SMS and Bird/Wildlife Management Programs

Dr. Nicholas Carter
Birdstrike Control Program
Director - CARSAMPAF

What is SMS?

Safety

Management

System(s)

K366PX


N8295X

Management =

active (proactive)

Management =

planning

Management =

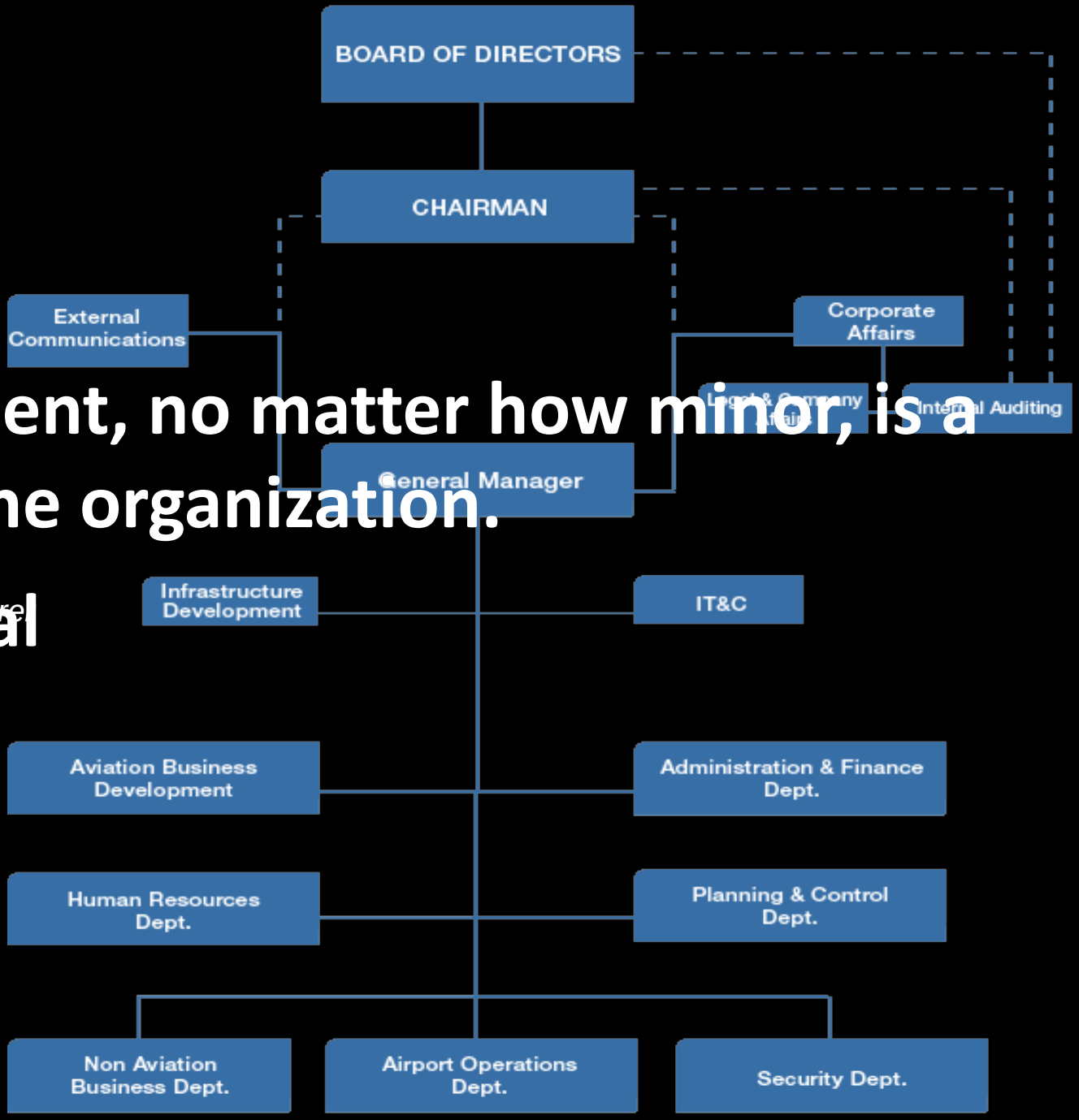
evaluative

System =

Every accident, no matter how minor, is a failure of the organization.

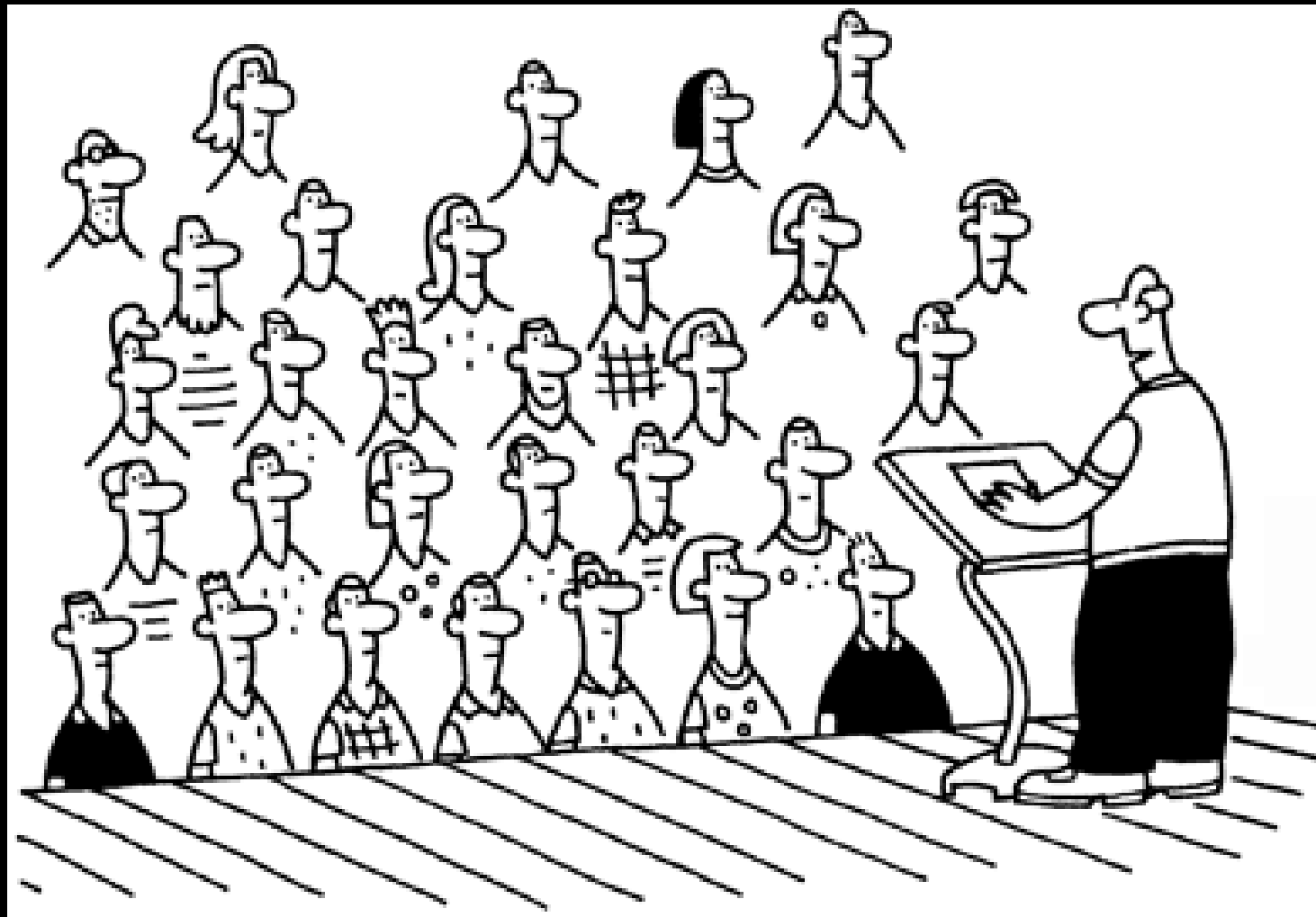
Jerome Lederer

organizational



System =

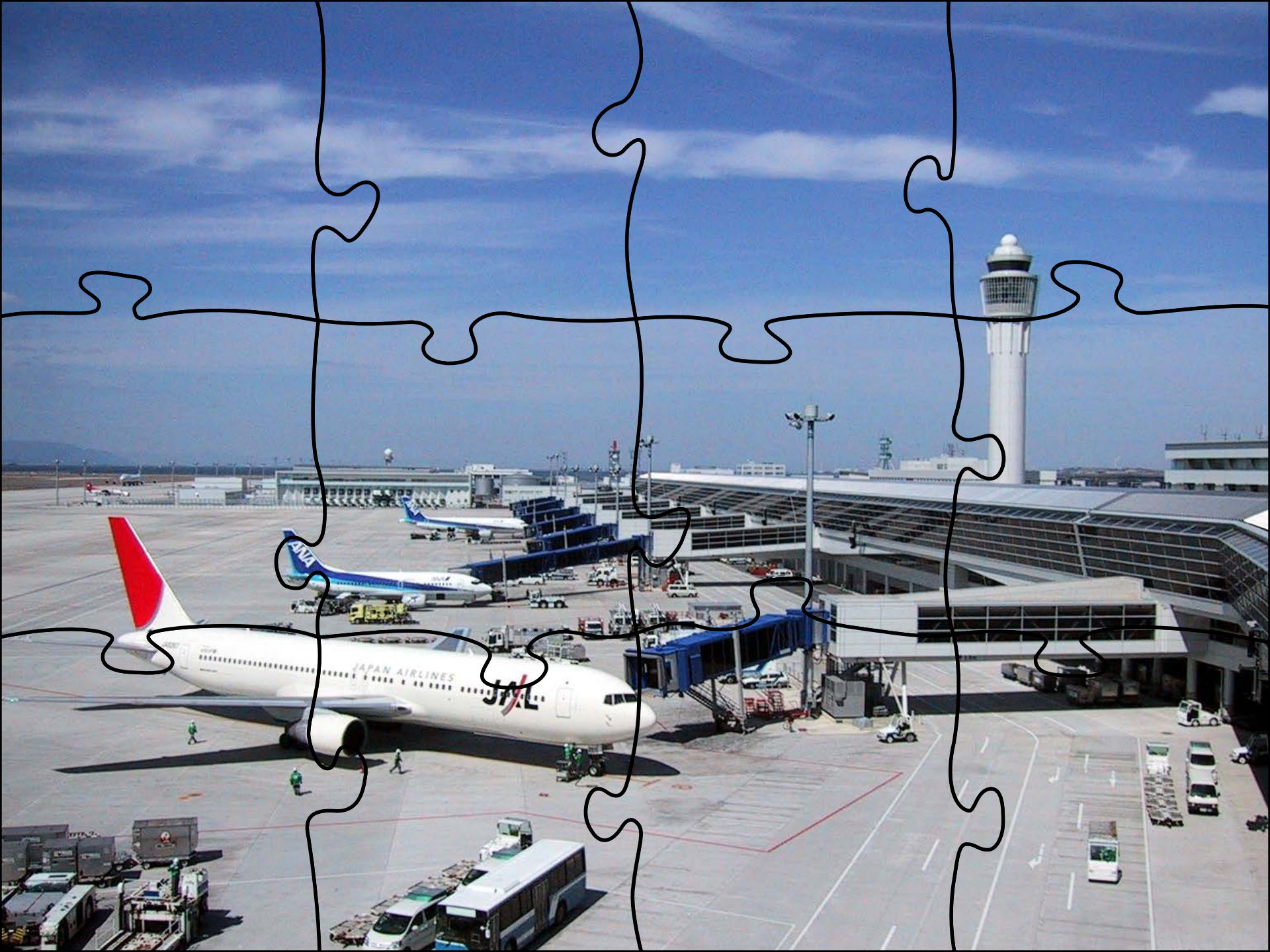
cultural



"If you skipped the last safety meeting, please raise your hand, assuming you still have one."

System =

“big picture”


ANA
JAPAN AIRLINES
JAL

Evolution of Aviation Safety Thinking

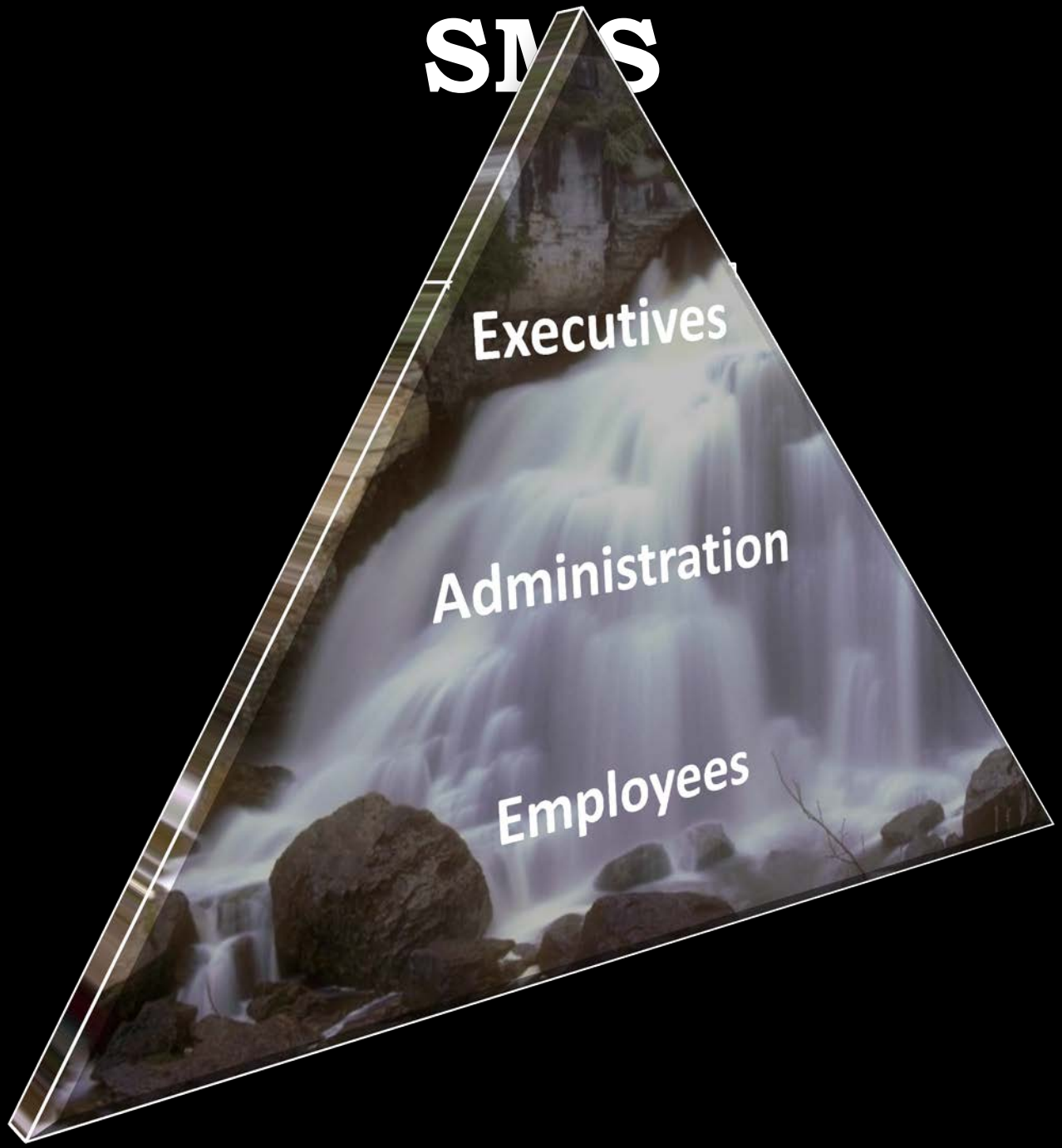
TORS

TODAY

ORGANIZATIONAL FACTORS

1950s 1970s 1990s 2000s

SMS



No matter how interested individual employees might be, or what assistance a manufacturer offers, or how insistent a certificating authority might be — none of these factors will have a significant effect on safety without support from top management.

John O'Brian

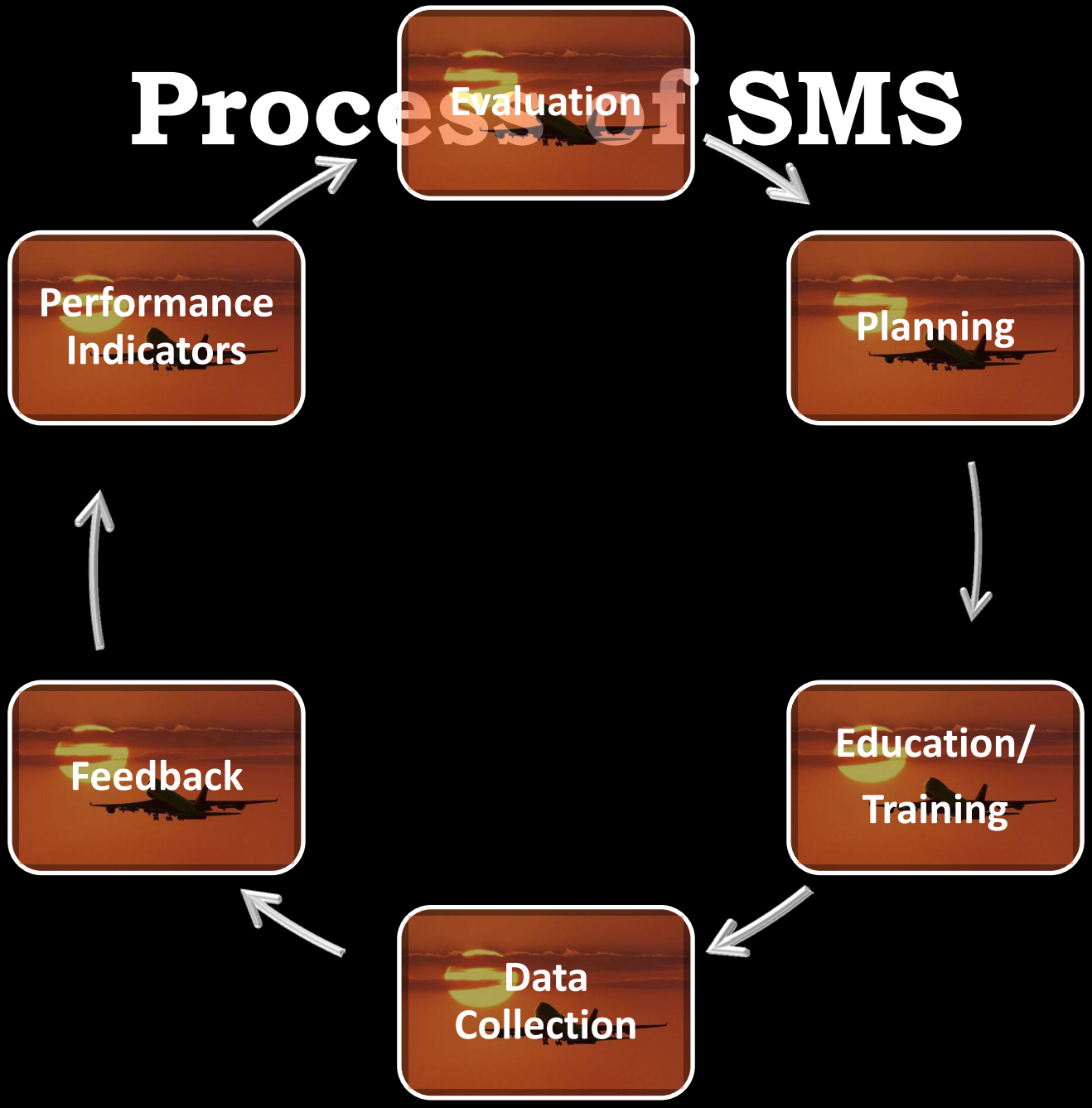
ALPA's Engineering and Air Safety Department

Impending Requirements

Amended Annex 14, Vol. I (Nov. 2005)

Doc 9859
Safety Management Manual (SMM)

Process of SMS



Reactive vs. Proactive

always be hazards and risks at airports

SMS focuses on the control of processes, not end results

After the ship has sunk, everyone knows how she might have been saved.

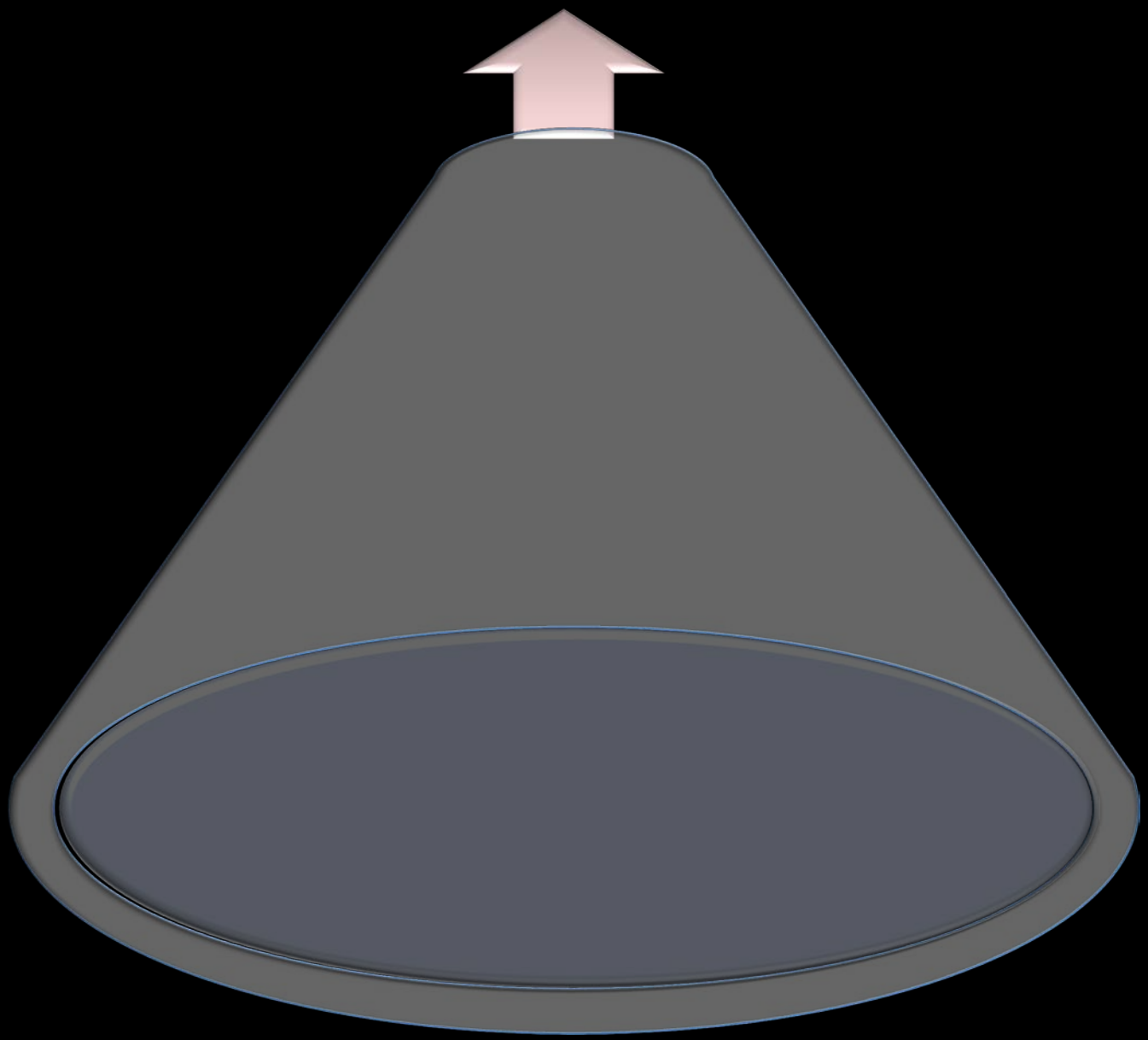
Italian proverb

Safety Culture

"Way of Life" for an airport

Involvement at all levels – Commitment from the top

Comprehensive program – all facets of operations



Accountability

The Business of Safety

Part of the Comprehe

Monetary Commitme

Consequences of Accidents

Management

Resources

Resources

Production

Safety is expensive

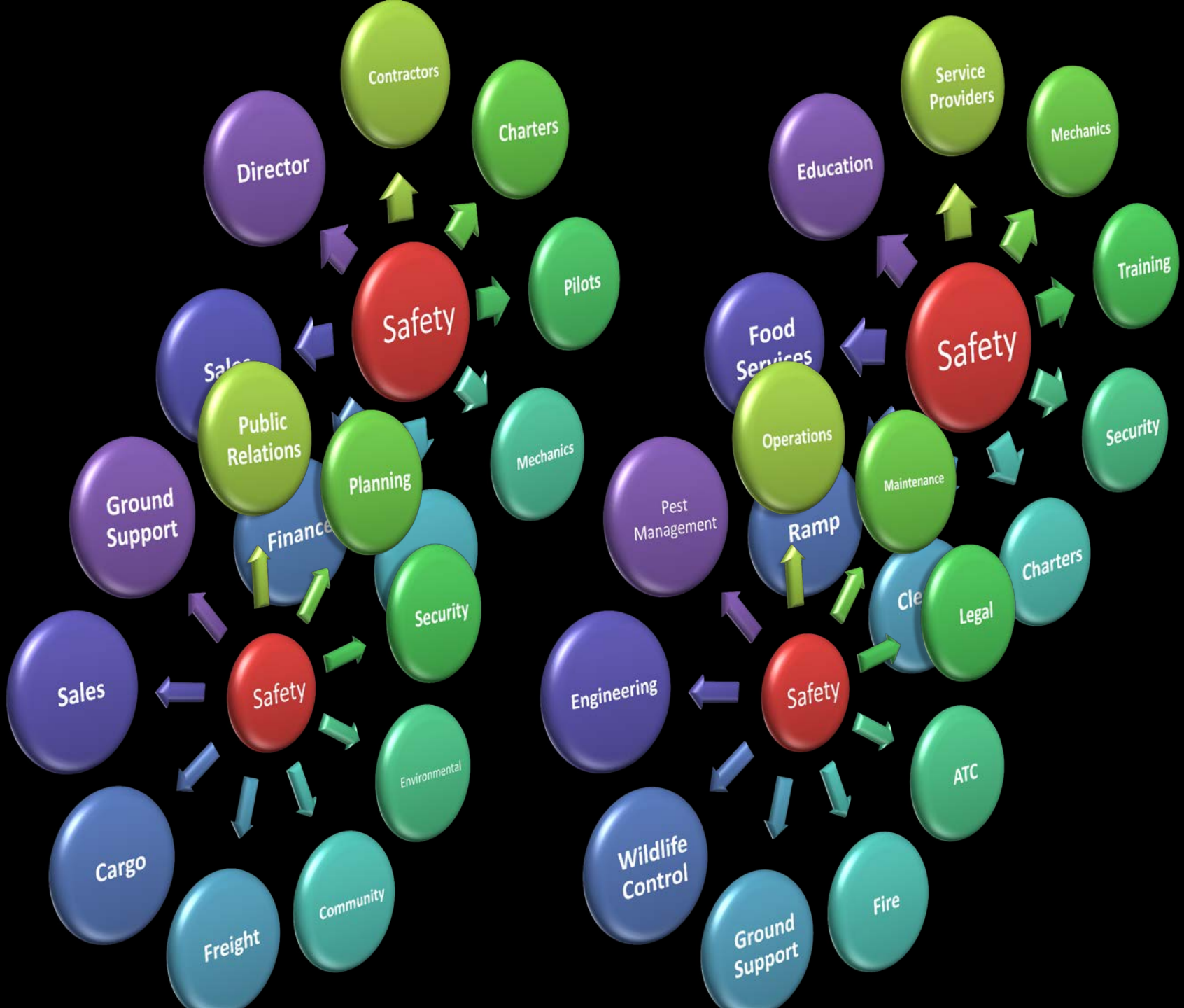
If you think safety is expensive… try an accident.

Dr. Trevor Kletz
Institution of Chemical Engineers

K

Ir

Ir


Contractors
Charters
Director
Pilots
Safety
Public Relations
Planning
Mechanics
Ground Support
Finance
Security
Sales
Safety
Environmental
Cargo
Community
Freight
Service Providers
Mechanics
Education
Training
Food Services
Safety
Security
Operations
Maintenance
Pest Management
Ramp
Charters
Legal
Engineering
Safety
ATC
Wildlife Control
Fire
Ground Support

“Not My Job”

Important Definitions

Safety 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.

Hazard is a condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

Risk is the chance of loss or injury, measured in terms of severity and probability. The chance that something is going to happen, and the consequences if it does.

Risk = p • s


Risk
Safety
Time

There are no new types of air crashes — only people with short memories. Every accident has its own forerunners, and every one happens either because somebody did not know where to draw the vital dividing line between the unforeseen and the unforeseeable or because well-meaning people deemed the risk acceptable.

Stephen Barlay

The Final Call: Why Airline Disasters Continue to Happen

Species Group	Overall Risk Ranking	Relative Hazard Percentage
Canada Geese	1	100
Snow Geese	2	94
Seagulls (all species)	3	8
Ducks	4	6
Vultures	5	5
Flocking Birds*	6	4
Raptors	7	1
Egrets/Herons	8	1
Crows	9	<1
Songbirds	10	<1
Shorebirds	11	<1
Kestrels	12	<1
Owls	13	<1
Swallows	14	<1
Groundhogs	15	<1
Deer	16	<1
Foxes	17	<1
Rabbits	18	<1

Risk Analysis must be performed

* Flocking birds consists of species such as red-winged blackbirds, starlings, grackles, etc.

SMS and Wildlife Control

Birdstrike Reporting

Biologist / Wildlife Control

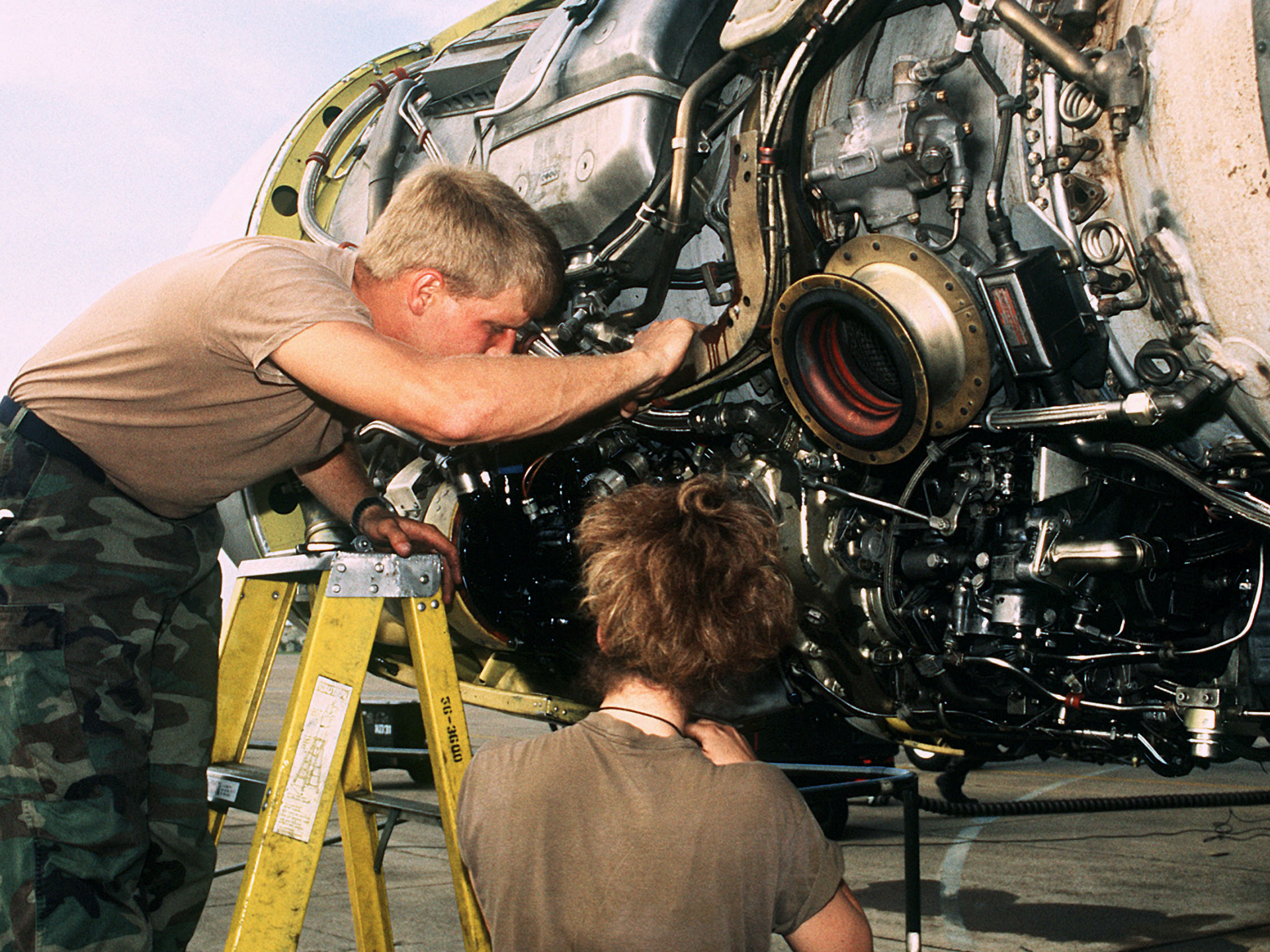

YVR


UNITED STATES OF AMERICA
Birdstrike Control
Program
(www.birdstrikecontrol.com)

Maintenance


SAFETY DIRECT
NSN
4240-00-022-2946
CRESCENT


NAVY




MS72
0534
0534


0174
Z02


CAUTION DO NO

Operations


21


REMEMBER SEAT BELTS


Airport Maintenance
TYMCO
600

Pilots


NO SMOKING


REPUBLIC AIRWAYS

Air Traffic Control


U.S. AIR FORCE

Ground Crews


312

FAA / AFSAS / IBIS


DNA

Form Approved OMB NO. 2120-0045
09/30/2006

U.S. Department of Transportation
Federal Aviation Administration

BIRD / OTHER WILDLIFE STRIKE REPORT

1. Name of Operator

2. Aircraft Make/Model

3. Engine Make/Model

4. Aircraft Registration

5. Date of Incident
_____/_____/_____
Month Day Year

6. Local Time of Incident
☐ Dawn ☐ Dusk ☐ Day ☐ Night
___ HR ___ MIN ☐ AM ☐ PM

7. Airport Name

8. Runway Used

9. Location if En Route (Nearest Town/Reference & State)

10. Height (AGL)

11. Speed (IAS)

12. Phase of Flight
- ☐ A. Parked
- ☐ B. Taxi
- ☐ C. Take-off Run
- ☐ D. Climb
- ☐ E. En Route
- ☐ F. Descent
- ☐ G. Approach
- ☐ H. Landing Roll

13. Part(s) of Aircraft Struck or Damaged

	Struck	Damaged		Struck	Damaged
A. Radome	☐	☐	H. Propeller	☐	☐
B. Windshield	☐	☐	I. Wing/Rotor	☐	☐
C. Nose	☐	☐	J. Fuselage	☐	☐
D. Engine No. 1	☐	☐	K. Landing Gear	☐	☐
E. Engine No. 2	☐	☐	L. Tail	☐	☐
F. Engine No. 3	☐	☐	M. Lights	☐	☐
G. Engine No. 4	☐	☐	N. Other: (Specify)	☐	☐

14. Effect on Flight
- ☐ None
- ☐ Aborted Take-Off
- ☐ Precautionary Landing
- ☐ Engines Shut Down
- ☐ Other: (Specify)

15. Sky Condition
- ☐ No Cloud
- ☐ Some Cloud
- ☐ Overcast

16. Precipitation
- ☐ Fog
- ☐ Rain
- ☐ Snow
- ☐ None

17. Bird/Other Wildlife Species

18. Number of birds seen and/or struck

Number of Birds	Seen	Struck
1	☐	☐
2-10	☐	☐
11-100	☐	☐
more than 100	☐	☐

19. Size of Bird(s)
- ☐ Small
- ☐ Medium
- ☐ Large

20. Pilot Warned of Birds ☐ Yes ☐ No

21. Remarks *(Describe damage, injuries and other pertinent information)*

DAMAGE / COST INFORMATION

22. Aircraft time out of service:
_____ hours

23. Estimated cost of repairs or replacement (U.S. $):
$

24. Estimated other Cost *(U.S. $) (e.g. loss of revenue, fuel, hotels):*
$

Reported by *(Optional)*

Title

Date

Paperwork Reduction Act Statement: The information collected on this form is necessary to allow the Federal Aviation Administration to assess the magnitude and severity of the wildlife-aircraft strike problem in the U.S. The information is used in determining the best management practices for reducing the hazard to aviation safety caused by wildlife-aircraft strikes. We estimate that it will take approximately 6 minutes to complete the form. The information collected is voluntary. Please note that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number associated with this collection is 2120-0045. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ABA-20

AMC IN-FLIGHT EMERGENCY AND UNUSUAL OCCURRENCE WORKSHEET

Information provided is collected under the provisions of AFI 91-204 solely for the purpose of mishap prevention within the United States Air Force and to determine all factors relating to the incident in order to prevent recurrence. All statements contained herein are not protected under the promise of confidentiality. Destroy in accordance with AFMAN 37-139 when no longer needed for mishap prevention purposes. Contact an appropriate Air Force safety officer if you have any questions concerning military safety privilege.

SECTION I. FOR CREW USE

1. DATE	2. TIME *(ZULU)*	3. LAT/LONG	4. CLOSEST AIRFIELD ICAO

5. REPORTING BASE *(ICAO)*	6. MISSION NUMBER	7. TYPE AIRCRAFT	8. TAIL NO.	9. HOME STATION *(ICAO)*

10. WING	12. ALTITUDE *(MSL)*	13. WEATHER *(VFR, IFR, THUNDERSTORMS, HAIL, LIGHTNING, TURBULENCE, RAIN, ICING, ETC.)*
11. SQUADRON		

14. PHASE OF FLIGHT

☐ TAXI ☐ TAKEOFF ☐ CLIMB ☐ CRUISE ☐ AIR REFUELING ☐ DESCENT ☐ LOW LEVEL
☐ FINAL APPROACH ☐ MISSED APPROACH ☐ TRAFFIC PATTERN ☐ TOUCH & GO ☐ LANDING ☐ UNKNOWN

15. TIME FROM ALERT TO INCIDENT	16. TAKEOFF TIME *(ZULU)*	17. FLIGHT DURATION	18. AIRCRAFT SYSTEM(S) INVOLVED	19. ENGINE SHUTDOWN
				☐ NO ☐ YES
				POSITION NO: ☐ 1 ☐ 2 ☐ 3 ☐ 4

20. STATEMENT: *(A CONCISE, CHRONOLOGICAL DESCRIPTION OF THE FACTS AND CIRCUMSTANCES LEADING TO THE OCCURRENCE, ACTIONS TAKEN AND RESULTS. ATTACH EXTRA SHEETS IF ADDITIONAL SPACE IS REQUIRED.)*

BIRD STRIKE REPORTING FORM

Send to _____

Operator _____ 01/02

Aircraft Make/Model _____ 03/04

Engine Make/Model _____ 05/06

Aircraft Registration _____ 07

Date day _____ month _____ year _____ 08

Local Time _____ 09

dawn ☐ A day ☐ B dusk ☐ C night ☐ D 10

Aerodrome Name _____ 11/12

Runway Used _____ 13

Location if En Route _____ 14

Height AGL _____ ft 15

Speed (IAS) kt 16

Phase of Flight 17

parked	☐ A	en route	☐ E
taxi	☐ B	descent	☐ F
take-off run	☐ C	approach	☐ G
climb	☐ D	landing roll	☐ H

Part(s) of Aircraft

	Struck		*Damaged*
radome	☐	18	☐
windshield	☐	19	☐
nose (excluding above)	☐	20	☐
engine no. 1	☐	21	☐
2	☐	22	☐
3	☐	23	☐
4	☐	24	☐
propeller	☐	25	☐
wing/rotor	☐	26	☐
fuselage	☐	27	☐
landing gear	☐	28	☐
tail	☐	29	☐
lights	☐	30	☐
others (specify)	☐	31	☐

Effect on Flight

none	☐	32
aborted take-off	☐	33
precautionary landing	☐	34
engines shut down	☐	35
other (specify)	☐	36

Sky Condition 37

no cloud	☐	A
some cloud	☐	B
overcast	☐	C

Precipitation

fog	☐	38
rain	☐	39
snow	☐	40

Bird Species* _____ 41

Number of Birds

	Seen 42		*Struck* 43
1	☐	A	☐ A
2-10	☐	B	☐ B
11-100	☐	C	☐ C
more	☐	D	☐ D

Size of Bird 44

small	☐	S
medium	☐	M
large	☐	L

Pilot warned of Birds 45

yes ☐ Y no ☐ X

Remarks (describe damage, injuries and other pertinent information) 46/47

_____

_____

_____

Reported by _____
(Optional)

**Send all bird remains including feather fragments to:*

THIS INFORMATION IS REQUIRED FOR AVIATION SAFETY

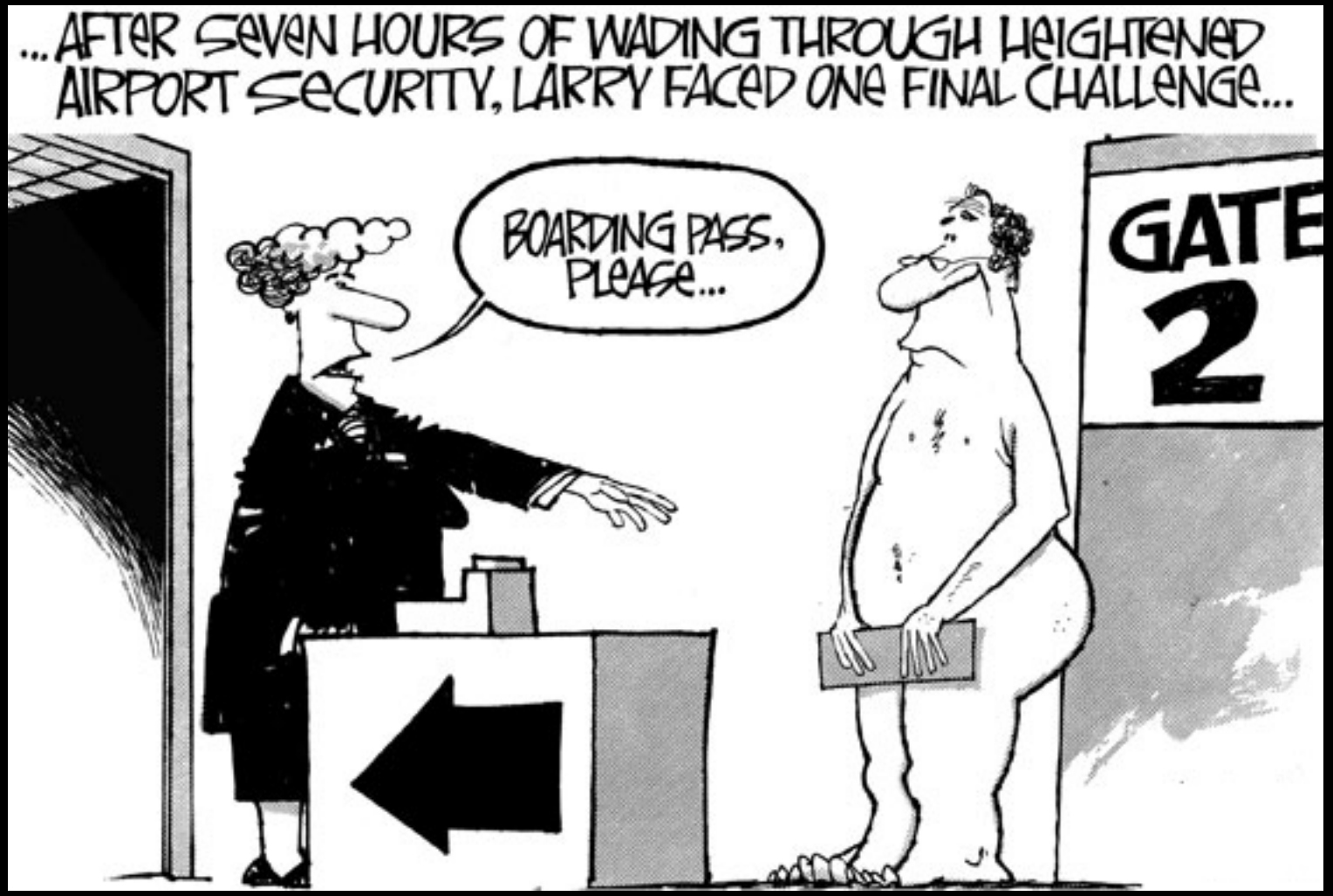
Notification


TWEED
NEW HAVEN REGIONAL AIRPORT


BOEING


PLEASE
DO NOT
FEED BIRDS
AVIATION
HAZARD

One Final Challenge



Performance Indicators?

Number of strikes


Ministry of
Health


Number of Birds Harassed


Risk is the chance of loss or injury, measured in terms of severity and probability.

Risk Factors

Overall population size
Size of individual animal
Average number of individuals (flock)
Amount of time in environment
Time of day when active
Location
Time spent moving
Number of historical strikes
Ability to avoid aircraft
Ability to influence animal

When you get it right mighty beasts float up into the sky. When you get it wrong people die.

Roger Bacon

c. 1384