

Risk Management

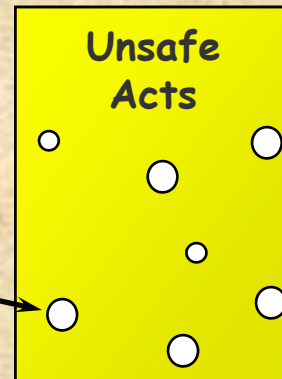
Presented to the Air Charter
Safety Foundation

Jeff Kotson

Commander, U.S. Coast Guard

Active versus Latent Failures (Reason, 1990)

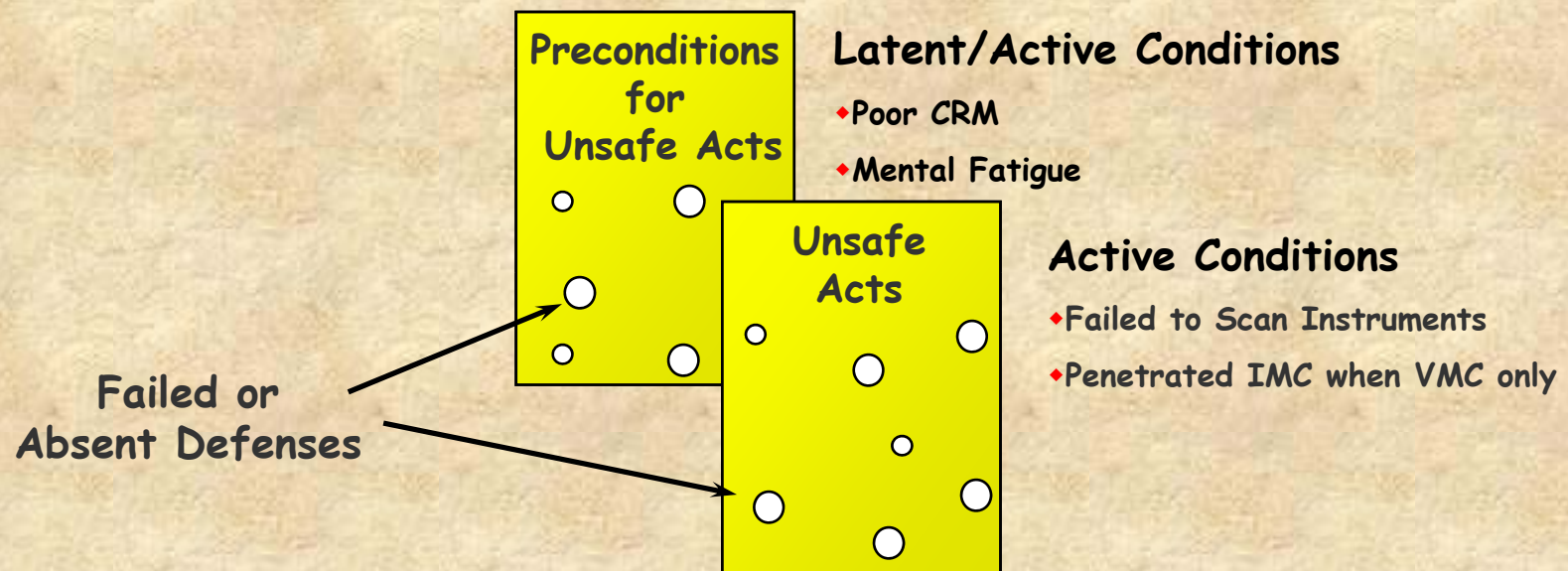
Failed or
Absent Defenses



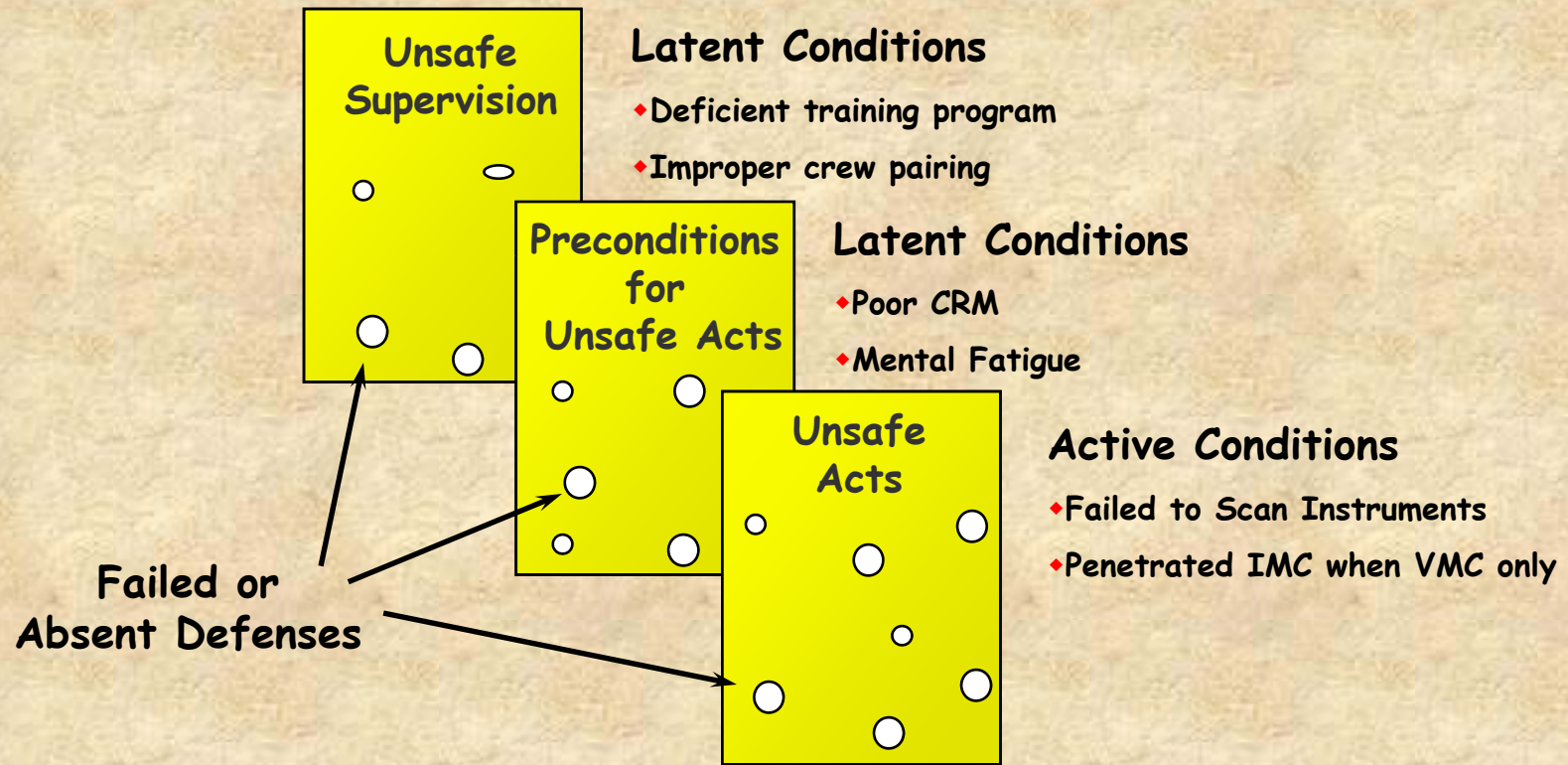
Active Conditions

- ◆ Failed to Scan Instruments
- ◆ Penetrated IMC when VMC only

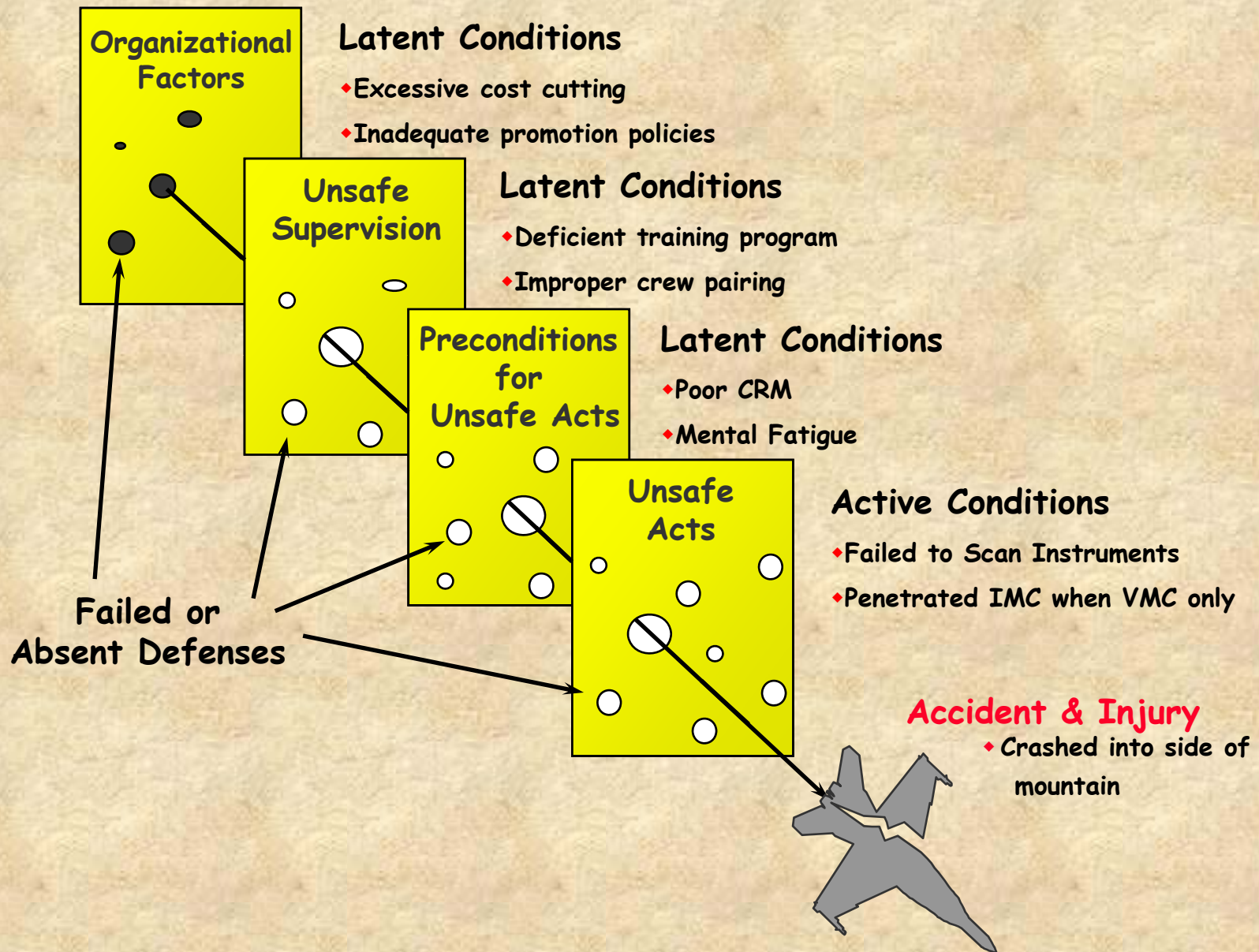
Active versus Latent Failures (Reason, 1990)

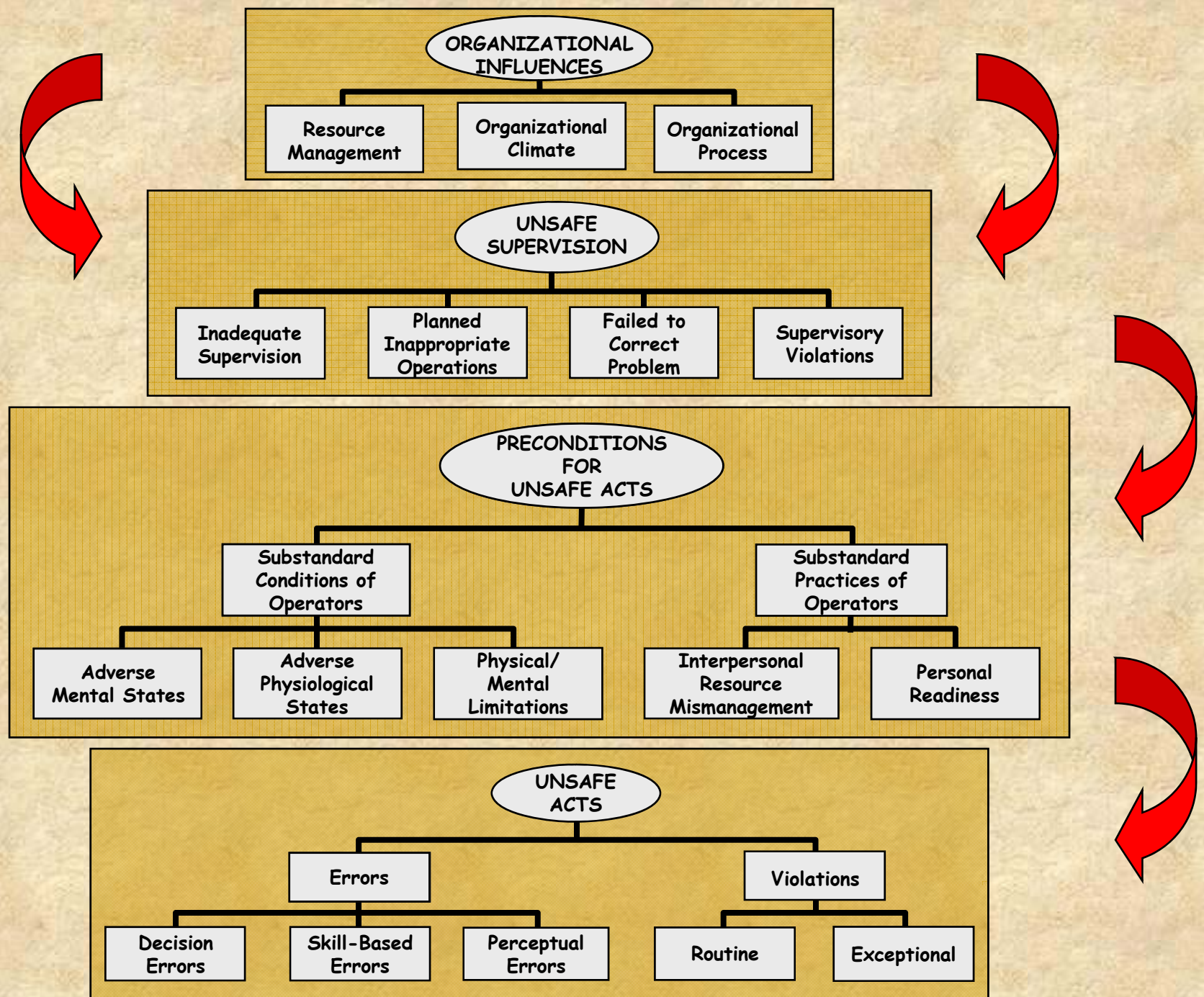


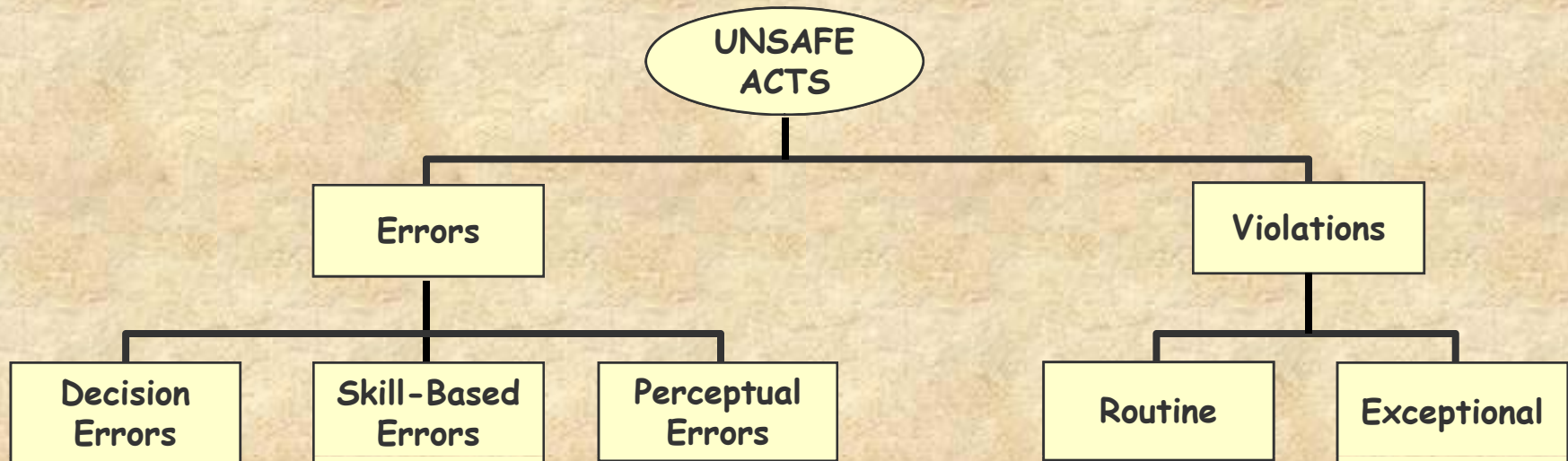
Active versus Latent Failures (Reason, 1990)

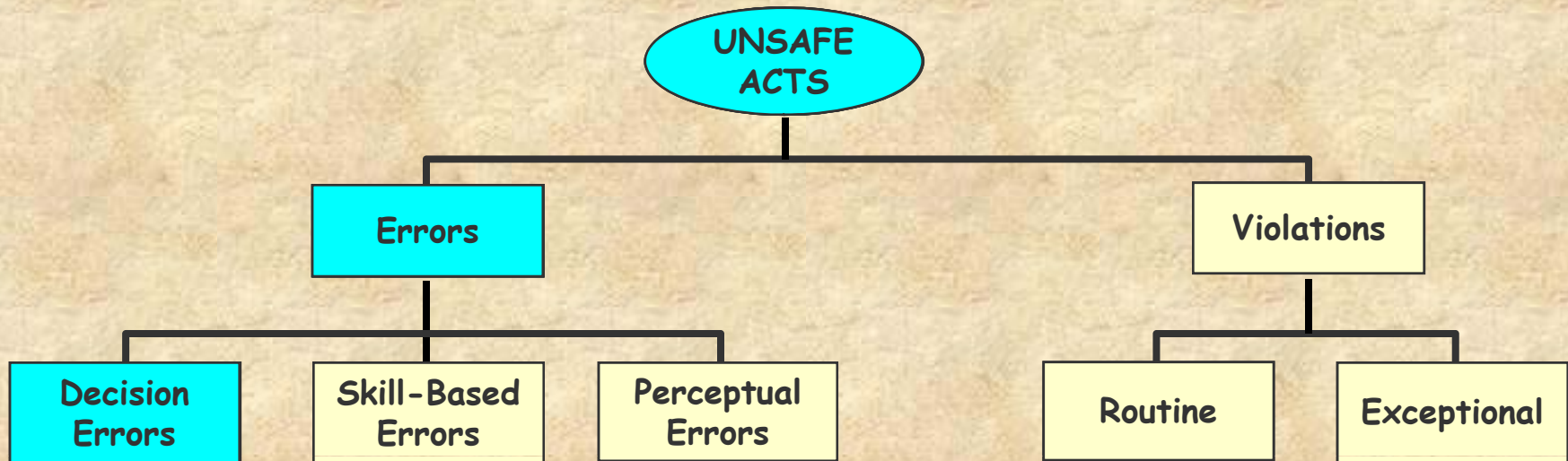


Active versus Latent Failures (Reason, 1990)



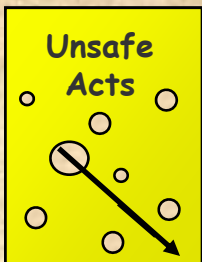


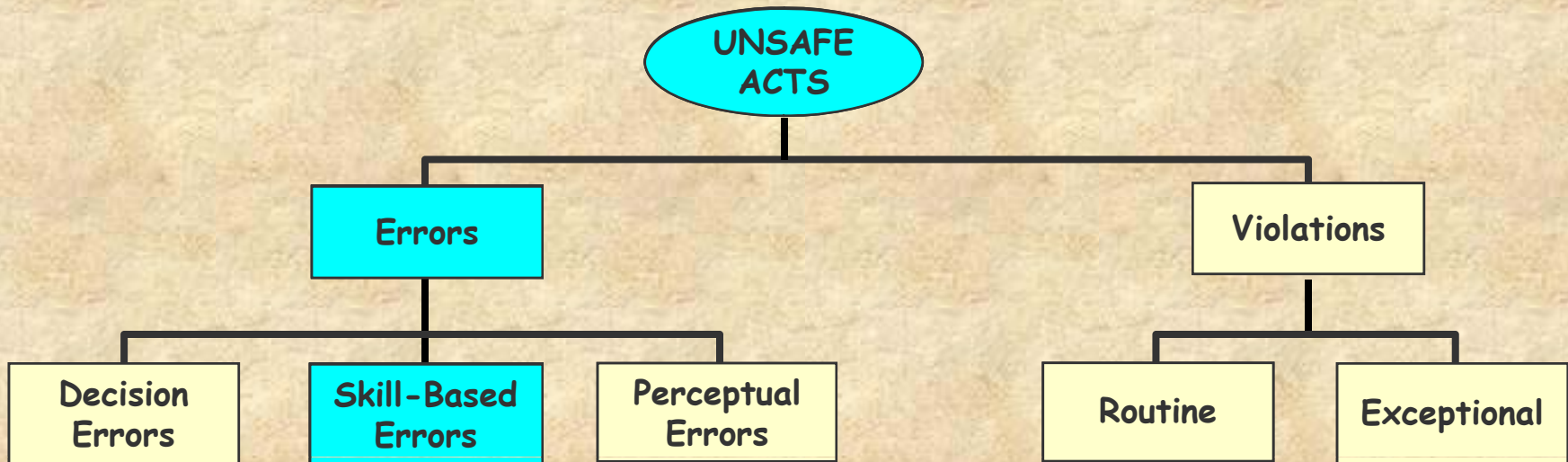




DECISION ERROR

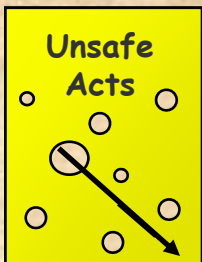
- Rule-based Decisions
 - If X, then do Y
 - Highly Procedural
- Choice Decisions
 - Knowledge-based
- Ill-Structured Decisions
 - Problem solving

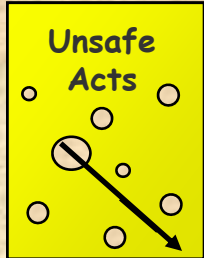
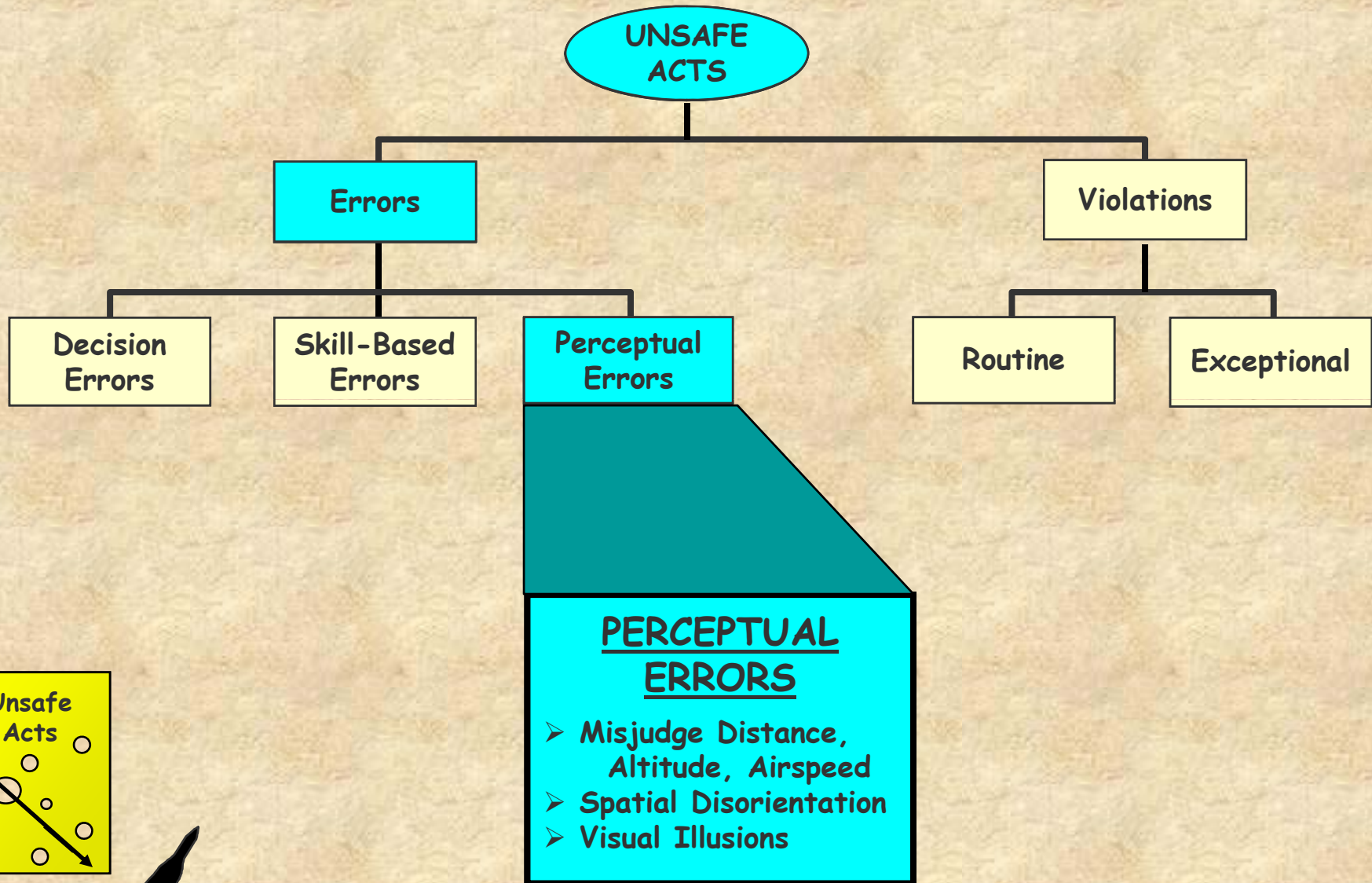


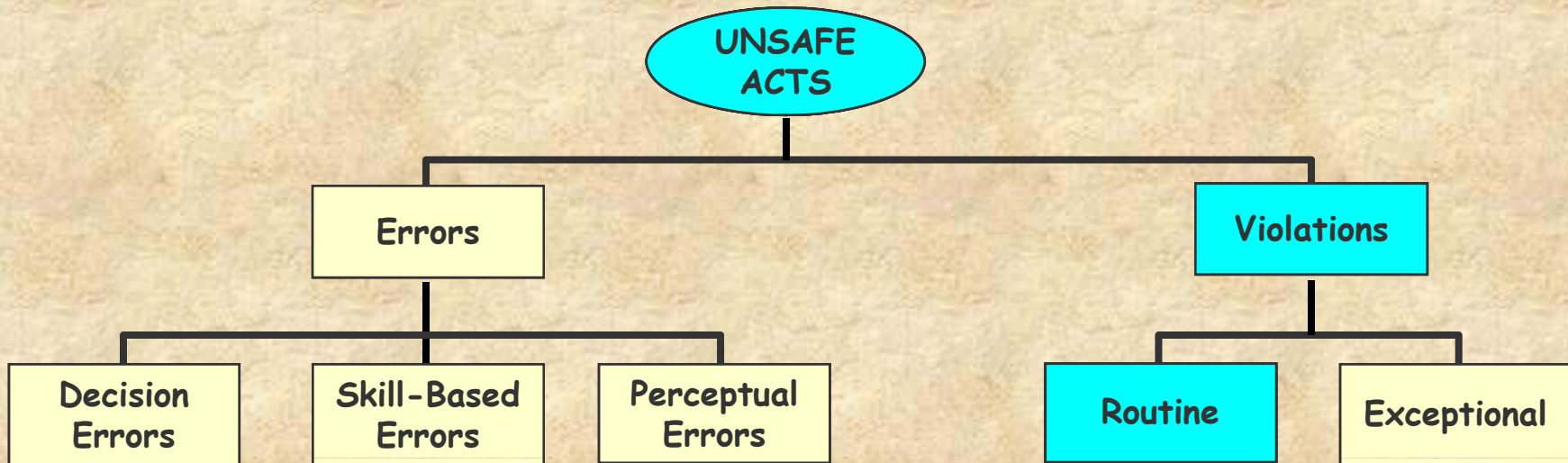


SKILL-BASED ERRORS

- Attention Failures
 - Breakdown in visual scan
 - Inadvertent operation of control
 - Failure to see and avoid
- Memory Failure
 - Omitted item in checklist
 - Omitted step in procedure

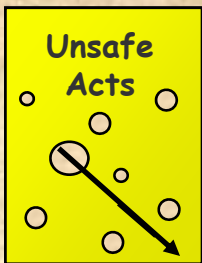


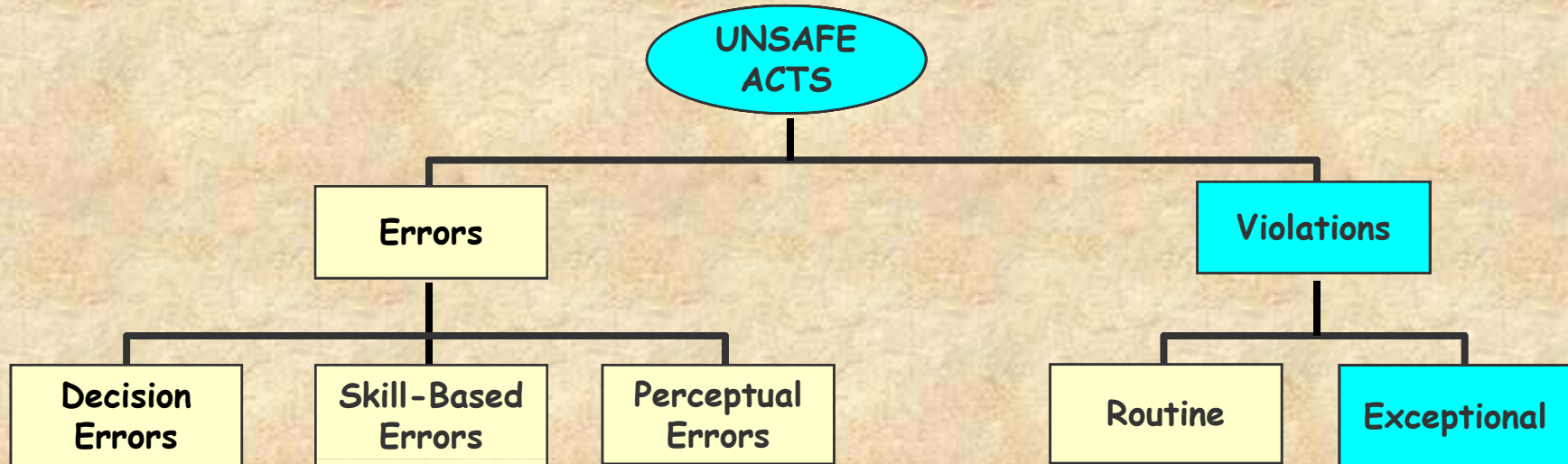




ROUTINE (INFRACTIONS)
 (Habitual departures from rules condoned by management)

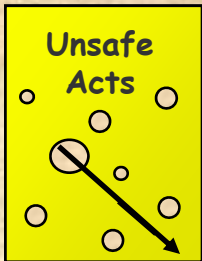
- Violation of Orders/Regulations/SOP
 - Failed to Inspect ACFT after In-Flight Caution Light
 - Violated Squadron SOP Restricting Flight Below 500'
 - Failed to Comply with NATOPS During Streaming
 - Conducted Night Training and Ops Mission with PAX
 - Elected to File VFR in Marginal Weather Conditions
 - Failed to Use Radar Advisories from ATC
 - Inadequate Brief and Limits on Mission
 - HAC Knowingly Accepted Non-Current Crew
- Failed to Adhere to Brief
- Not Current/Qualified for Mission
- Improper Procedure



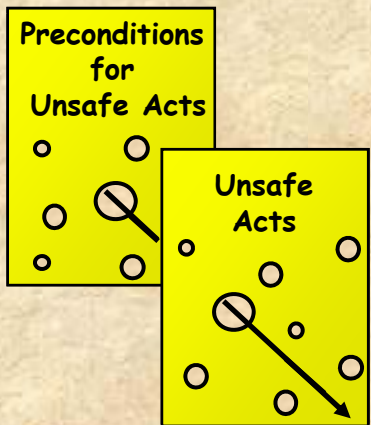
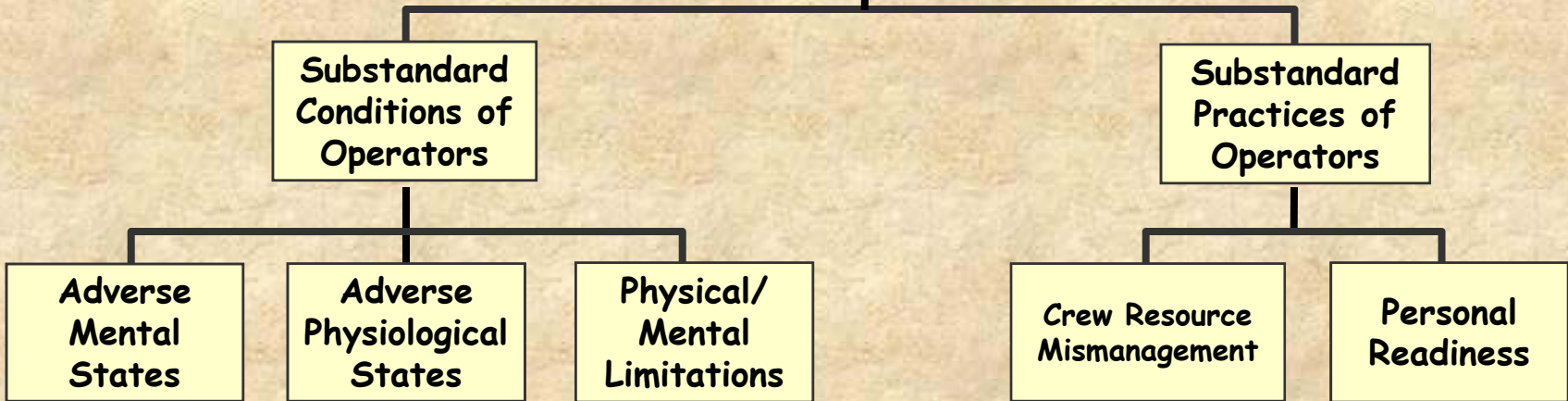


EXCEPTIONAL
 (Isolated departures from the rules not condoned by management)

- Violated NATOPS/Regulations/SOP
 - Performed Unauthorized Acrobatic Maneuver
 - Canyon Running
 - Failed to Complete Performance Computations for Flight
 - Improper Takeoff Technique
 - Failed to Obtain Valid Weather Brief
- Accepted Unnecessary Hazard
- Not Current/Qualified for Mission
- Exceeded Limits of Aircraft



**PRECONDITIONS
FOR
UNSAFE ACTS**



PRECONDITIONS FOR UNSAFE ACTS

Substandard Conditions of Operators

Substandard Practices of Operators

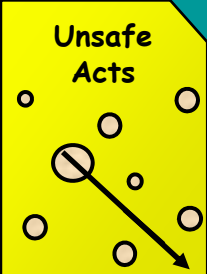
Adverse Mental States

Adverse Physiological States

Physical/Mental Limitations

Crew Resource Mismanagement

Personal Readiness



ADVERSE MENTAL STATE

- Loss of Situational Awareness
- Circadian dysrhythmia
- Alertness (Drowsiness)
- Overconfidence
- Complacency
- Task Fixation



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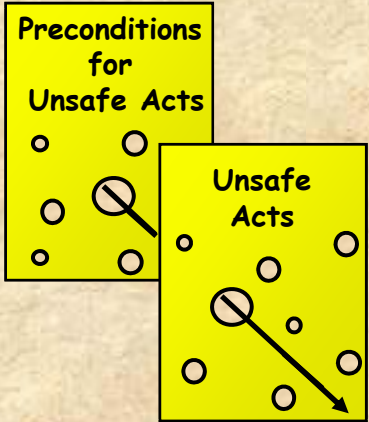
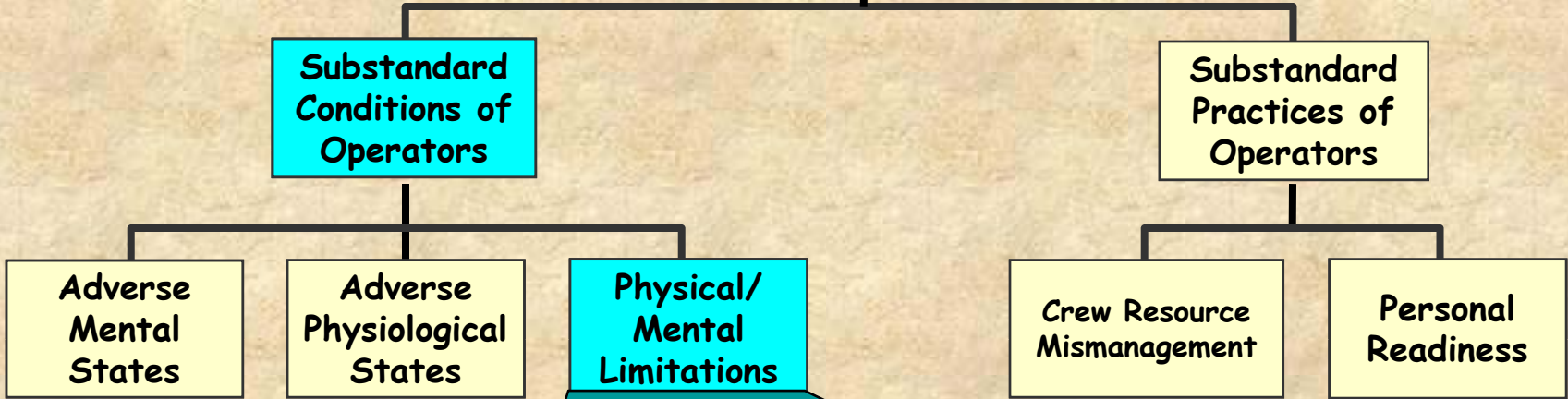
Preconditions for Unsafe Acts

Unsafe Acts

- ADVERSE PHYSIOLOGICAL STATES**
- G-induced Loss of Consciousness
 - Hypoxia
 - Motion Sickness
 - Medical Illness
 - Intoxication



PRECONDITIONS FOR UNSAFE ACTS

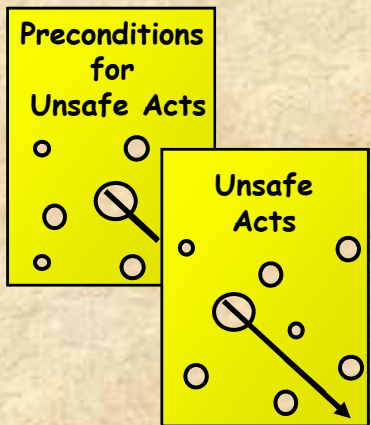
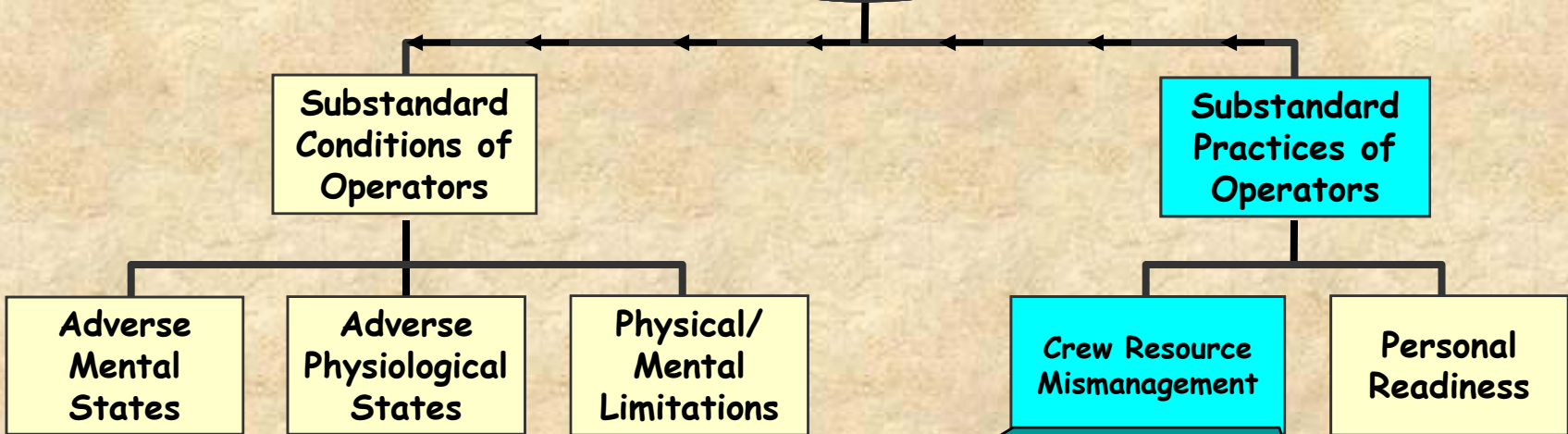


PHYSICAL/MENTAL LIMITATIONS

- Lack of Sensory Input
- Limited Reaction Time
- Incompatible Physical Capabilities
- Incompatible Intelligence/Aptitude



PRECONDITIONS FOR UNSAFE ACTS

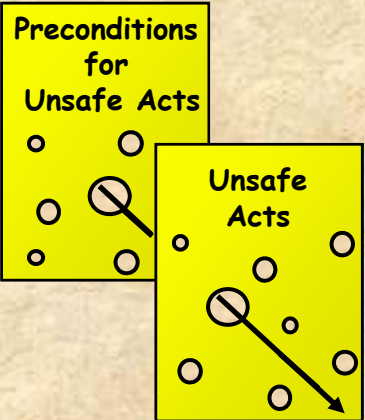
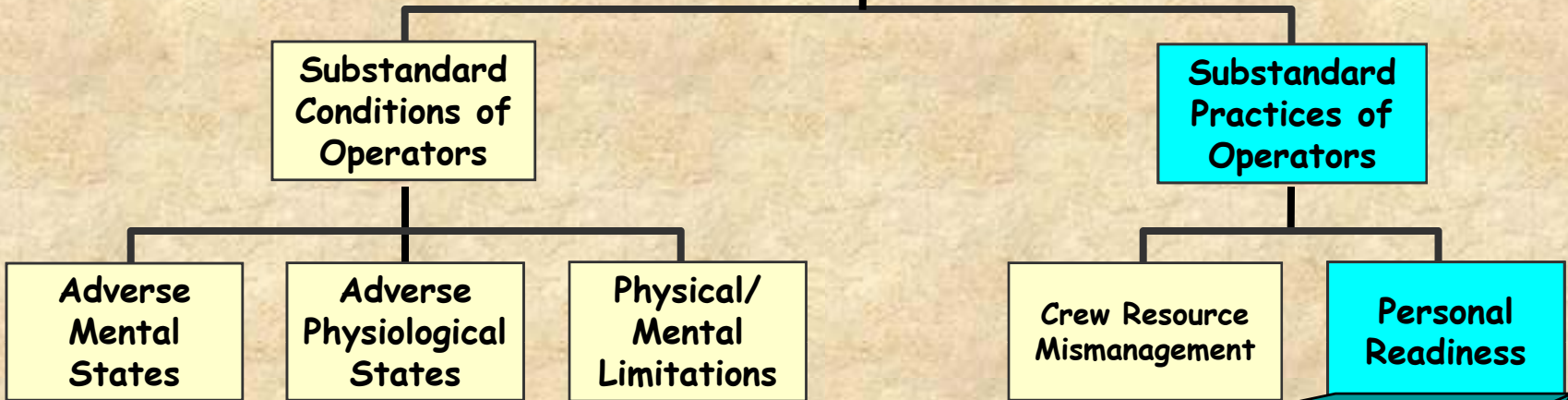


CREW RESOURCE MISMANAGEMENT

- Not Working as a Team
- Poor Aircrew Coordination
- Improper Briefing Before a Mission
- Inadequate Coordination of Flight



PRECONDITIONS FOR UNSAFE ACTS



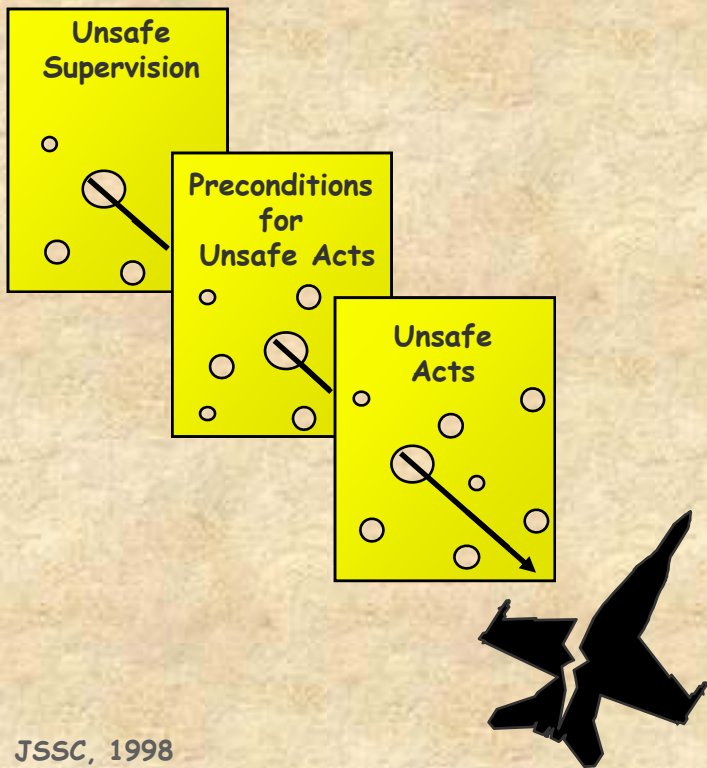
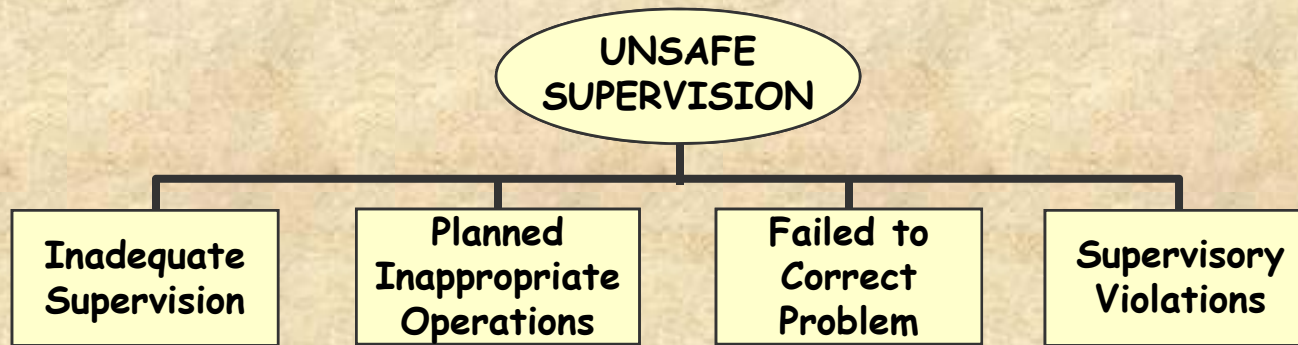
PERSONAL READINESS

Readiness Violations

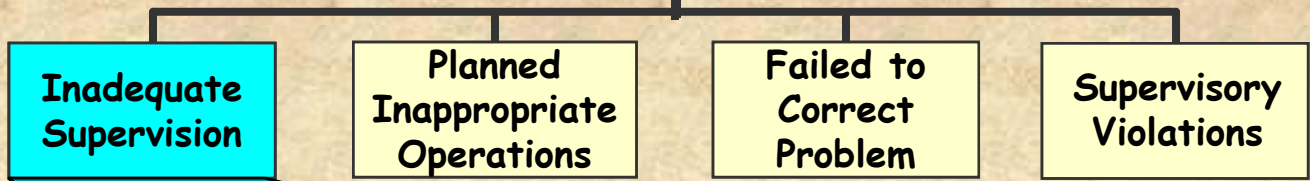
- Crew Rest Requirements
- Bottle-to-Brief Rules
- Self-Medicating

Poor Judgement

- Poor Dietary Practices
- Overexertion While Off Duty
- Excessive "Voluntary" PT

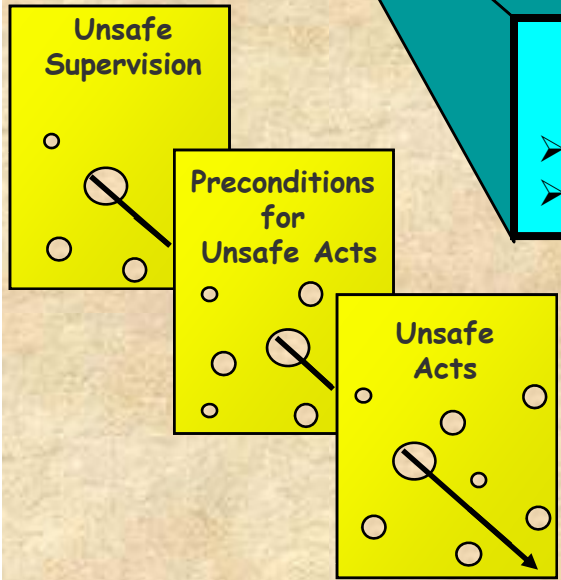


UNSAFE SUPERVISION

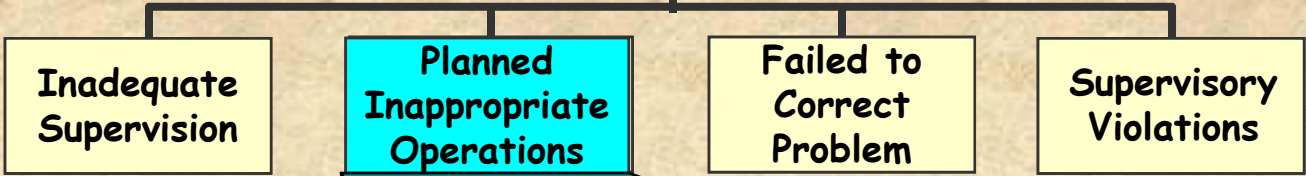


INADEQUATE SUPERVISION

- Failure to Administer Proper Training
- Lack of Professional Guidance

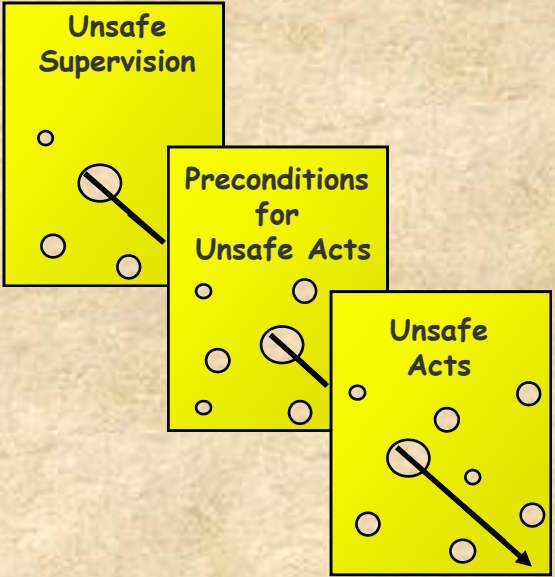


UNSAFE SUPERVISION

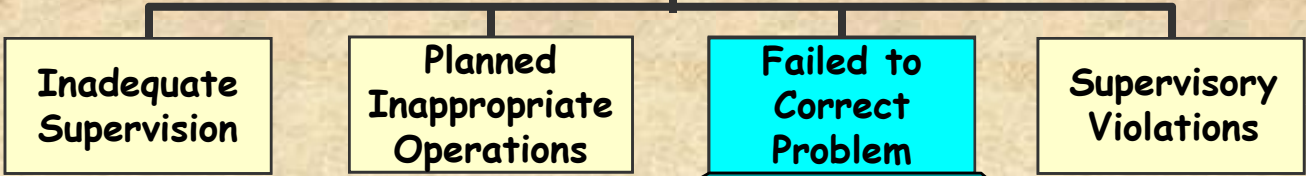


PLANNED INAPPROPRIATE OPERATIONS

- Mission Risk without Benefit
- Improper Work Tempo
- Poor Crew Pairing

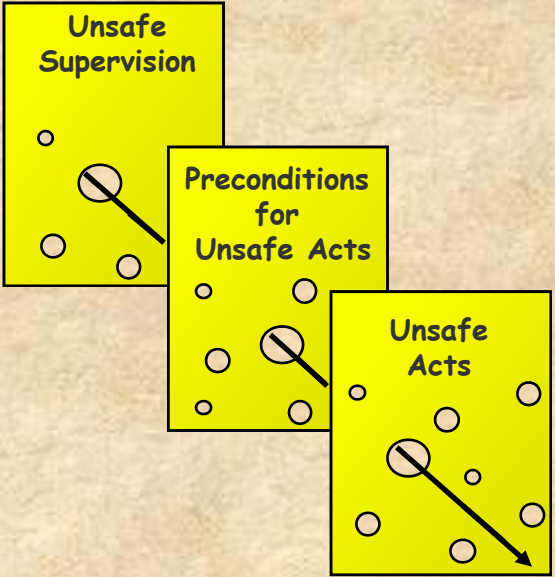


UNSAFE SUPERVISION

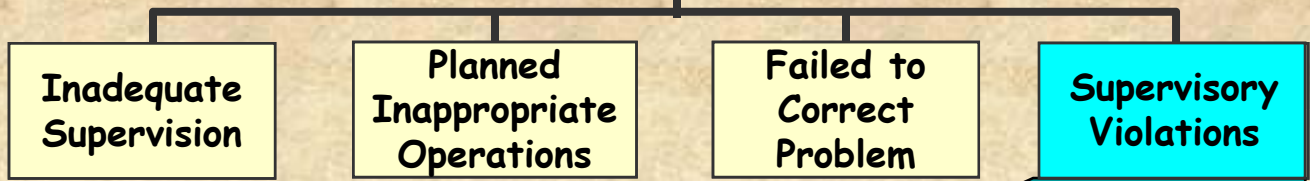


FAILED TO CORRECT A KNOWN PROBLEM

- Failure to Correct Inappropriate Behavior
- Failure to Correct a Safety Hazard

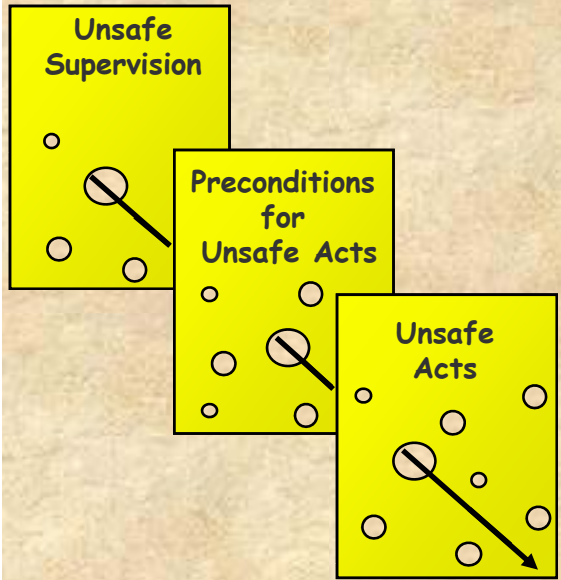


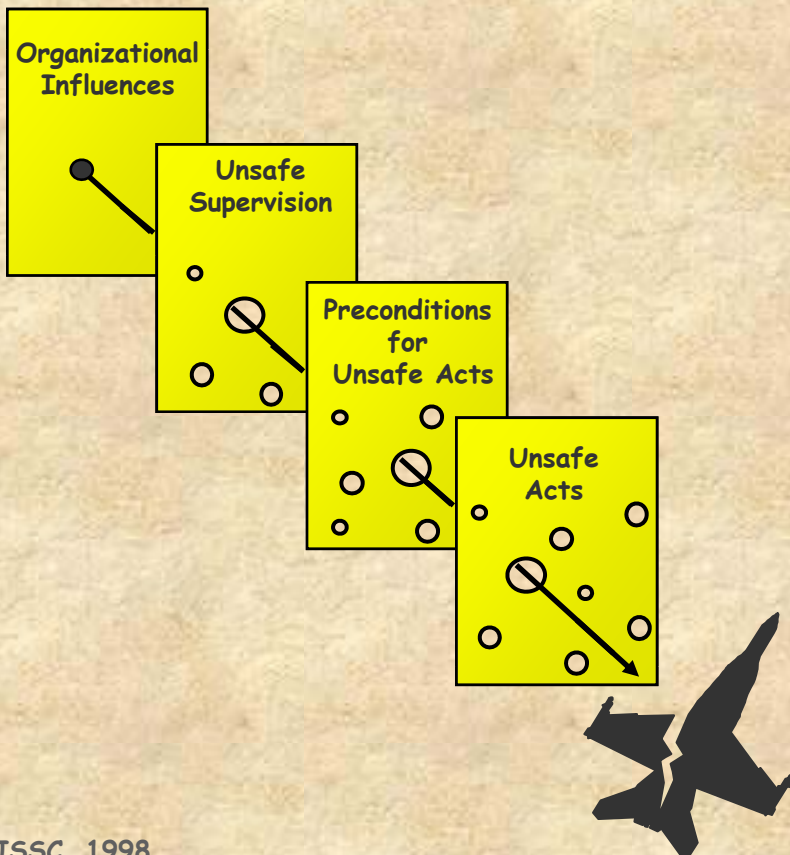
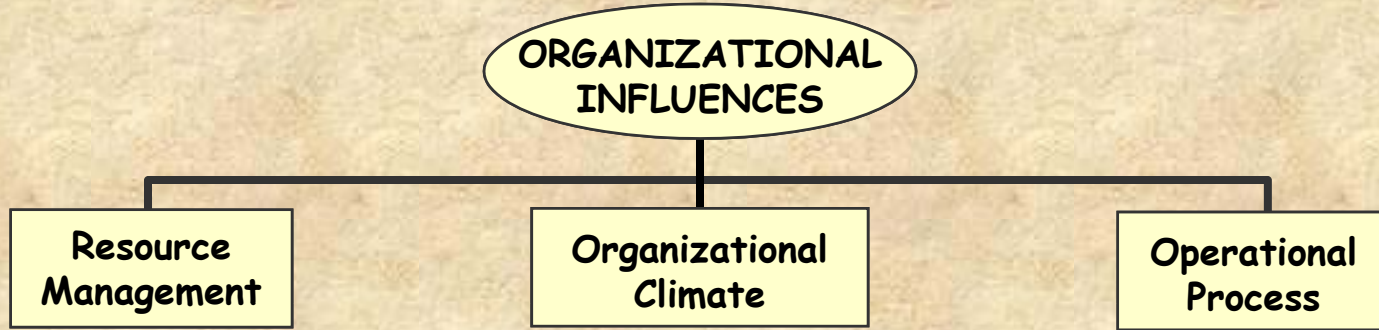
UNSAFE SUPERVISION



SUPERVISORY VIOLATIONS

- Not Adhering to Rules and Regulations
- Willful Disregard for Authority by Supervisors





ORGANIZATIONAL INFLUENCES

Resource Management

Organizational Climate

Operational Process

Organizational Influences

Unsafe Supervision

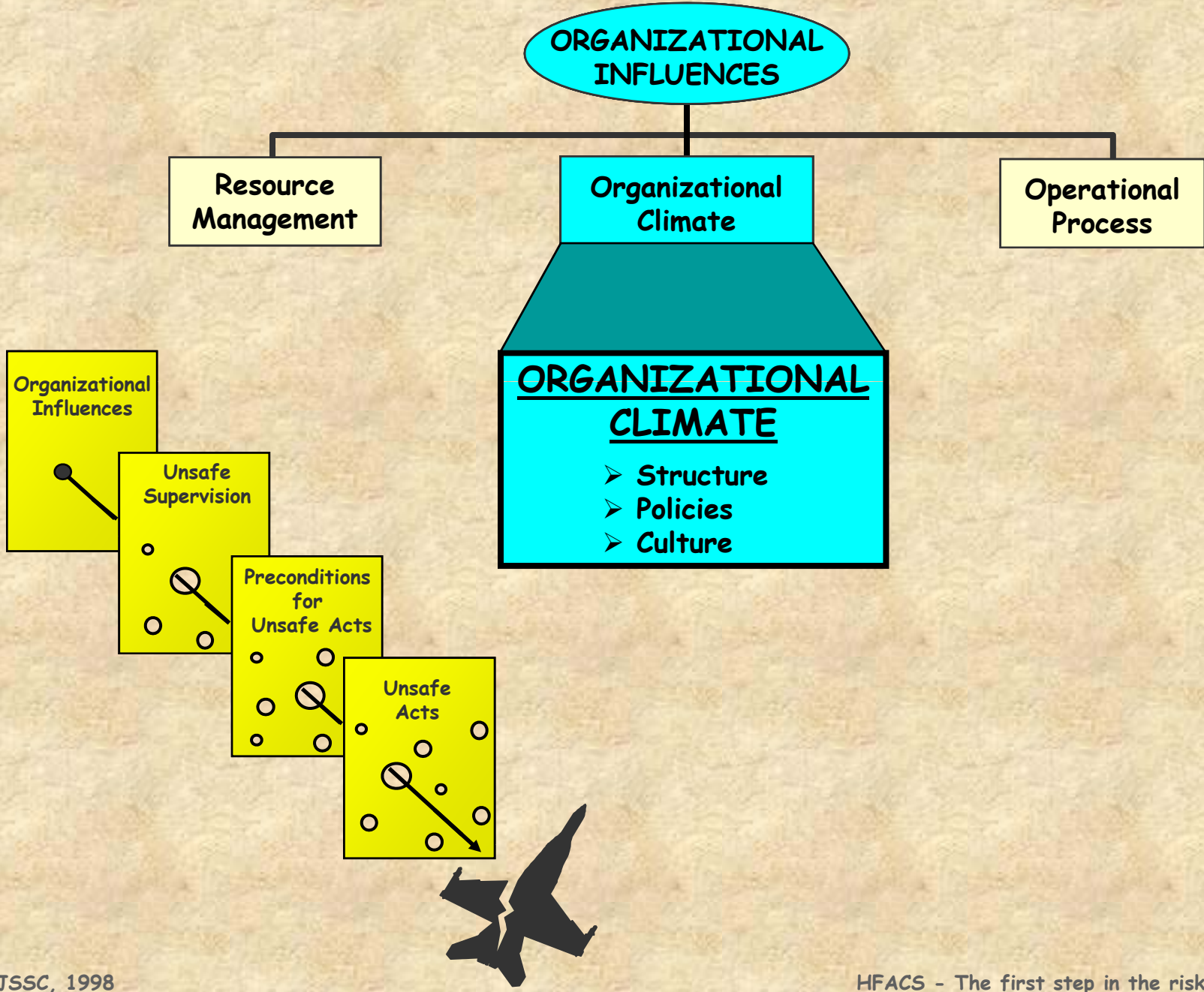
Preconditions for Unsafe Acts

Unsafe Acts

RESOURCE MANAGEMENT

- Human
- Monetary
- Equipment/Facility





ORGANIZATIONAL INFLUENCES

Resource Management

Organizational Climate

Operational Process

OPERATIONAL PROCESS

- Operations
- Procedures
- Oversight

Organizational Influences

Unsafe Supervision

Preconditions for Unsafe Acts

Unsafe Acts



U.S. Coast Guard

Operational Risk Management

Levels of Risk Management

- ❑ Time Critical
 - On the run, execution phase, mental or verbal review of the situation
 - ❑ Deliberate
 - Documented use of experience and brainstorming
 - ❑ Strategic
 - Thorough process using data, analysis tools, testing
-