TTX Cope Tiger 2024

SAFETY CONSIDERATIONS

14 MAR 2024

Mission Success Safety Always

Objectives

- Understanding the concept of “Safety”, “Risk” for the considerations of the exercise
- Define “Safety Considerations” - Risk Management
- Describe the Risk Management Common Process
- Risk Management “Decision Making” and “Mindset”

SAFETY?

CONSIDERATIONS?

"is the state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management"

ICAO Doc 9859 Safety Management Manual

"The state in which the risk of harm to persons or property damage is acceptable."

FAA ORDER 8000.369C Safety Management System

U.S. AIR FORCE

"The programs, RM activities, and organizational and cultural values dedicated to preventing injuries and accidental loss of human and material resources, and to protecting the environment from the damaging effects of DoD mishaps.

AFI 91-202, The US Air Force Mishap Prevention Program

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SAFETY?

CONSIDERATIONS?

Risk Management: The first step

Hazard identification

WHAT IS HAZARD?

"A condition or an object with the potential to cause or contribute to an aircraft incident or accident."

"a condition or an object with the potential to cause death, injuries to personnel, damage to equipment or structures, loss of material, or reduction of the ability to perform a prescribed function ."

Risk Management: The first step

WHAT IS RISK?

Risk is the chance of something happening that could impact upon objectives. *Measured in terms of consequence and likelihood.*

Risk = Probability (likelihood) x Severity (consequences)

Example: RISK PROBABILITY AND SEVERITY

PROBABILITY DEFINITIONS	
5= FREQUENT	LIKELY TO OCCUR FREQUENTLY.
4= PROBABLE	WILL OCCUR SEVERAL TIMES
3= OCCASIONAL	LIKELY TO OCCUR SOMETIME
2= REMOTE	UNLIKELY, BUT POSSIBLE TO OCCUR
1= IMPROBABLE	OCCURRENCE MAY NOT BE EXPERIENCED

SEVERITY DEFINITIONS	
A=CATASTROPHIC	DEATH. LOSS OF EQUIPMENT.
B=CRITICAL	SEVERE INJURY. MAJOR DAMAGE TO EQUIPMENT
C=MARGINAL	MINOR INJURY. MIOR DAMAGE TO EQUIPMENT
D=NEGLIGIBLE	NO INJURY. NO DAMAGE T EQUIPMENT

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely improbable 1	1A	1B	1C	1D	1E

Table 4.2 Safety Risk Analysis Matrix

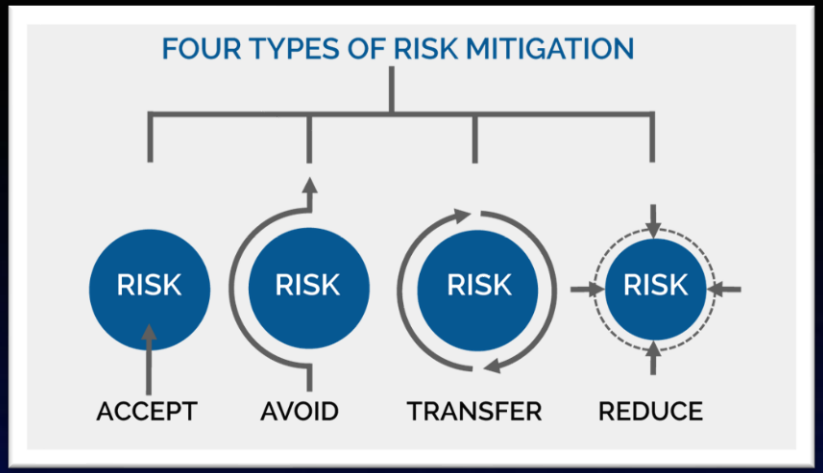
Severity of Outcome			Probability of Outcome				
			A	B	C	D	E
	People (Life and Health Safety Risks)	**Assets** (Damage to aircraft, equipment, or facilities)	Extremely improbable	May be expected less than once in a five year period	May be expected at least once in a five year period	May be expected once in a one year period	May be expected more than once in a one year period
5	Multiple Fatalities	Serious Damage >$20 million	Moderate	Serious	High	High	High
4	Single Fatality	Major Damage >$5 million to ≤$20 million	Moderate	Serious	Serious	Serious	High
3	Serious Injury*	Substantial Damage >$750 thousand to ≤$5 million	Minor	Minor	Moderate	Moderate	Serious
2	Minor Injury	Minor Damage >$100 thousand to ≤$750 thousand	Low	Low	Minor	Minor	Moderate
1	No Injury	Minimal Damage ≤$100 thousand	Low	Low	Low	Minor	Minor

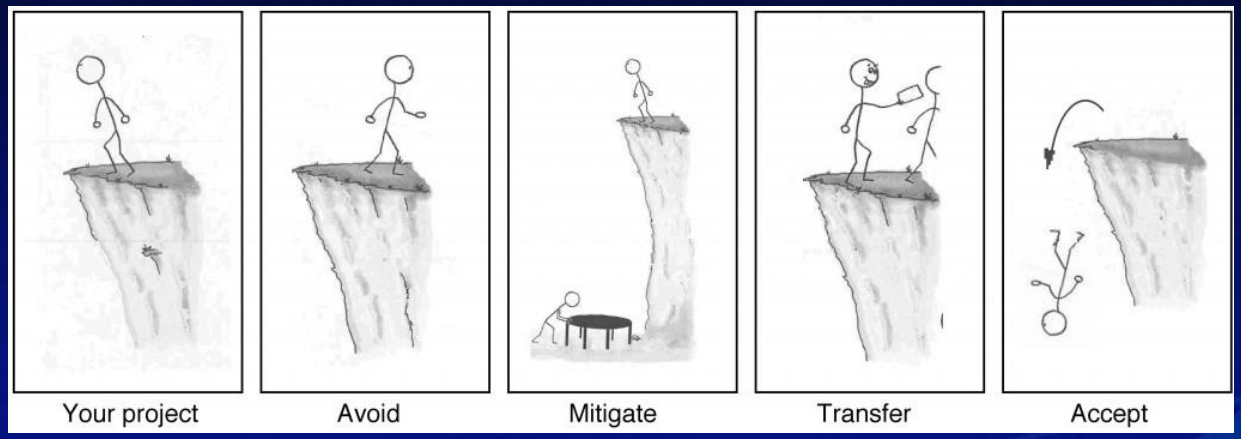
Risk Management Principles

- Accept no Unnecessary Risk
- Make Risk Decisions at the Appropriate Level
- Accept Risk When Benefits Outweigh the Costs
- Integrate RM into Planning at all Levels

Risk mitigation - Strategies

"DO NOT ACCEPT UNNECESSARY RISKS"





Prioritization of Treatment

- Based on the nature of their associated consequences
- With a high level of uncertainty

Determining Available Mitigation Options

- Removing the hazard altogether
- Reducing the likelihood
- Reducing the level of potential consequence
- Sharing the retained risk with other organization
- Combinations of the above

Risk = Probability (likelihood) x Severity (consequences)

Safety risk management at a glance

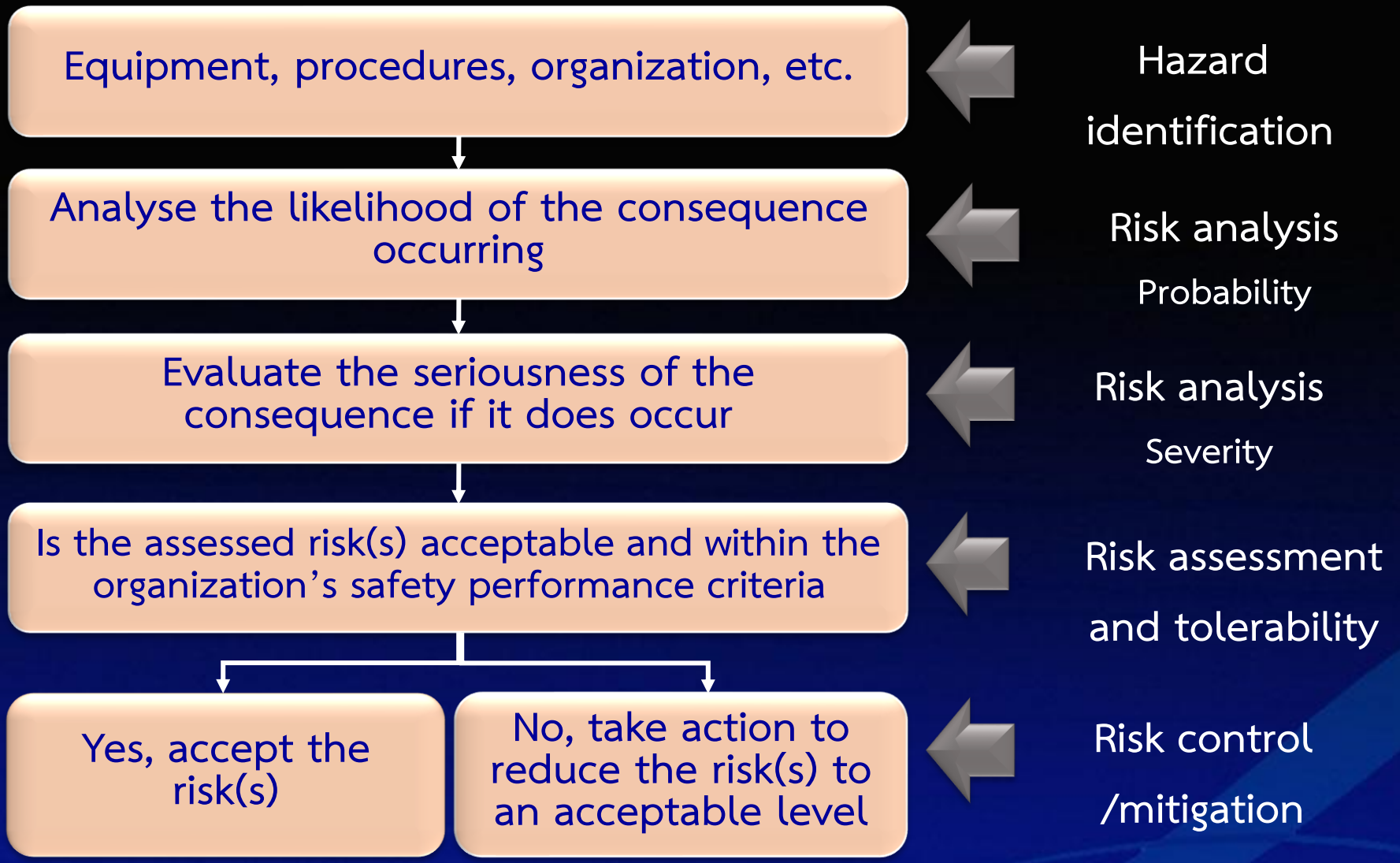


Figure 2. 5-Step RM Process.

REAL LIFE - LESSON LEARNT

2023

- 3 Bird Strikes, Low level, Small birds, No damage

Who&What: Pilot reported “Black Object” passing above his a/c on the right. First assumption - UAVs

When: LFE-6 (AM), 1014H

Where: Left Outside Downwind RWY 24 (SE, 5.4 NM) ALT 2,800 – 3,000 ft.

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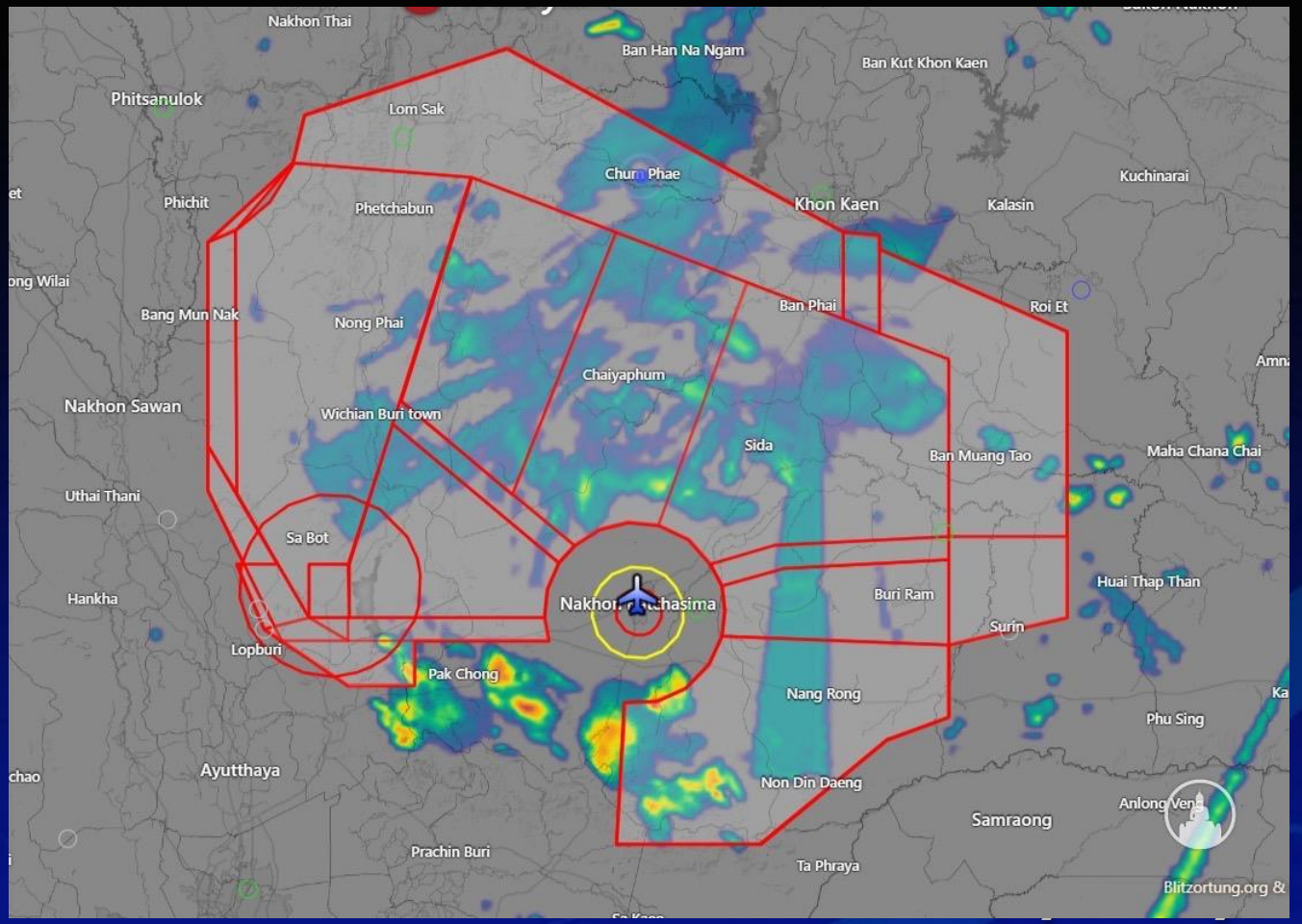
2023

Airliner in the LFE Airspace



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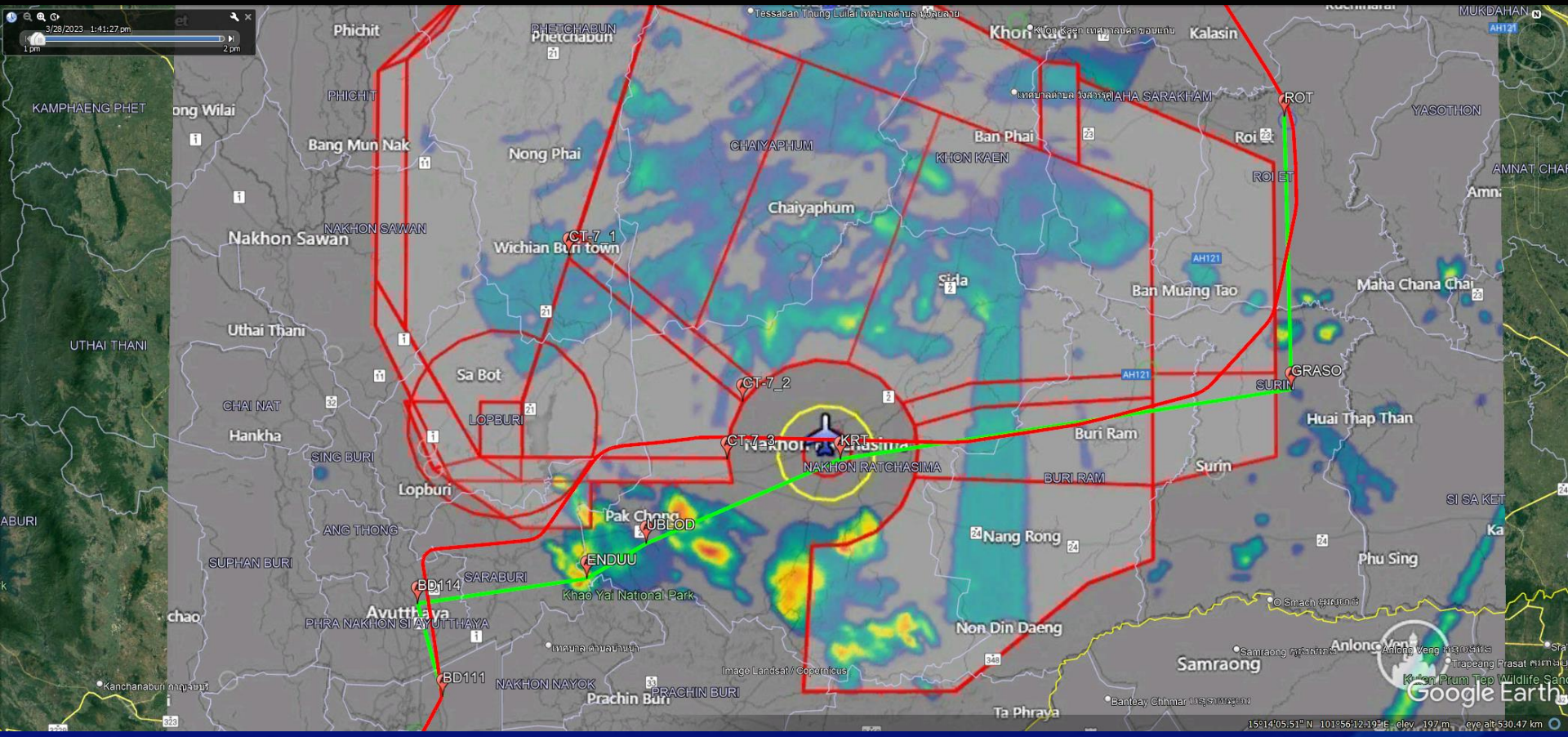
2023



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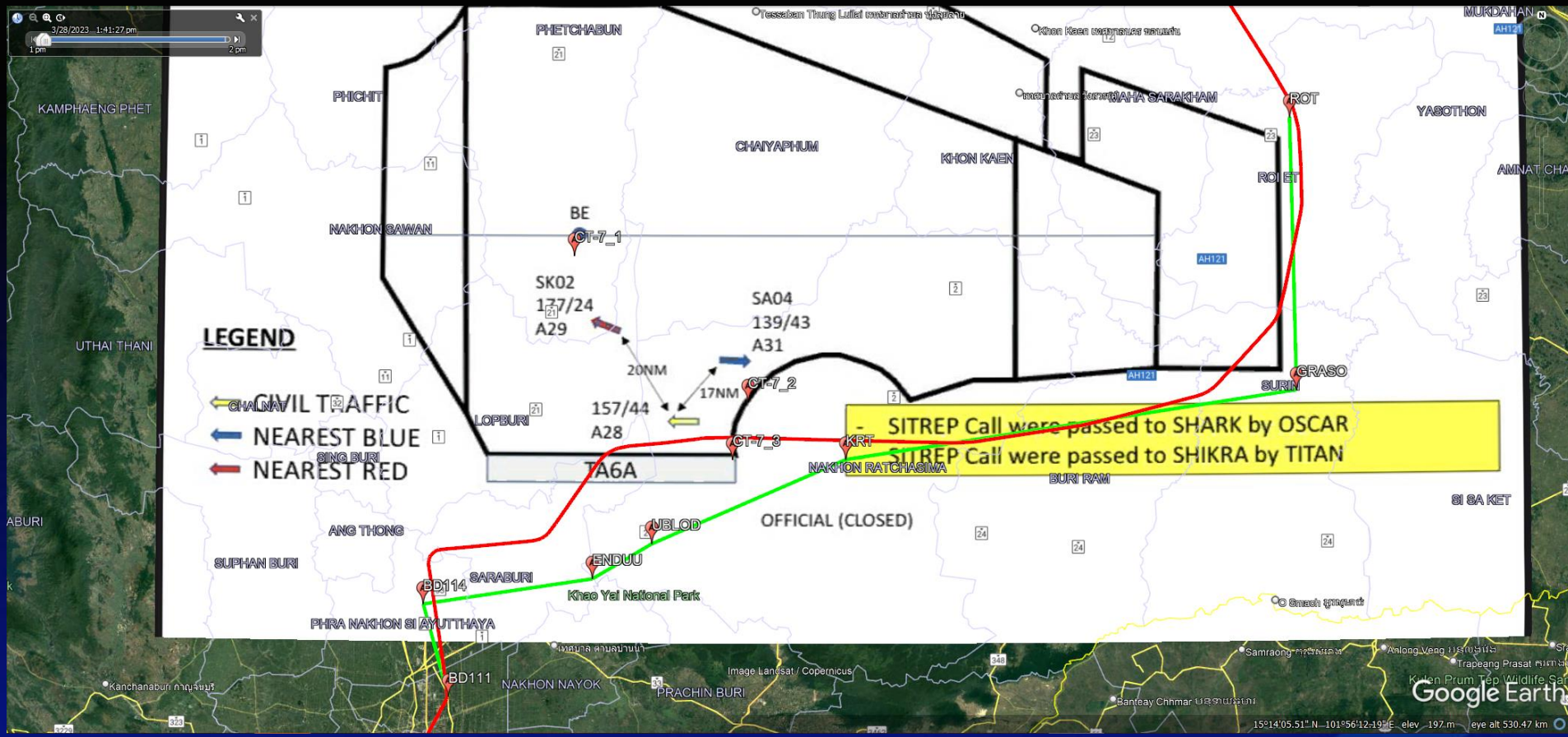
LESSON LEARNT

2023



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REAL LIFE -

LESSON LEARNT

2023

7.17 TERMINATION CRITERIA

General
The following terminology will be used to stop tactical maneuvering for the COPE TIGER exercise. The effectiveness of any termination or knock-it-off rests solely with the judgment and discipline of the aircrew.

Use of Terminate Call
The phrase "TERMINATE" with call sign and affected location and area will be used to terminate a local engagement for any reason. Accompany this call with a wing rock.

> **Example**: "Cobra 22, terminate Bullseye 360 for 20 miles." Attacking aircraft observing a wing rock will terminate the engagement, and repeat the wing rock when able. All participants will clear their flight path, return to their blocks, and go beyond visual range (BVR).

Termination Criteria
Individual aircraft will terminate and cease air-to-air maneuvering when one of the following situations occurs :

- The engagement drifts to the border of the authorized area.
- A non-exercise participant enters the area and is detrimental to the safe conduct of the mission.
- Minimum altitude, minimum ranges, or cloud separation are approached.
- An engaged aircraft reaches the applicable maneuvering limits.
- An engaged aircraft begins air to surface weapons delivery, defined as :
  - Pop point for pop deliveries.
  - Roll-in for fly-up or medium altitude deliveries.
  - 5 NM prior to release for level deliveries, low or high altitude.
- An attacker becomes defensive at low-altitude (below 5,000 ft AGL).
- Situation awareness is lost.
- A radio failure is recognized.
- Any aircraft observes a continuous wing rock.
- The desired learning objective is achieved.
- A stalemate occurs.
- A dangerous situation is developing.
- More than 5 aircraft in a visual engagement.
- Bingo fuel reached.
- An over-G occurs.
- Anybody transmits "TERMINATE" or "KNOCK-IT-OFF."

CEG Pg 94
Titan deemed that it was not detrimental to the conduct of the mission

REAL LIFE - LESSON LEARNT

2023

7.18 KNOCK-IT-OFF CRITERIA

Applicability
The phrase "KNOCK-IT-OFF" will be used to immediately stop all activity when a situation is developing which threatens any of the participants with such a grave or imminent danger that it requires the complete attention and immediate assistance of all participants (e.g. aircraft accident, ejection & etc).

Terminology
The transmission on UHF guard will be "KNOCK-IT-OFF, KNOCK-IT-OFF" followed by call sign and a clear text statement of the specific condition and assistance required.

Fighter Actions at KIO
When hearing a "KNOCK-IT-OFF" call :

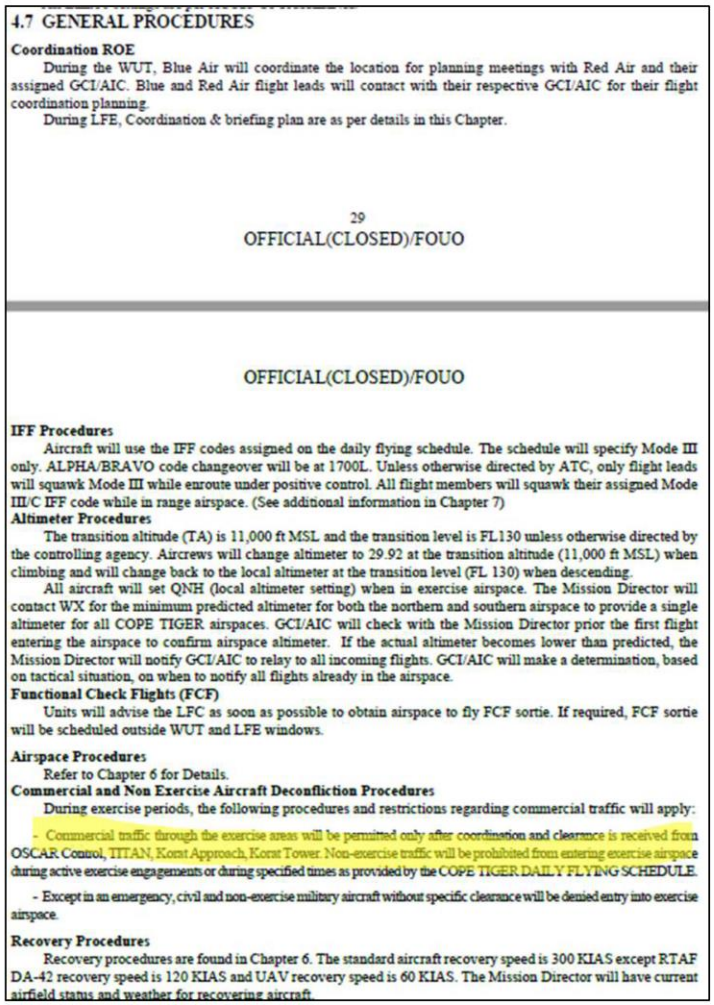
- Cease maneuvering.
- Clear flight path.
- Climb or descend to a pre-briefed safe altitude (1,000 ft AGL minimum) within appropriate altitude block.
- Acknowledge with call sign and wing rock. Obtain verbal clearance from the MC or flight lead before resuming maneuvers.

GCI and Knock It Off
Weapon Controllers (GCI) will maintain direct lines of communication with one another to pass safety of flight information and "KNOCK-IT-OFF" calls to all players. Any weapons controller or aircrew member may stop an engagement with a "KNOCK-IT-OFF." Any "KNOCK-IT-OFF" will be repeated by both Blue and Red weapon controllers. All affected players will acknowledge the "KNOCK-IT-OFF" with callsign. Restart procedures will be briefed by the MC or flight lead.

CEG Pg 95
- TITAN assessed that there were no grave or imminent danger
- **Any weapon controller or aircrew may stop an engagement if deem unsafe**

REAL LIFE - LESSON LEARNT

2023



4.7 GENERAL PROCEDURES

Coordination ROE

During the WUT, Blue Air will coordinate the location for planning meetings with Red Air and their assigned GCI/AIC. Blue and Red Air flight leads will contact with their respective GCI/AIC for their flight coordination planning.

During LFE, Coordination & briefing plan are as per details in this Chapter.

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OFFICIAL(CLOSED)/FOUO

OFFICIAL(CLOSED)/FOUO

IFF Procedures

Aircraft will use the IFF codes assigned on the daily flying schedule. The schedule will specify Mode III only. ALPHA/BRAVO code changeover will be at 1700L. Unless otherwise directed by ATC, only flight leads will squawk Mode III while enroute under positive control. All flight members will squawk their assigned Mode III/C IFF code while in range airspace. (See additional information in Chapter 7)

Altimeter Procedures

The transition altitude (TA) is 11,000 ft MSL and the transition level is FL130 unless otherwise directed by the controlling agency. Aircrews will change altimeter to 29.92 at the transition altitude (11,000 ft MSL) when climbing and will change back to the local altimeter at the transition level (FL 130) when descending.

All aircraft will set QNH (local altimeter setting) when in exercise airspace. The Mission Director will contact WX for the minimum predicted altimeter for both the northern and southern airspace to provide a single altimeter for all COPE TIGER airspaces. GCI/AIC will check with the Mission Director prior the first flight entering the airspace to confirm airspace altimeter. If the actual altimeter becomes lower than predicted, the Mission Director will notify GCI/AIC to relay to all incoming flights. GCI/AIC will make a determination, based on tactical situation, on when to notify all flights already in the airspace.

Functional Check Flights (FCF)

Units will advise the LFC as soon as possible to obtain airspace to fly FCF sortie. If required, FCF sortie will be scheduled outside WUT and LFE windows.

Airspace Procedures

Refer to Chapter 6 for Details.

Commercial and Non Exercise Aircraft Deconfliction Procedures

During exercise periods, the following procedures and restrictions regarding commercial traffic will apply:

- Commercial traffic through the exercise areas will be permitted only after coordination and clearance is received from OSCAR Control, TITAN, Korat Approach, Korat Tower. Non-exercise traffic will be prohibited from entering exercise airspace during active exercise engagements or during specified times as provided by the COPE TIGER DAILY FLYING SCHEDULE.

- Except in an emergency, civil and non-exercise military aircraft without specific clearance will be denied entry into exercise airspace.

Recovery Procedures

Recovery procedures are found in Chapter 6. The standard aircraft recovery speed is 300 KIAS except RTAF DA-42 recovery speed is 120 KIAS and UAV recovery speed is 60 KIAS. The Mission Director will have current airfield status and weather for recovering aircraft.

CEG Pg 30

- Commercial traffic through the exercise areas will be permitted only after coordination and clearance is received from OSCAR Control, TITAN, Korat Approach, Korat Tower

[In this case, OSCAR coordinated with TITAN]

2022

REAL LIFE - LESSON LEARNT

MSN / Phase	Description	Cause
DA-42 Recon	RTA Copter in UC-1 Area, VTBH	Cobra Gold Continuous Mission
C-130 Low Level Air Drop (LLAD)	RTA Copter 2 NM from VTBL Drop Zone	Cobra Gold Continuous Mission
LFE 6	“Misunderstanding from the planning block altitude” between Block Alt. Game plan Blk 26-29 and Blk 16-19	Coordination Planning and Briefing
C-130 LLAD	Low level navigation close to Restricted Area	Mission Planning

REAL LIFE - LESSON LEARNT

2019

MSN / Phase	Description	Cause
GND Ops	FOD	-
LDG/ DEP	Runway Incursion	ATC (Tower) clearance
LFE	Rolex Plus not inform	Planning
LFE	TR block violation (8 NM)	SA
LFE (STK)	Chandy Time Deconfliction	Miscom. MD & AISR
LFE	One engine flameout	
LFE	Sonic boom (Tel from public)	Unknown
LFE	EPU Fire	

SAFETY-RELATED ISSUES

What happened

12 Mar 19

FOD taxiway K

SAFETY-RELATED ISSUES

What happened

12 Mar 19

While 2 A-Jet break and L/D.

After 1st A-Jet landed,

ATC cleared F-16 for line up,

but soon after he saw the 2nd A-Jet

and call F-16 "disregard".

The 2nd A-Jet landed safely.

SAFETY-RELATED ISSUES

What happened

15 Mar 19, LFE6

Rolex plus after A/C start engine.

Fuel plan?

MD?

"Rolex Plus not inform"

All safety issues are used for accident prevention only.
>> Not for blame or punitive purposes

SAFETY-RELATED ISSUES

What happened

15 Mar 19, LFE6

TR violation of blocks.

RSAF come into 8 NM (TR 10NM) while USAF keep block.

All safety issues are used for accident prevention only.
>> Not for blame or punitive purposes

SAFETY-RELATED ISSUES

What happened

18 Mar 19, LFE8

Close prox between Osprey 3,4 and Eagle 4 F-5.

Eagle's tot window ends at vul +28.

Finally left at vul +34.

Gameplan and deconfliction

Miscommunication between MD and AISR cell.

All safety issues are used for accident prevention only.
>> Not for blame or punitive purposes

SAFETY-RELATED ISSUES

What happened

18 Mar 19, 1630

Hydroplane

All safety issues are used for accident prevention only.

>> Not for blame or punitive purposes

SAFETY-RELATED ISSUES

What happened

19 Mar 19, 0923

F-5 left engine flameout.

Declared at 0930.

Landed at 0943.

Terminated emergency at 0946.

Effective response team.

All safety issues are used for accident prevention only.
>> Not for blame or punitive purposes

SAFETY-RELATED ISSUES

What happened

19 Mar 19, 0926

Telephone from villager - Sonic boom.

No evidence now.

Annoying phone call?

All safety issues are used for accident prevention only.
>> Not for blame or punitive purposes

SAFETY-RELATED ISSUES

What happened

20 Mar 19, 1414

103 F-16 EPU fire.

Landed at 1442.

Terminated emergency at 1450.

All safety issues are used for accident prevention only.
>> Not for blame or punitive purposes

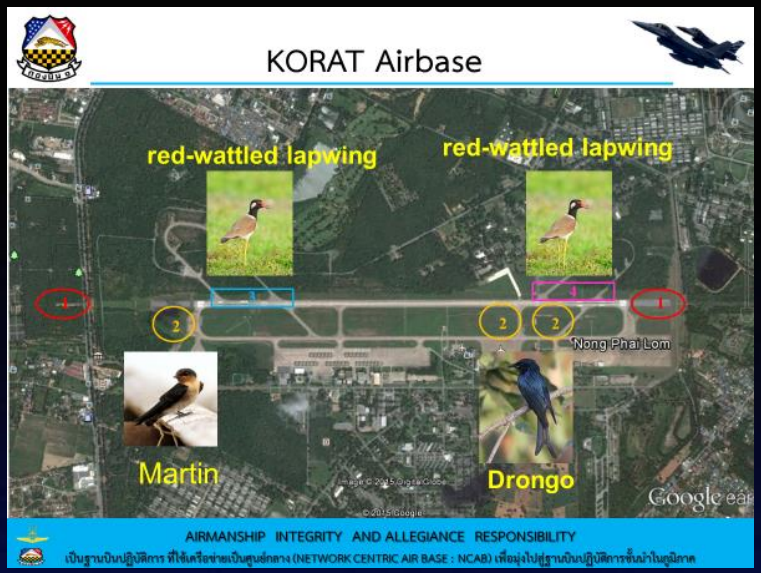
2018

Incident

Bird strike

2 Fighters, takeoff from Korat to Training area. Approximately 1330 Aircraft incident bird strike at altitude about 1000, Pilot precautionary engine shutdown and arrested landing

COBRA GOLD 2018

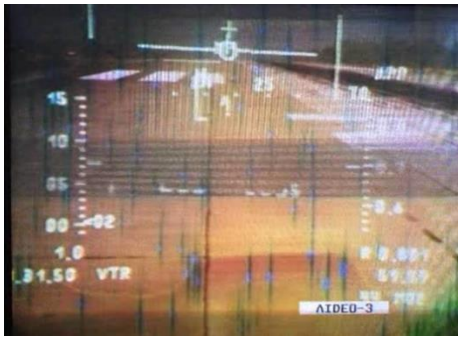


For low-level Flight training, Pilots should carefully study the flight path And Avoid the route through the water, Agricultural area , the city

CRASH PROCEDURES

Emergency/Crash Phase

- The emergency/crash actions must comply with the RTAF Pre-Accident Plan (Wing1, Wing2, Wing4 or Wing23 depend on the coverage of PAP). The On-scene commander should be Exercise Directors or representative.



MULTI-FORCE OPERATIONS

- Aircrafts Have Different Performances and Limitation In Multi-Force Operations. MC and Pilots should Study About the Characteristic of Each A/C for SA.

DIFFERENTIAL OPERATION NORMS

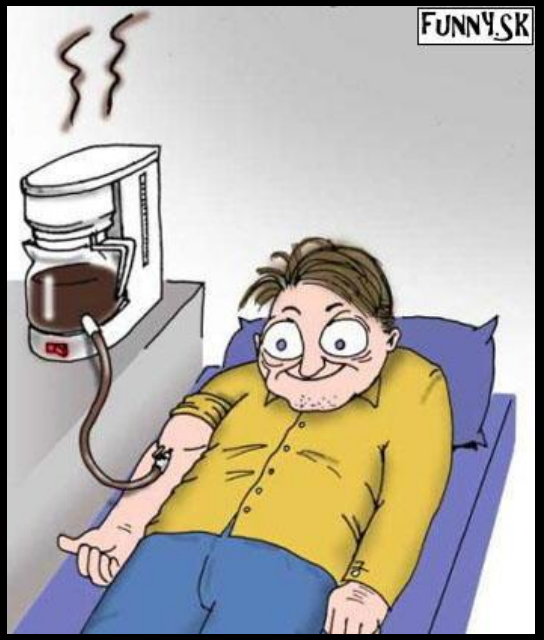
- Pilots and Officers in the Operation should Study Training Standard Operation Procedure (SOP) for Understanding and Right Practicing.

Hazard & Risk

- Haze, Smoke, Smog
- *Unfamiliarization Area*, Airfield
- Difference Culture and Norm
- Difference Language *Accents* Over Communications
- Difference *Procedure* (individual)

WEATHER & NOTAM

- Avoid Heat Stroke by
  - Block Out Direct Sun or Heat Sources
  - Use Cooling Fan/Air-conditioning ; rest Regularly
  - Drink Sufficient Water
  - Avoid Alcohol, Cafeeinated Drinks
- Check & Update NOTAM(KRT Has VIP & VVIP Frequently)



CREW REST

- Be Aware of Heat Stoke Symptoms and Look For Them in Yourself & Other
- Plan to Avoid Complex Task When You are Physically Exhausted
- If You are Fatigued, Take a Break
- Sleep and Exercise Regularly

SAFETY REPORT

- Whoever Detects Unsafe Condition or Unsafe Action, Please Submits Report to Directorate Staff Safety

REVIEW LESSONS LEARN

- All Personnel in Flying and Related Units should be Briefed on Past Lessons Learnt Relating to Safety from Previous Cope Tiger Exercises

TTX Cope Tiger 2023

SAFETY CONSIDERATIONS

16 MAR 2023

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