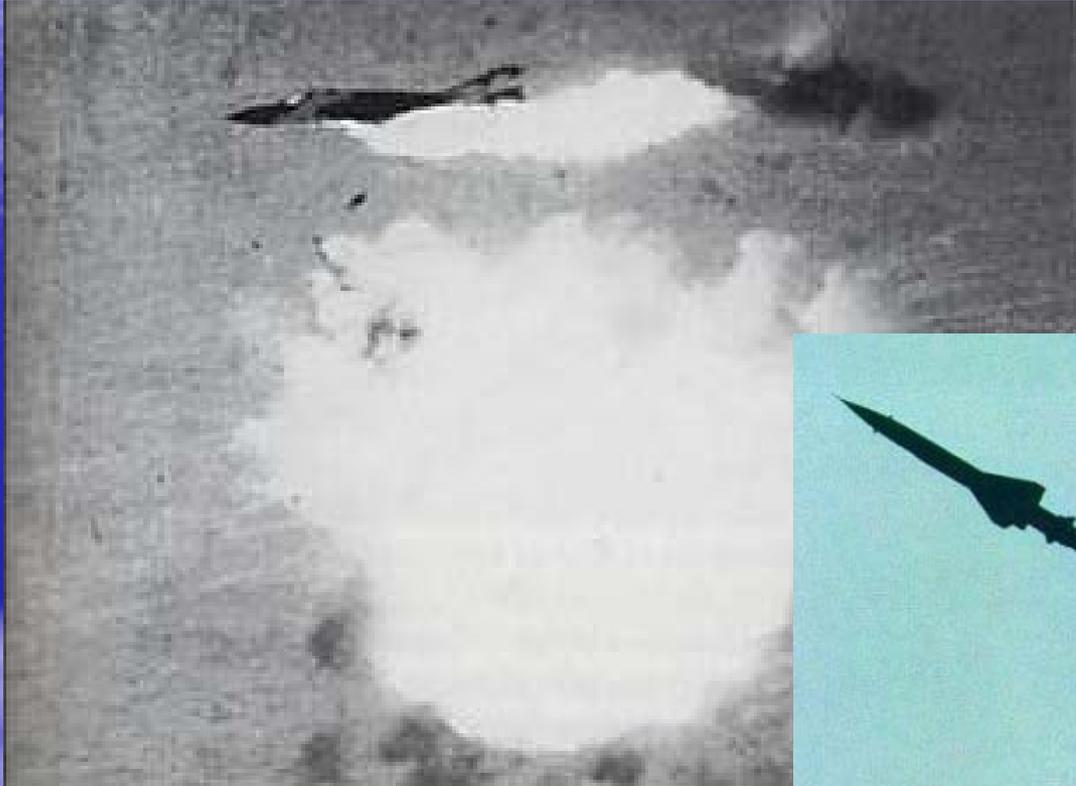
# 24 July 1965

## 1<sup>st</sup> SAM Shoot-Down

- **RB-66C Detected SAM Radar Signals**
- **Called Warning: “Bluebells Ringing”**
- **63<sup>rd</sup> & 64<sup>th</sup> Battalions Each Fired 2 SAMs**
- **Launches Controlled by Soviet Advisors**
- **F-4C 63-7599 “Leopard 02” - Direct Hit - Crashed**

# 24 July 1965

## 1<sup>st</sup> SAM Shoot-Down



24 July – Vietnam Military Holiday



# 24 July 1965

## F-4C "Leopard 02" Crew

- Keirn Ejected and Was Captured the Next Day
- Fobair Was KIA

Capt Keirn



POW

Capt Fobair



KIA

# 24 - 25 July 1965

## NVN Reset Their Trap

- **63<sup>rd</sup> & 64<sup>th</sup> Batt'ns Moved to Other Sites**
- **Relocated by 10:00 AM 25 July**
- **AAA Guns & Dummy Missiles Remained**
- **Ready For Expected U.S. Retaliation**

**26 July 1965**

## **NSC Decided on SAM Site Strikes**

- **Two White House NSC Meetings**

VP Humphrey

Pres Johnson

Robert  
McNamara



Dean Rusk

- **Similar to EXCOM Debates During Cuban Crisis**

**26 July 1965**

## **NSC Decided on SAM Site Strikes**

- **Three Main Issues:**
  - **How Many Sites to Strike – 2, 3, or all 7**
  - **Soviet Union Reaction**
  - **Affects on Other Targets if SAM Sites Not Struck**

# **26 July 1965**

## **White House Decision**

- **Pres Johnson: If SAM Sites Not Destroyed, Rolling Thunder Targets Must be Removed.**
- **Unlike Cuba, No Diplomacy to Preclude Attack**
- **JCS Decided on Attacking Sites 6 & 7**
- **SAM Sites Blocked Rolling Thunder Targets**
- **6:55 PM - Pres Johnson: “Take Them Out.”**

# **27 July 1965**

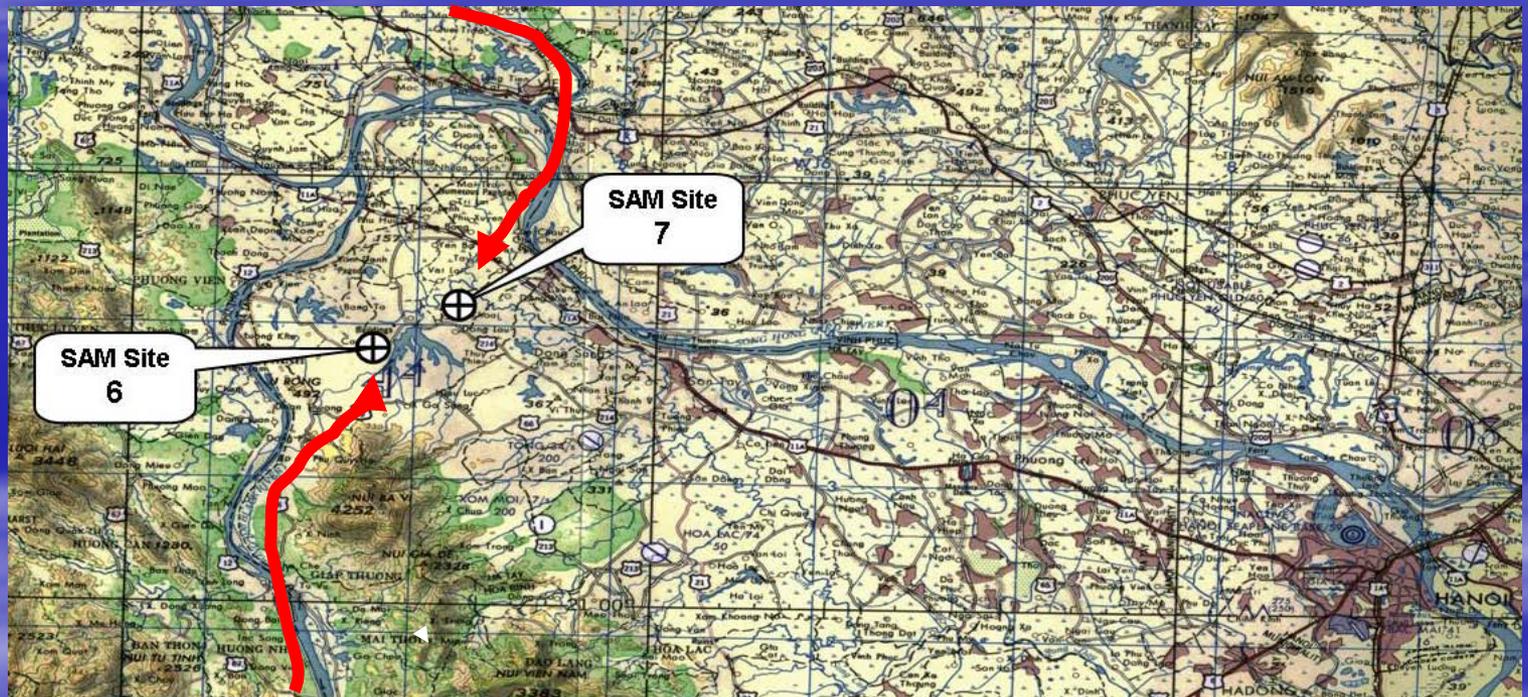
## **“Operation Spring High”**

- **Four F-105 Squadrons Tasked to Strike Two SAM Sites – 12 Planes Each, 46 Total**
- **Korat – 357 TFS & 12 TFS – SAM Site 6**
- **Takhli – 563 TFS & 80 TFS – SAM Site 7**
- **Napalm, Rockets, & CBU's**
- **One of Air War's Most Significant Missions ...**  
**... Lessons Learned**

# 27 July 1965

## “Operation Spring High”

- Takhli to Attack SAM Site 7 From North



- Korat to Attack SAM Site 6 From South

# 27 July 1965

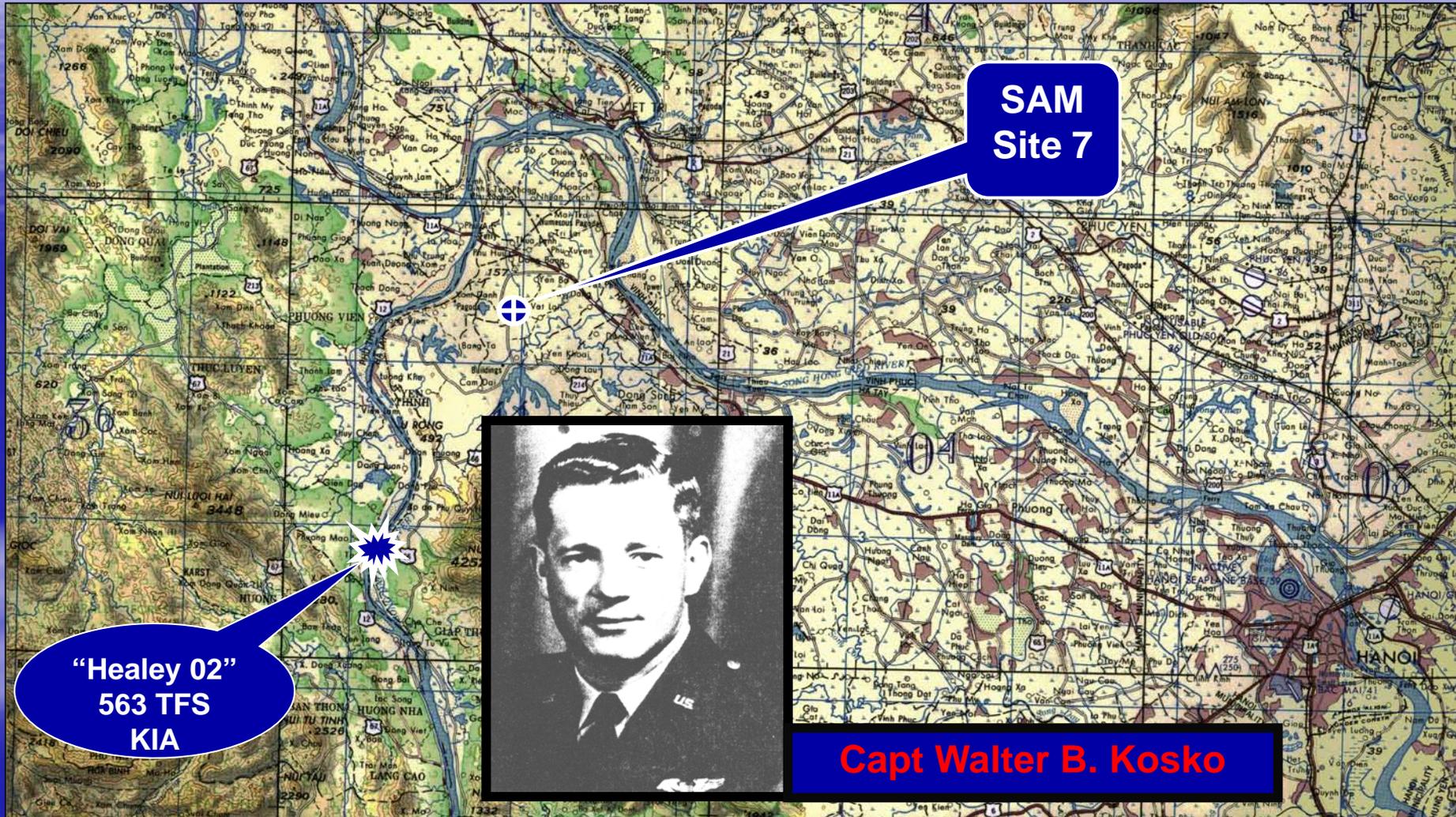
## “Operation Spring High”

- Low Altitude Ingress – 50 feet, 500+ Kts
- AAA Burst Above Attacking F-105s
- NVN Gun Crews Hacked Down Earthen Berms To Fire Lower
- Four F-105s Downed in Target Area



# 27 July 1965

## “Operation Spring High”



**SAM  
Site 7**

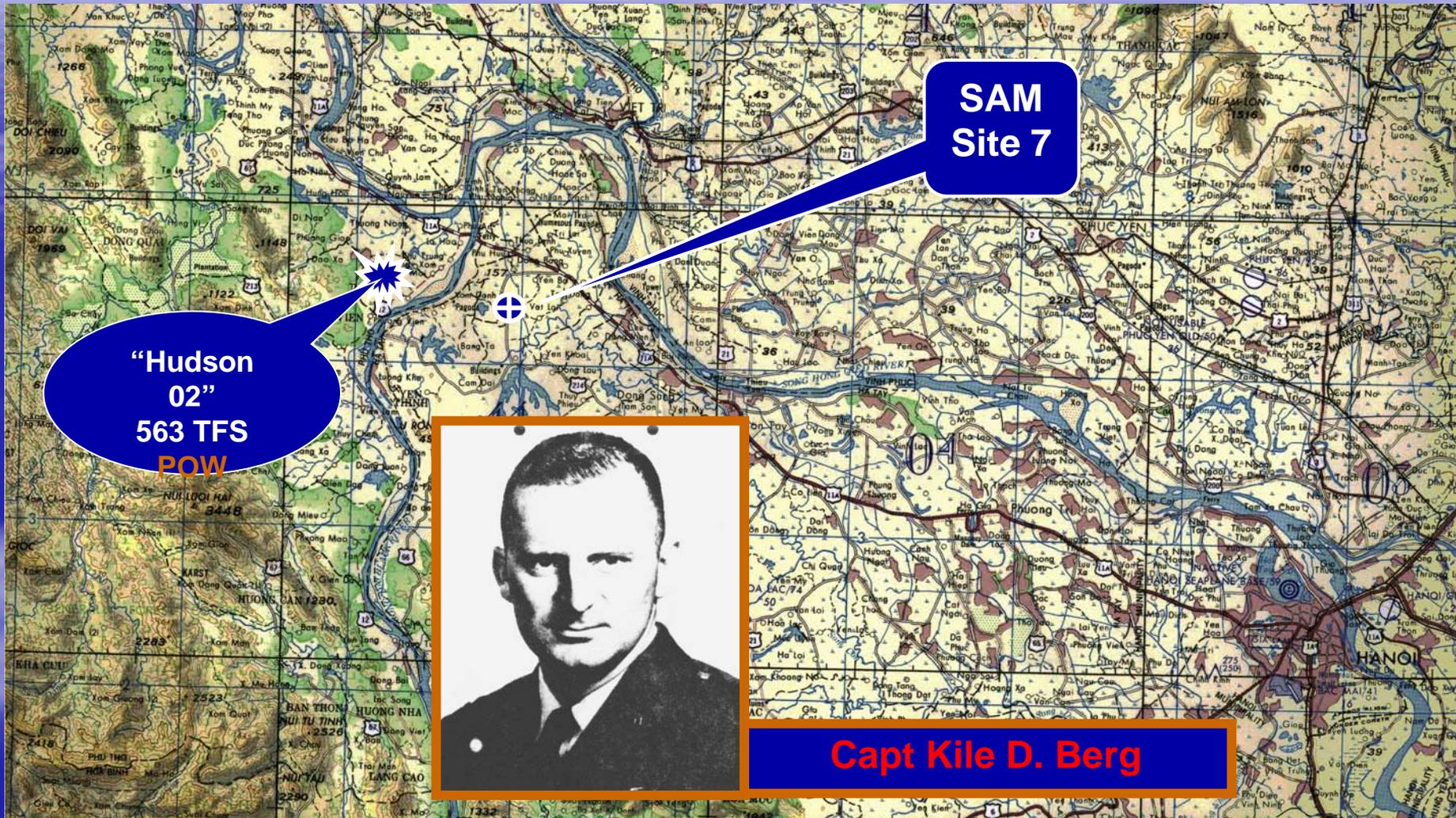
**“Healey 02”  
563 TFS  
KIA**



**Capt Walter B. Kosko**

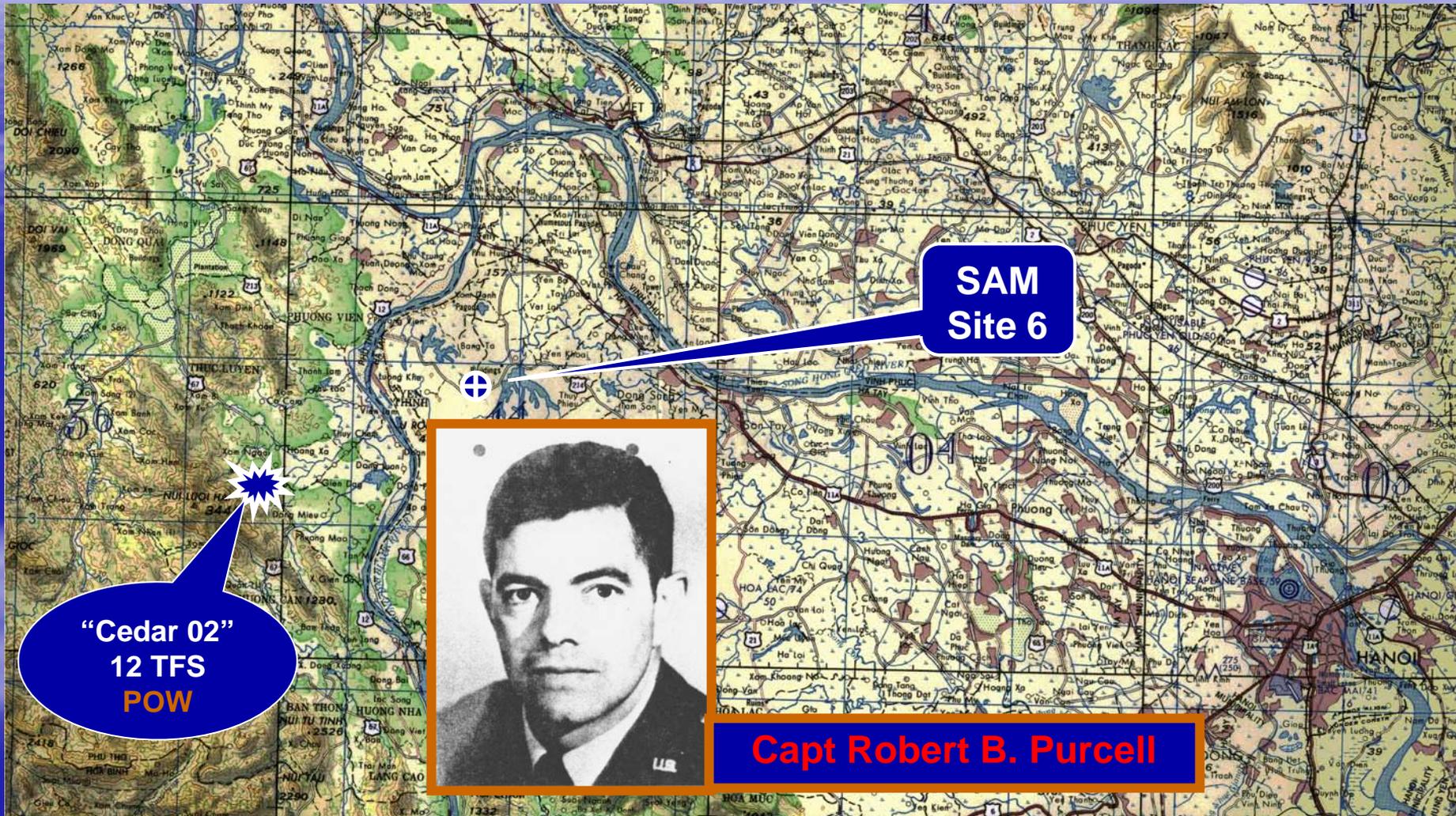
# 27 July 1965

## “Operation Spring High”



# 27 July 1965

## “Operation Spring High”



**SAM  
Site 6**

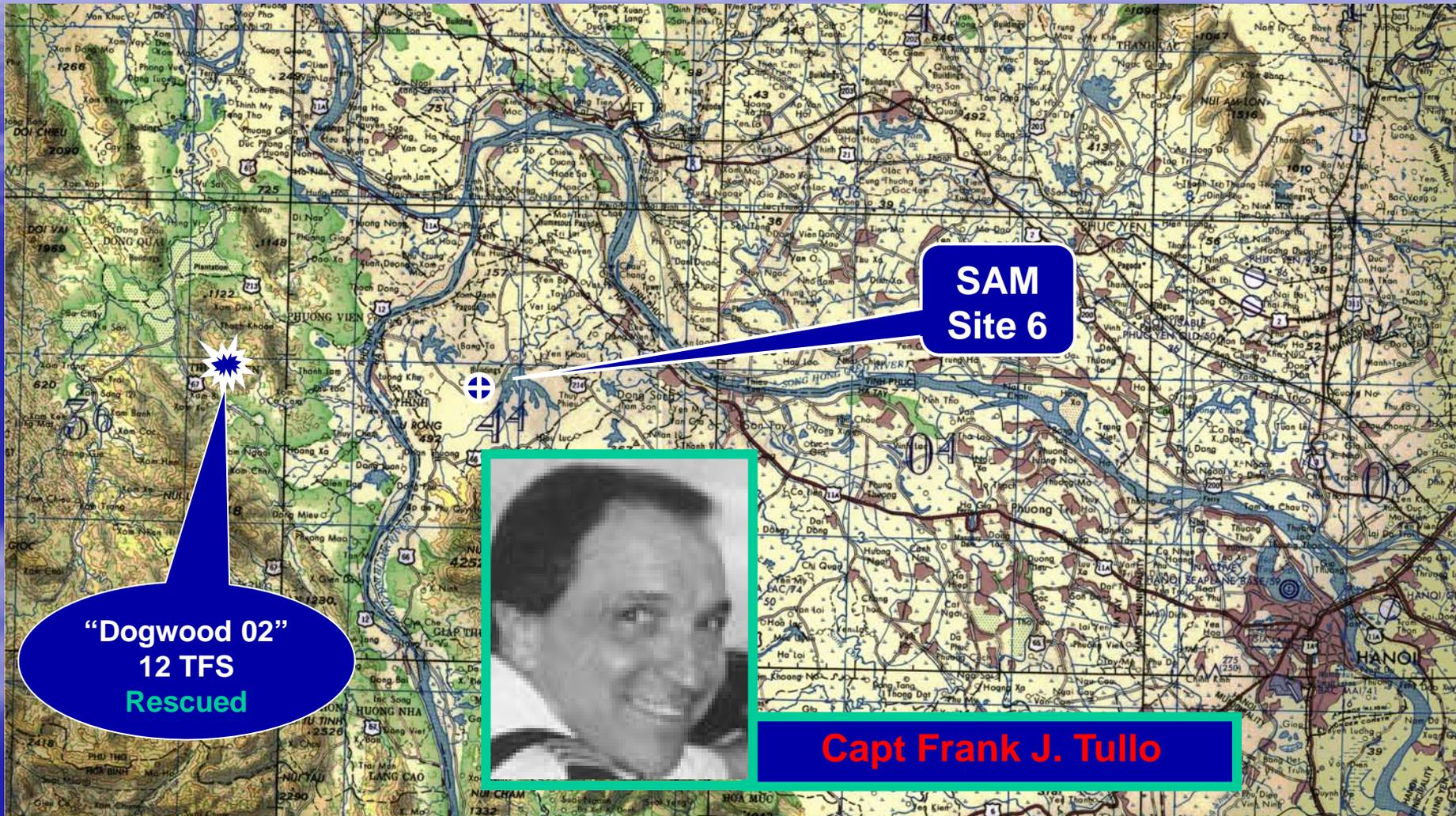
**“Cedar 02”  
12 TFS  
POW**



**Capt Robert B. Purcell**

# 27 July 1965

## “Operation Spring High”



“Dogwood 02”  
12 TFS  
Rescued

SAM  
Site 6



Capt Frank J. Tullo

# 27 July 1965 Tullo Rescue

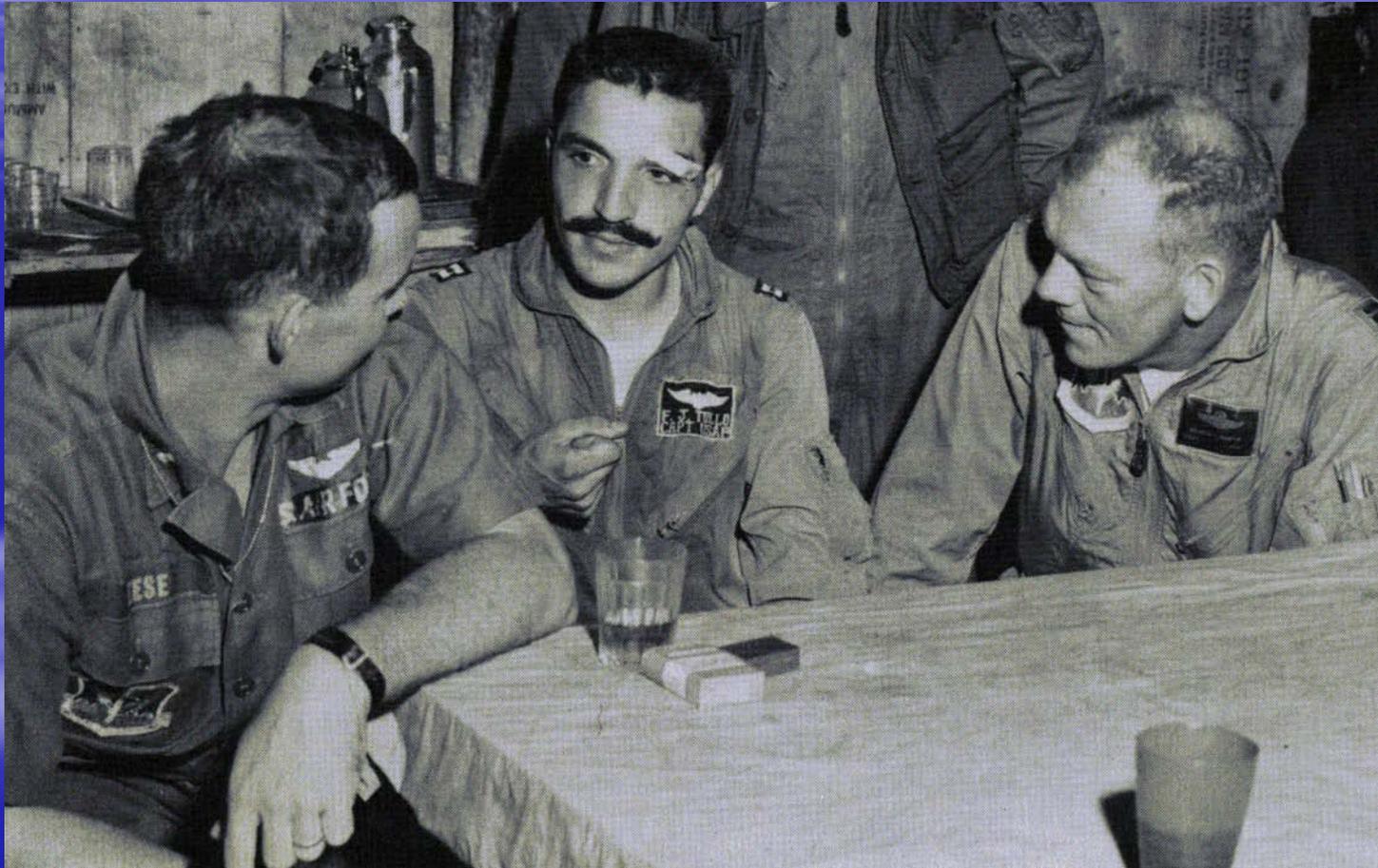
- **First Rescue Use of CH-3C Helicopter**
- **Tail Number 63-9685 - “Shed 85”**
- **Pilots - Capt George Martin, 1Lt Keese**



# 27 July 1965

## Tullo & His Rescuers

Capt Tullo



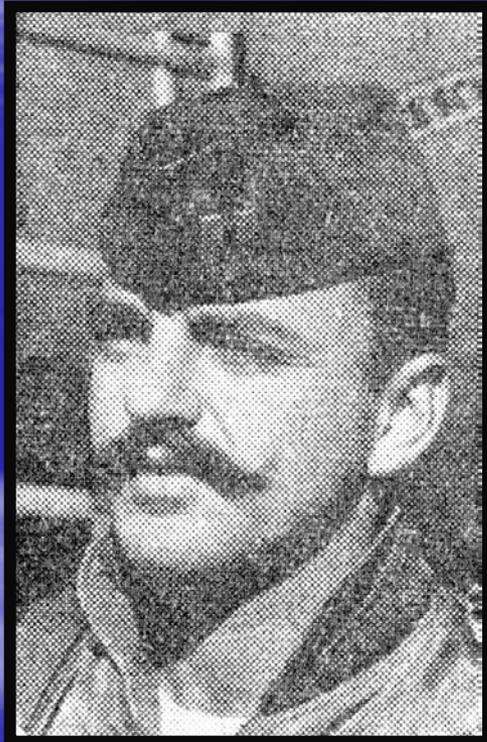
1Lt  
Keese

Capt  
Martin

# 27 July 1965

## More F-105 Losses

### ■ Two F-105s in Mid-Air Collision



Capt William J. "Black Bart" Barthelmas, Jr.

**Both 357 TFS  
Pilots Died**



Maj Jack G. Farr

# **27 July 1965**

## **“Spring High” Results**

- **Six of 46 F-105s Lost (13%)**
  - **Three Pilots Killed**
  - **Two Pilots Captured**
  - **One Pilot Rescued**
- **Lessons Learned:**
  - **SAM Sites and Their AAA a Serious Threat**
  - **Major Improvements Needed**

# **Aug - Dec 1965**

## **Critical Period in Air War**

- **See-Saw Battles With SAM Sites**
- **Fast-Track Pentagon Tech Programs**

# 6 August 1965

## Rolling Thunder 26 & 27

- **SAM Sites And Their AAA Guns Now on Target List**

**But ...**

- **Only Those Outside Hanoi & Haiphong**

# 11 August 1965

## SAMs Scored Again

- **SAMs Downed A-4E From *USS Midway***
- **Lt JG Donald Hubert Brown, Jr. KIA**
- **NVN's Second SAM Success**

# **12 - 13 August 1965**

## **“Operation Iron Hand”**

- **Navy Acft Hunted For SAM Site**
- **124 Sorties Over Two Days**
- **AAA Downed 5 Acft, Damaged 7**
- **Three Pilots Rescued, Two KIA**
- **“Iron Hand” Became Name of All SAM Site Hunter-Killer Missions**

**12 - 13 August 1965**  
**JCS & HQ USAF Anti-SAM Programs**

- **JCS “Prong Tong” Study & Report**
  - **Study North Vietnamese SAM Employment**
  - **Identify Short-Term Improvements to U.S. Air Ops**
  - **Study AAA Integration With SAM Defenses**
- **Air Staff Formed a Task Force**
  - **Study SAM Threat**
  - **Recommend Means for Coping With Threat**

# **Air Staff Anti-SAM Task Force**

- **Headed by BG Kenneth C. “KC” Dempster**
  - **Research Division,  
Directorate of  
Tactical Fighter  
Requirements  
(AF/RDQRT)**
  - **48 Years Old.  
WW II B-26 Pilot**
  - **His Leadership  
Critical to All  
USAF Anti-SAM  
Programs**



# **Air Staff Anti-SAM Task Force Problem Statement**

**"What is the most effective means of neutralizing the threat posed by SAMs and the complementing heavy AAA in Southeast Asia?"**

# **Air Staff Anti-SAM Task Force Approach**

- **Accept Political Constraints, i.e. ROEs**
- **Two Time Frames:**
  - **Group A – Short Term Solutions**
  - **Group B – Longer Term Solutions**
- **Involve Contractors & Encourage All Ideas**
- **Expedite Procurement (QRC)**

# **Eglin AFB Anti-SAM Seminar**

## **16 – 18 Aug 1965**

- **USAF & Navy Agencies Briefed Their Programs**
- **Developed Concept of Operations For Special Anti-SAM Aircraft – Genesis Of Wild Weasels**
- **Recommended Near-Term Solutions:**
  - **Refine Navy's Shrike Anti-Radiation Missile**
  - **Field ECM Radar Jamming Pods**
  - **Improve Radar Homing & Warning Systems (RHAW)**
- **Solutions Adopted by Dempster Committee**

# Shrike Radar-Homing Missile

- Navy Developed AGM-45 at China Lake



- Reached SEA in March 1966

## **Radar Jamming Pod**

- **Carried on Outboard Wing Stations of F-105s and F-4s**



- **Reached SEA in September 1966**

## **Aug - Sept 1965**

# **SAMs Growing Threat**

- **18 SAM Sites Confirmed, 18 More Suspected**
- **Sites Camouflaged & Equipment Mobile**
- **Finding SAM Sites Was Main Problem**

# More F-105 Losses

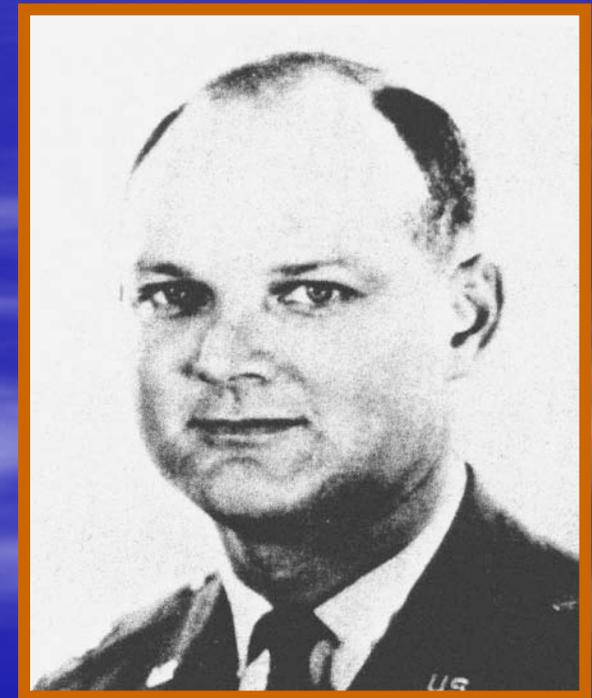
- **F-105 Pilots Continued Hunting for SAM Sites ... the Hard Way**
- **16 Sept 65 – Two Losses to AAA on SAM-Site Search**



Lt Col Robbie  
Risner  
CO of 67 TFS

Maj Ray  
Merritt  
67 TFS

**Both Pilots POWs.  
Released 12 Feb 73**



# **20 & 23 Sept 1965**

## **Pilots Learned to Avoid SAMs**

- **Navy And USAF Pilots Devised “SAM Break” Maneuver**
- **“...a high-speed dive past the rising missile, followed by a sharp pull up and change of direction.”**

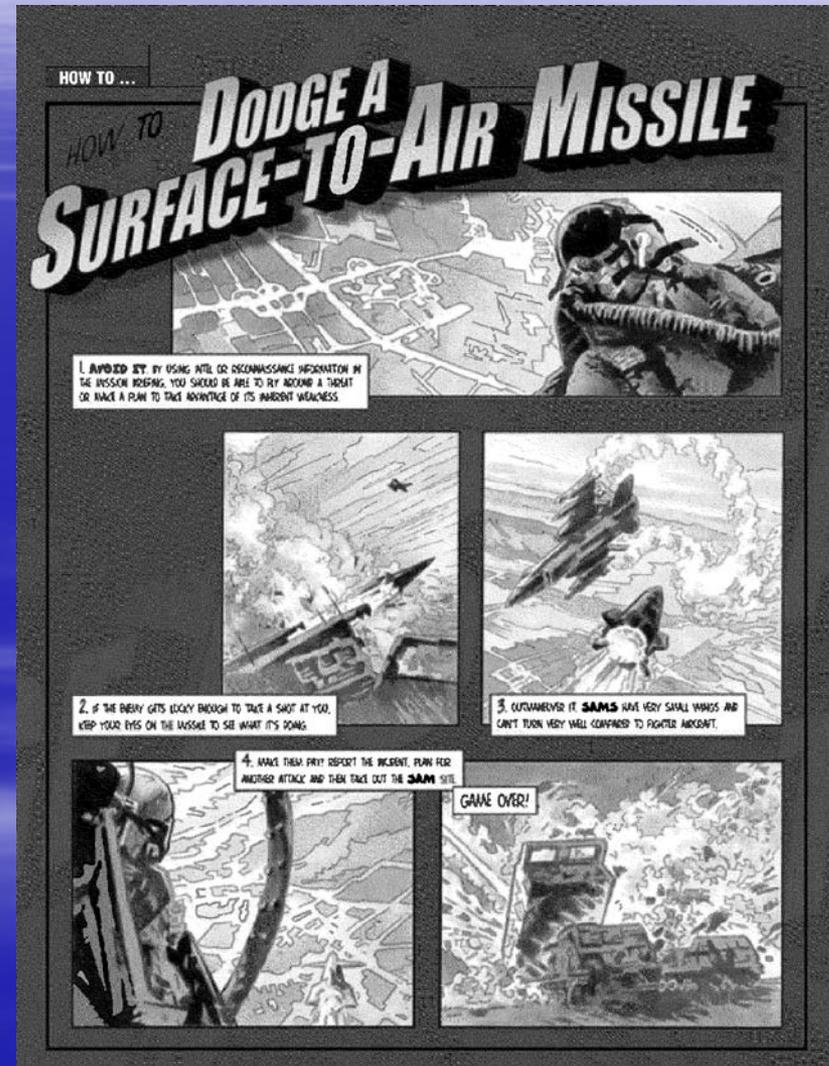
# SAM Break Still Used

Airman Magazine

Summer 2005

“How To Dodge A  
Surface-To-Air Missile”

... In Your **F-16**



**23 Sept 1965**  
**Dempster Air Staff Committee**  
**Anti-SAM Roadmap**

- **Seminal Document ...**
- **Started USAF Programs to Counter the SAM Threat**
- **22 Short-Term & 25 Long-Term Actions**
- **Identified Air Staff Action Offices**
- **Provided Priority, Direction & Funding**

# **Dempster Committee Anti-SAM Directives**

- **Develop Radar Homing & Warning Systems (RHAW) for Fighters**
- **Develop & Deploy “Hunter/Killer” Force. (Became Wild Weasels)**
- **Field Improved ECM Jamming Pods**

# **Dempster Committee Anti-SAM Program Management**

- **Used Quick Reaction Capability (QRC) Procedures**
- **Allowed Contractors to Work to “Best Commercial Practices” Vs MILSPEC**
- **Program Managers Worked Fast, Communicated Informally, and Relied on Trust**

# **Dempster Committee Anti-SAM Program USAF Program Manager**

- **Maj Irwin Joel “Pierre” Levy**
- **Worked For  
Gen Dempster  
in The  
Pentagon**
- **Electronic Warfare  
Expert**



# **Dempster Committee Anti-SAM Program Contractor PM**

- **Applied Technology Corporation (ATI)**
- **Dr. John Grigsby  
VP Engineering**
- **Provided “Vector”  
RHAW Systems**
- **Designated  
APR-25/26**



# Applied Technology Corporation

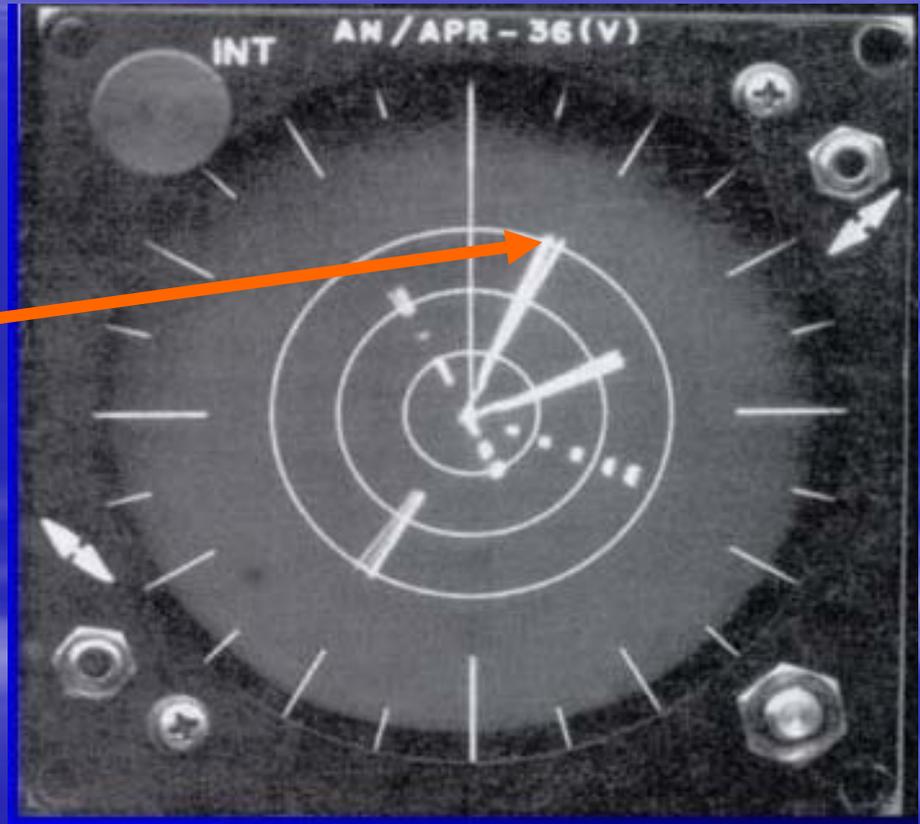
- RHAW Cockpit Display Called “Vector”

SAM Radar Signal  
Warning

“3-Ringer”

Also ...

- “Rattle Snake”  
Sound In  
Headset



# Dempster Committee Anti-SAM Systems

- **Two-Seat F-100F Selected for Hunter/Killer Platform (Wild Weasel I)**



Used ATI Vector System

- **Four Acft Modified at North American Aviation (NAA) in Long Beach, CA**

# Wild Weasel I Testing at Eglin AFB FL

- Highest Priority of All Testing at Eglin
- Testing Combined With Aircrew Tng
- Two Project Officers – TAC & AFSC

Maj Jim Odem  
– Pilot  
TAWC TAC



Capt Joe  
Telford –  
EWO  
APGC  
AFSC

# Wild Weasel I Aircrew Test Team

## ■ Six Pilots & 5 EWOs – All Volunteers

### Pilots

Capt Al Lamb

Capt Maury Fricke

Capt Ed White

Capt Les Lindenmuth

Capt John Pitchford

Capt George Kerr

### EWOs

Capt Ed Sandelius

Capt Don Madden

Capt Jack Donovan

Capt Walt Lifsey

Capt Bob Trier



## ■ Maj Garry Willard – Team Lead

# **Wild Weasel I Test Plan**

- **Three Objectives:**
  - **Determine Accuracy of ATI's RHAW System**
  - **Determine Crews' Ability to Locate SA-2 Radar**
  - **Develop Tactics For Killing SAM Sites**
- **Deploy to Korat For Combat After Eglin**

# **Eglin Wild Weasel I Tests**

- **11 Oct 1965 – Testing Started**
- **Two F-100Fs Initially**
- **Early Nov 65 – Two More F-100Fs Arrived From NAA**

**Sept – Nov 1965**  
**Meanwhile the Air War**  
**Continued ...**

- **... More Losses to Planes and Pilots**
- **Some Successful Attacks Against SAM Sites**

**30 Sept 1965**

## **SAMs Downed Another F-105**

- **Target: Ninh Binh Bridge (JCS 10) 43 NM South of Hanoi**
- **Lt Col Melvin J. Killian, 334 TFS Commander, Downed by SAM**
- **Second USAF Squadron Commander Lost to SAMs or Their AAA**

Lt Col Melvin J. Killian - KIA



# 17 Oct 1965

## 1<sup>st</sup> Successful SAM Site Attack

- Navy Attack on SAM Site Near Kep Airfield
- Iron Hand A-6A and A-4Es From Carrier *USS Independence* Destroyed Missiles, Transporter, & Radar Van



A-6A Intruder



A-4E Skyhawk

# 31 Oct 1965

## Iron Hand Attack

- **A Navy A-4E Led F-105s From Takhli in Attacks Against Two SAM Sites**
- **A-4E Equipped with Melpar APR-23 RHAW**
- **F-105 Carried More Bombs**
- **Led by Lt Cmdr Trent Richard Powers From *USS Oriskany***
  - **SAM Sites Destroyed ...**
  - **... Lt Cmdr Powers KIA From AAA**

# 31 Oct 1965

## Iron Hand Attack

- Powers Posthumously Awarded the Navy Cross



Lt Cmdr Trent Richard Powers - KIA



U.S. Navy Cross

# 5 Nov 1965

## Another Iron Hand Loss

- **A-4s With RHAW to Lead F-105s From Korat**
- **A-4s From *USS Midway* Aborted**
- **F-105s Pressed On**
- **Lt Col George C. McCleary  
– 357 TFS Commander –  
KIA by a SAM**
- **Third USAF Squadron  
Commander Lost to SAMs  
or Their AAA**



Lt Col George C. McCleary - KIA

# 6 - 8 Nov 1965

## McCleary RESCAP Losses

- **Two A-1Es. Both Pilots POWs**
- **CH-3C 63-09685 “Jolly Green 85”**
  - **Same Chopper That Rescued Capt Tullo**
  - **Three Crewmembers POWs, One Rescued**
- **Searches Called Off After 3 Days & Many Damaged Planes**

# **5 - 8 Nov 1965**

## **SAM Sites Didn't Always Win**

- **Air Force and Navy Planes Found & Attacked 4 SAM Sites Over 4 Days**
- **NVN's 236<sup>th</sup> Missile Regiment Out of Action**
- **Same Unit That Had Downed F-4C on 24 July**

# Destroyed SAM Radar



## **Oct - Dec 1965**

### **Anti-SAM Equipment Delivered**

- **19 Nov 65 – USAF Ordered 500 Sets of RHAW Systems For F-105s From ATI**
- **Draft \$6.7M Contract Written on Blackboard & Documented by Polaroid Photo**
- **APR-25/26 Installed at Takhli in Dec 65 ...**

**... Less Than 3 Months After Dempster Committee Direction**

# APR-25/26 RHAW System

APR-25  
Antenna  
F-105D



# Nov 1965

## F-100F Wild Weasels Deployed

- 19 Nov 65 – Testing at Eglin Completed
- 25 Nov 65 – Four F-100Fs Arrived at Korat



# 28 Nov 1965

## F-100F Wild Weasel Test Team At Korat



**Dec 1965**

## **2 Types of Wild Weasel Missions**

- **Hunter-Killer Missions With F-105 Flights**



- **Strike-Force-Protection Missions**

**3 Dec 1965**  
**1<sup>st</sup> Wild Weasel Hunter-Killer**  
**Mission**

- **“Bamboo” Flight With 469 TFS F-105 Pilots**
  - #1 – Maj Bob Krone – 469<sup>th</sup> Ops Officer**
  - #2 – Capt Jerry Driscoll**
  - #3 – Capt Fred Coleman**
  - #4 – Capt Steve Sanders**
  - F-100F – Maj Garry Willard & EWO Capt Walt Lifsey**
  - F-100F – Capt Les Lindenmuth & EWO Capt Bob Trier**
- **Did Not Detect SAM Site ...**
- **... So Bombed Army Barracks in NVN**

**20 Dec 1965**

**First Wild Weasel Combat Loss**

- **F-100F Wild Weasel Part of Strike Package of 12 F-105s Attacking Kep Airfield**
- **F-100F “Apple 01” Hit by AAA & Crew Ejected**



**Pilot Capt John Pitchford – POW**

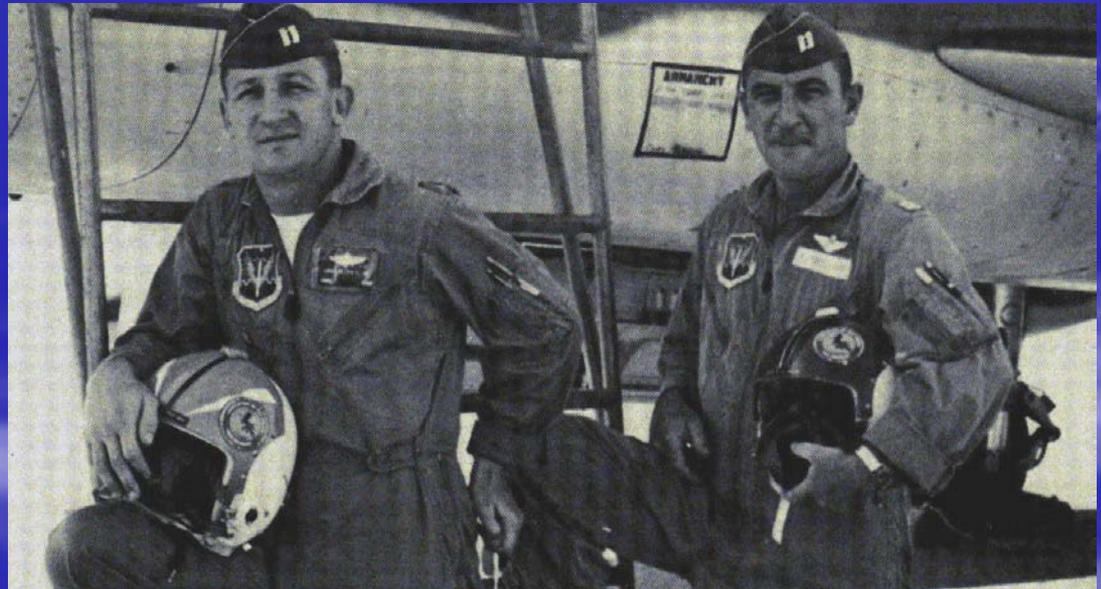


**EWO Capt Bob Trier – KIA**

**22 Dec 1965**

## **First Wild Weasel SAM Site Kill**

- **SAM Site Near Yen Bai 58 NM NW of Hanoi**
- **F-100F & Four F-105s From 421 TFS**
- **“Spruce” Flight:**
  - #1 – Capt Don Langwell
  - #2 – Capt Van Heywood
  - #3 – Capt Bob Bush
  - #4 – Capt Art Brattkus



**#5 – Capt Al Lamb & EWO Capt Jack Donovan**

**22 Dec 1965**  
**First Wild Weasel SAM Site Kill**



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*Keith Ferris Painting "First In"*

# 23 Sept 2005

## Wild Weasel Reunion

- Keith Ferris Donated Painting to AF Museum



**Keith Ferris Al Lamb Jack Donovan Van Heywood**

# 25 Dec 65 – 31 Jan 66 36-Day Bombing Halt Over NVN

- **Interrupted SAM-Site Battles**

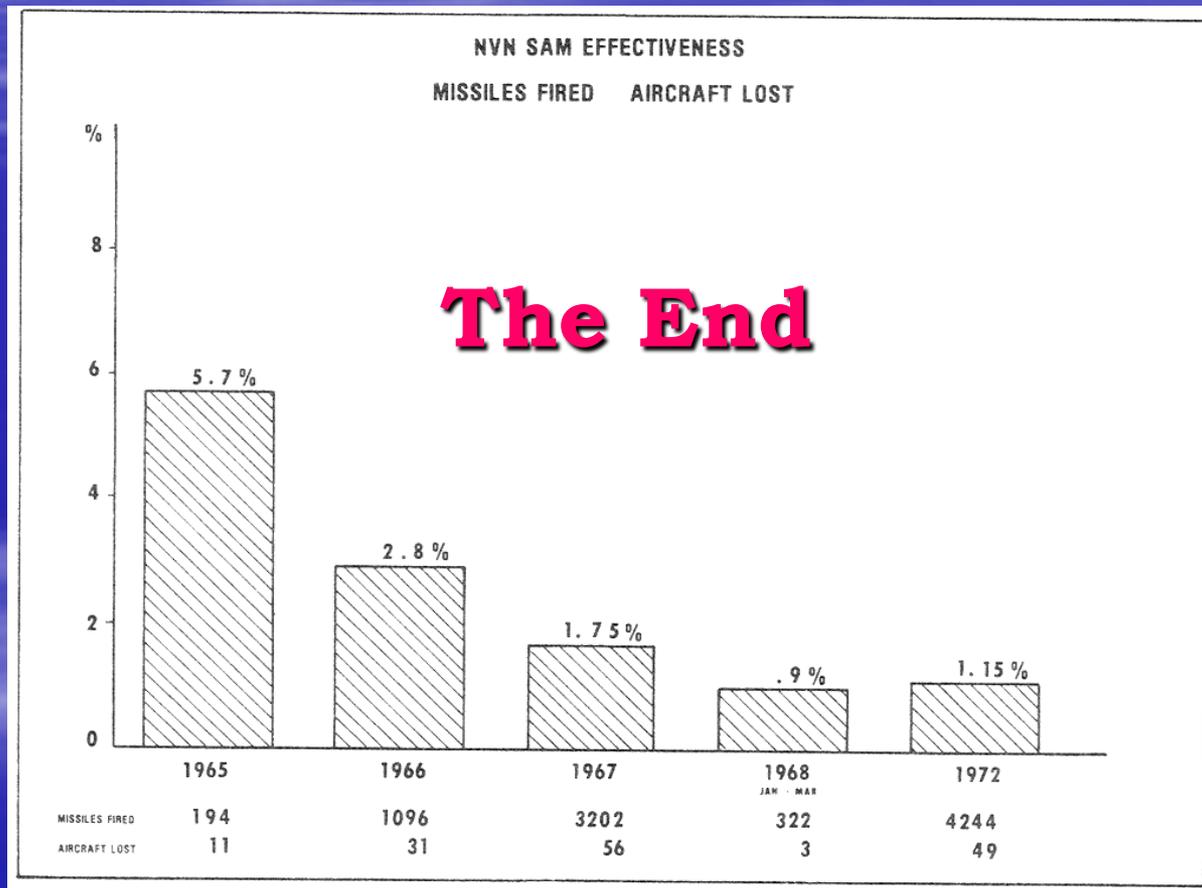


# **1965 U.S. Anti-SAM Program Accomplishments**

- **Fielded RHAW Equip For Fighters**
- **Developed Flight Tactics For Evading SAMs**
- **Fielded Improved Shrike Missiles**
- **Started Stand-Off Jamming (EB-66s)**
- **Developed Anti-SAM Acft (Wild Weasels)**
- **Fielded Jamming Pods For Fighters**
- ...
- **All Programs Still Used In Some Form Today**

# U.S. Anti-SAM Program Results

- Decreased U.S. Acft Losses Per SAM Firings



Momyer  
"Airpower in  
Three Wars"  
pg 136