Critical Element 7
Surveillance Obligations

Critical Element 7
Surveillance Obligations

- The establishment of processes, such as inspections and audits, to **proactively** ensure that aviation license, certificate, authorization, and/or approval holders continue to meet the established requirements and function at the level of competency and safety required by the State to undertake an aviation-related activity for which they have been licensed, certified, authorized and/or approved to perform.
- This includes the surveillance of designated personnel who perform safety oversight functions on behalf of the CAA.

- **The regulatory authority must conduct surveillance of air traffic services that is appropriate for the size and complexity of the aviation system**

CE-7 Applicable USOAP PQs

- **Effective surveillance program**
- **ATS Safety reviews**
- **Assurance of air navigation services**
- **Maintaining service provider training records**

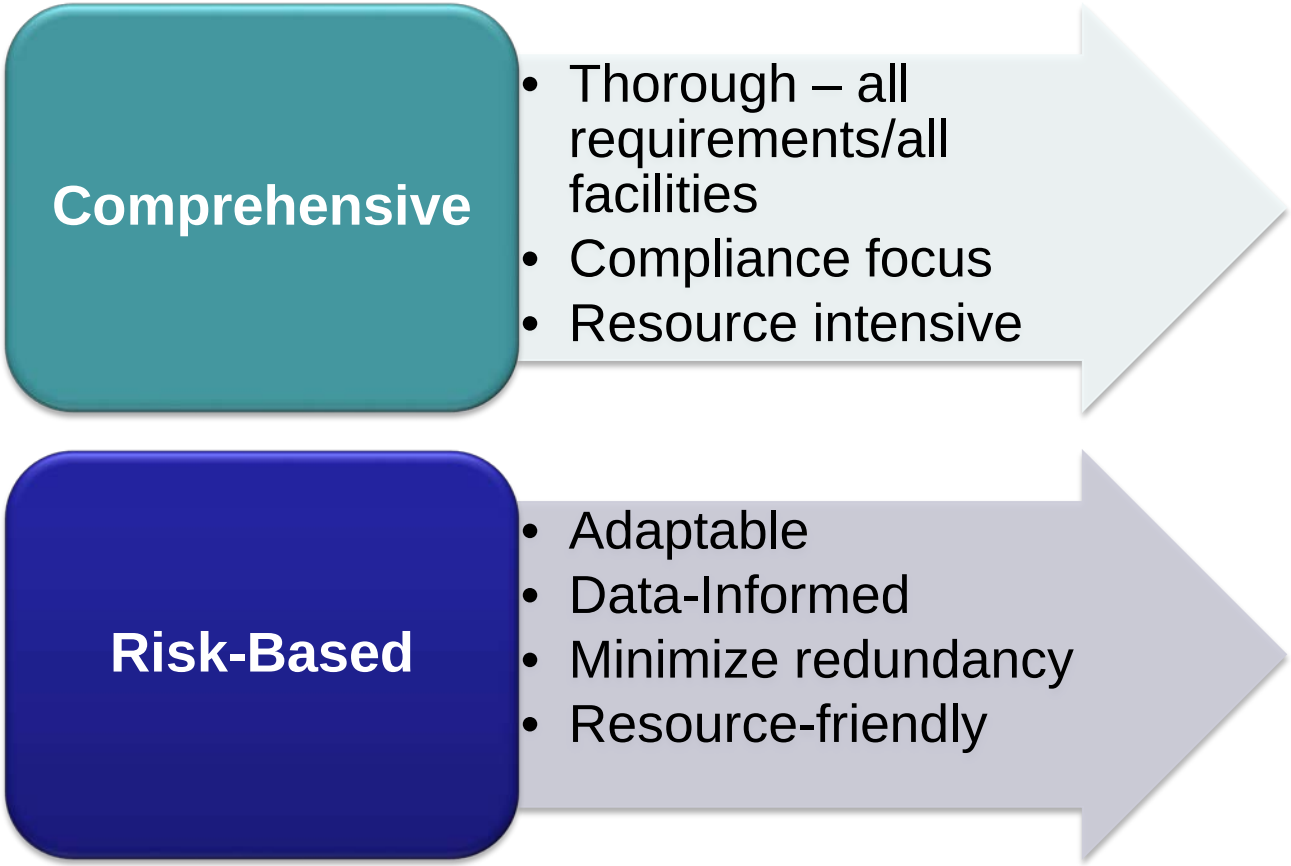
What is a Surveillance Program?

- A **surveillance program** is a system of ensuring continuing organizational, individual, and professional competency of:
  - license/rating/certificate/approval holders;
  - continuing validity of licenses/ratings/certificates/approvals; and
  - continuing capacity to maintain a safe and regular operation

Applying CE 7 to ANS Oversight

- **A surveillance program should:**
  - Be executed on a continual basis
  - Be thorough
  - Assess that a service provider's capability and competence are equal to or exceed the standards required at the time of original certification (baseline)
  - Require the service provider to demonstrate that operations and/or maintenance are being conducted in accordance with requirements (compliance)

Surveillance Strategies



Risk-Based Surveillance Program Goals

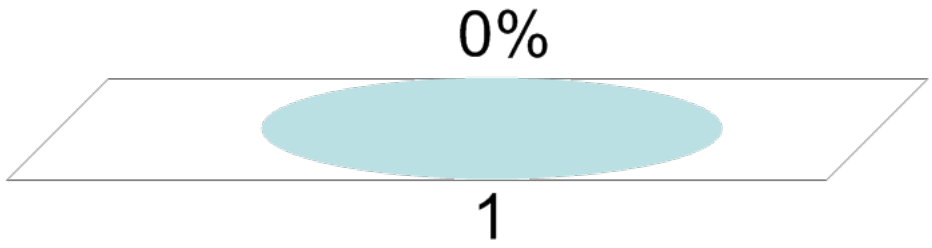
- Meet safety oversight responsibilities through a **performance-based**, **risk-focused**, and **data-supported** surveillance system
- **Proactively** identify hazards and risks related to mandatory requirements and weak controls
- Address **emerging** issues in the ANSP(s)

Strategies for Effective Surveillance

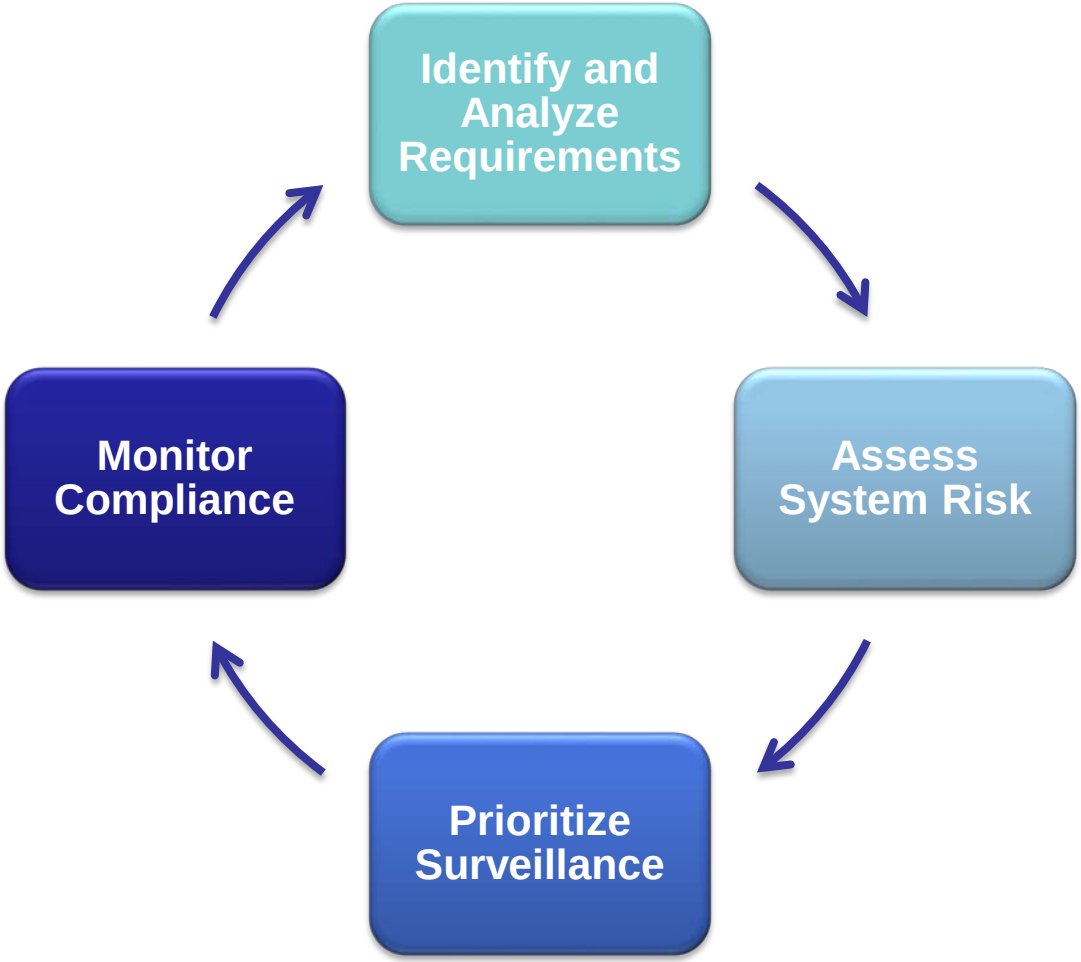
- **Standardization enables consistent surveillance**
- **Standardization strategies:**
  - Publish important processes and procedures and make them available to the entire organization
    - Examples: Surveillance Process, Audit Process, Compliance Process
  - Create an inspector handbook containing work instructions and job aids
  - Regularly review and update guidance documents
  - Integrate training and guidance documents

How does your organization standardize surveillance activities?

Rank	Responses
1	
2	
3	
4	
5	
6	



Developing a Surveillance Program



Identify Requirements

- **The process of reviewing requirements applicable to ANSPs enables regulators to focus and prioritize surveillance activities by:**
  - Becoming familiar with ANSP responsibilities
  - Identifying requirements applicable to ANSP(s)
  - Analyzing and prioritizing responsibilities/requirements

Identify Requirements

- **Map national statutes and CAA directives to ICAO Standards and Recommended Practices**
  - Identify specific requirements documents to establish a basis for surveillance

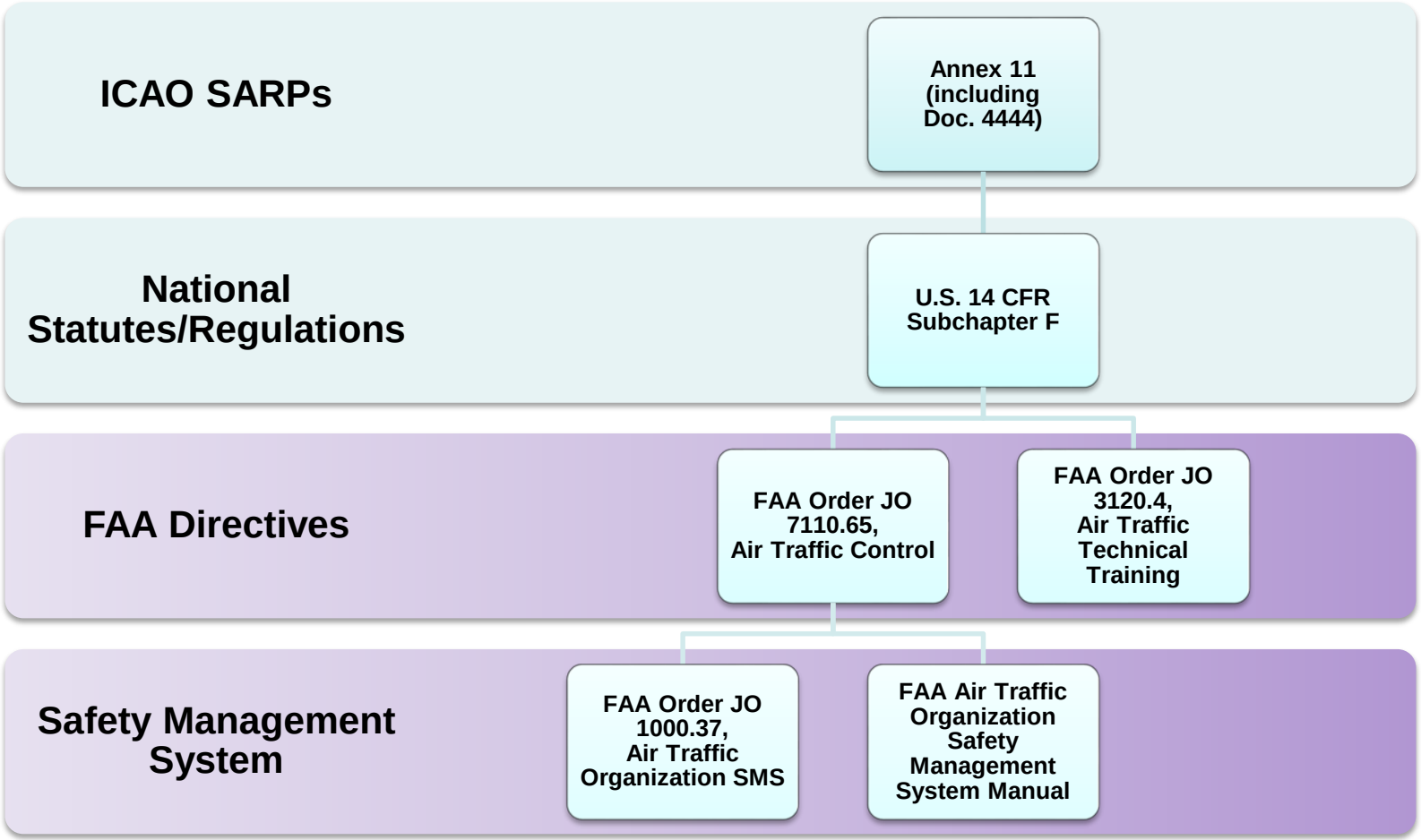
Identify Requirements

- **ANSP responsibilities may be documented in:**
  - ICAO Standards and Recommended Practices and complementary guidance documents
  - National statutes and regulations
  - Civil Aviation Authority directives
  - ANSP Safety Management System

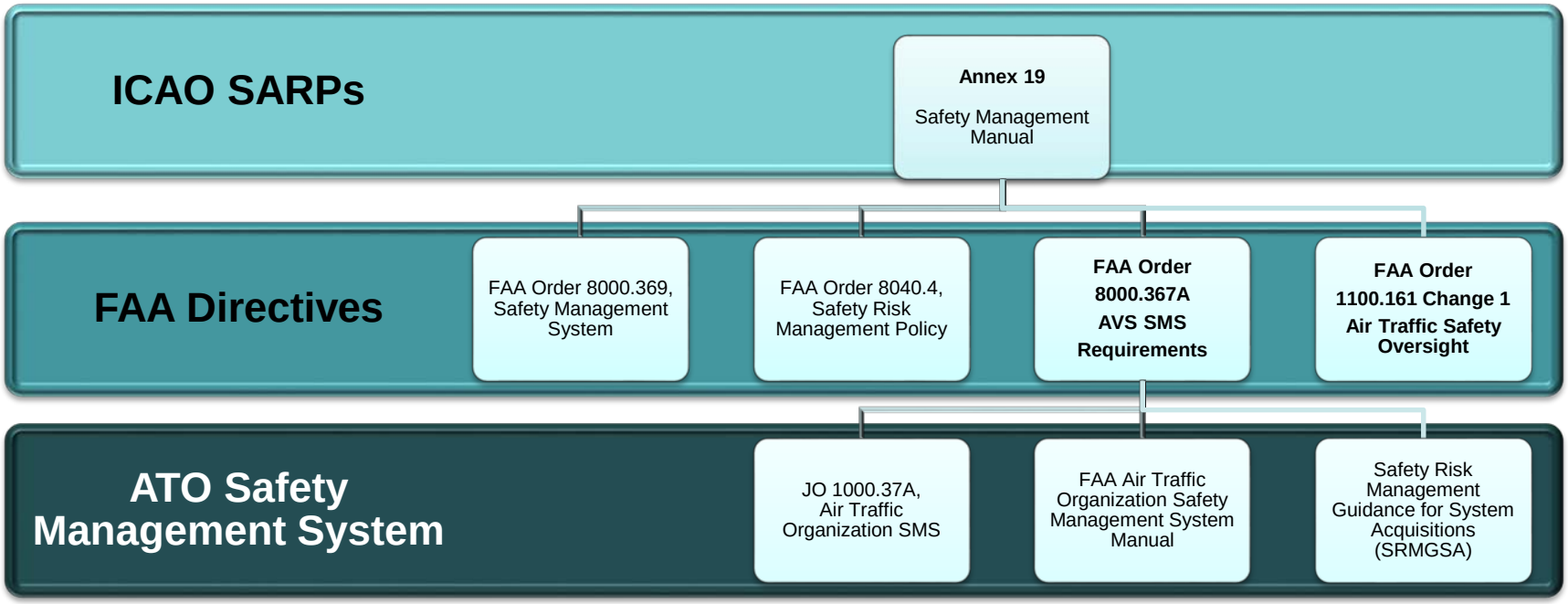
Identify Requirements

- **Prioritize responsibilities to focus surveillance activities**
  - Key questions to consider:
    - Where does the ANSP invest the majority of its resources?
    - Which services have the greatest potential safety impact on other aviation system users (e.g., pilots and passengers)?
    - Do other organizations also provide oversight of certain services? (avoid duplication)

FAA Example: ATS Requirements



FAA SMS Hierarchy



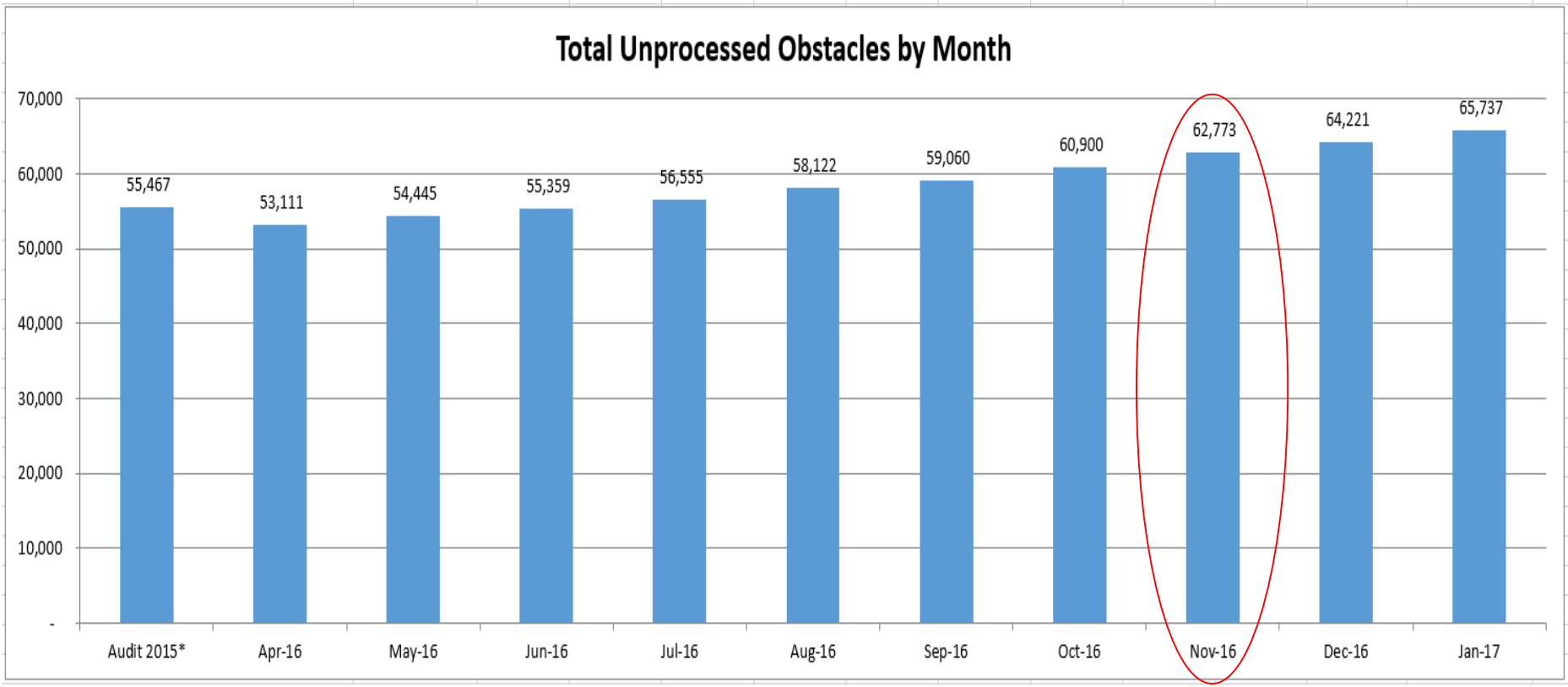
Prioritize Responsibilities

- Provide AIS/AIM
- Acquire and Maintain CNS Equipment
- Provide Air Traffic Services
- Provide MET services
- Provide Cartographic services
- Provide Search and Rescue (SAR) services

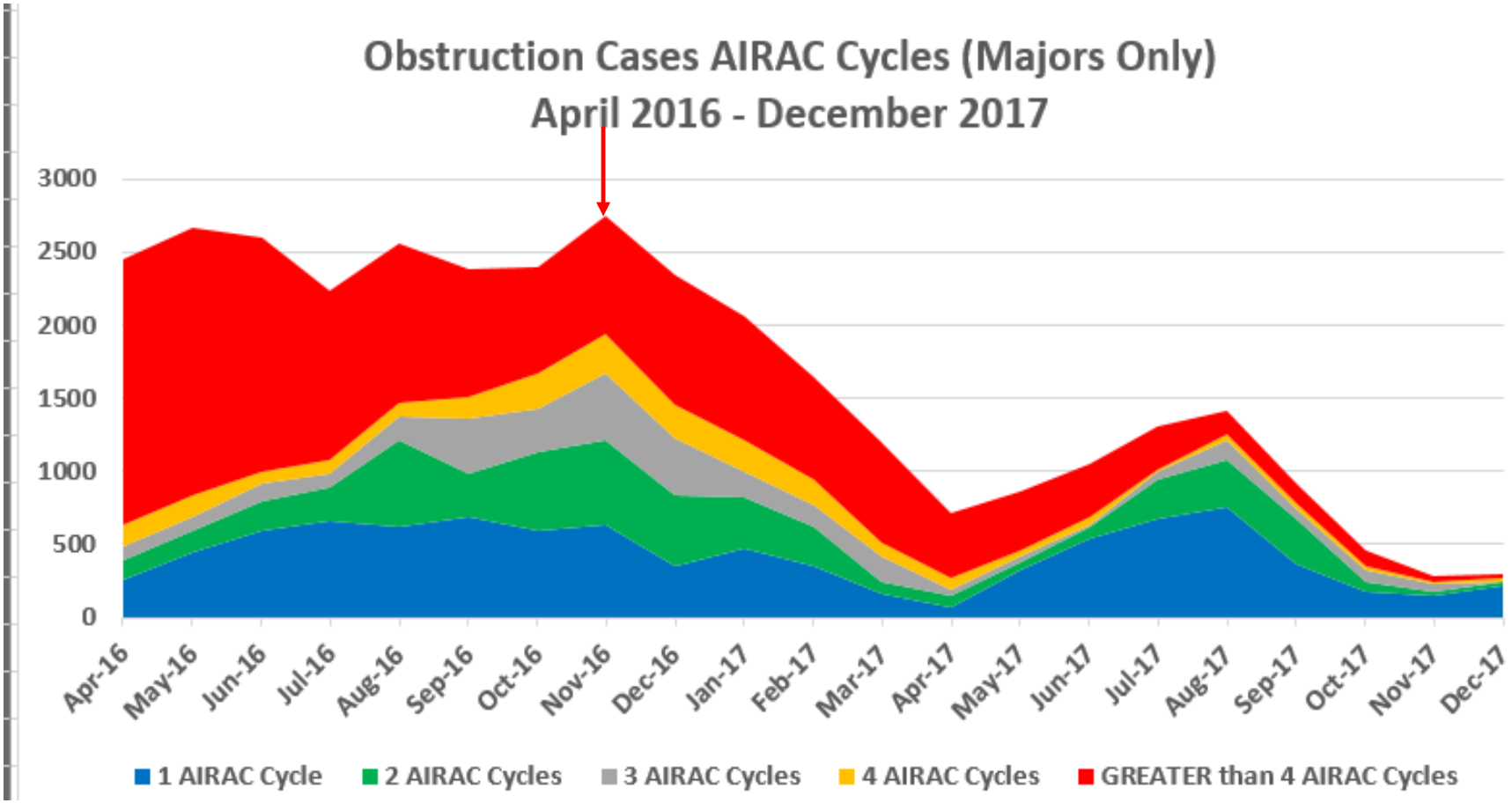
FAA Example: Data Driven Risk-Based Prioritization

- **In January 2014, AOV conducted audit to determine compliance with the Obstruction Notice process.**
  - Identified hazard of potential safety critical information which appeared to remain unpublished longer than what can be reasonably interpreted as “on a timely basis” as stated in the requirements. ATO indicated that there were plans to address the non-compliance.
- **AOV conducted a second audit in November 2016, to re-examine the obstruction process.**
  - A 4-month random sampling of 14,918 case files of which 12,788 (86%) were not processed and published in the Digital Obstacle File (DOF).
  - Approximately 72% of the files remained unprocessed for two or more Aeronautical Information Regulation and Control (AIRAC) publication cycles

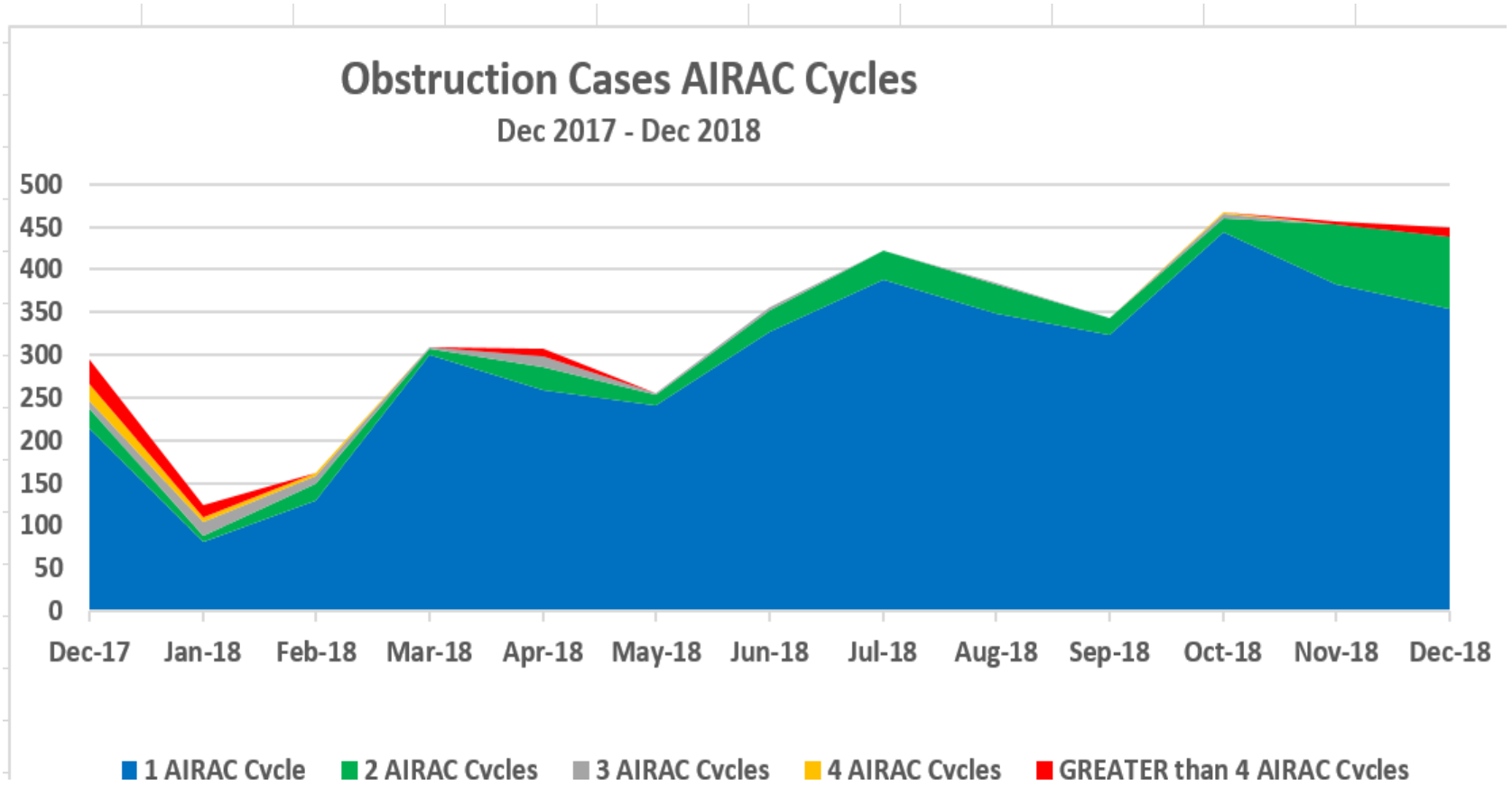
FAA Example: Obstruction Notice
Safety Monitoring Plan



FAA Example: Obstruction Notice
Safety Monitoring Plan



FAA Example: Obstruction Notice
Safety Monitoring Plan



FAA Example: Collaborative Prioritization

Air Traffic Organization's Top 5 Hazards

2017

IFR/VFR
Close encounters between IFR and VFR aircraft

NOTAM ISSUANCE/CANCELLATION
Lack of, untimely, or outdated NOTAM in the system

NOTAM PRIORITIZATION
Inability of ATC or pilots to distinguish between applicable or pertinent NOTAMs

RUNWAY FLYOVERS
Unexpected aircraft/vehicle on the runway with another aircraft cleared to takeoff/land, resulting in flyover

WRONG SURFACE LANDING
Aircraft lands on wrong runway or taxiway, or at wrong airport

2018

TRAFFIC ADVISORIES / SAFETY ALERTS
Air traffic control not issuing traffic advisories and/or safety alerts where required

ALTITUDE COMPLIANCE
Aircraft operating at unexpected or unintended altitude

WRONG SURFACE LANDINGS
Aircraft landing on the wrong runway or on a taxiway

PILOT REPORT (PIREP) SOLICITATION/DISSEMINATION
Air traffic control not meeting the requirement to solicit and/or disseminate PIREP information

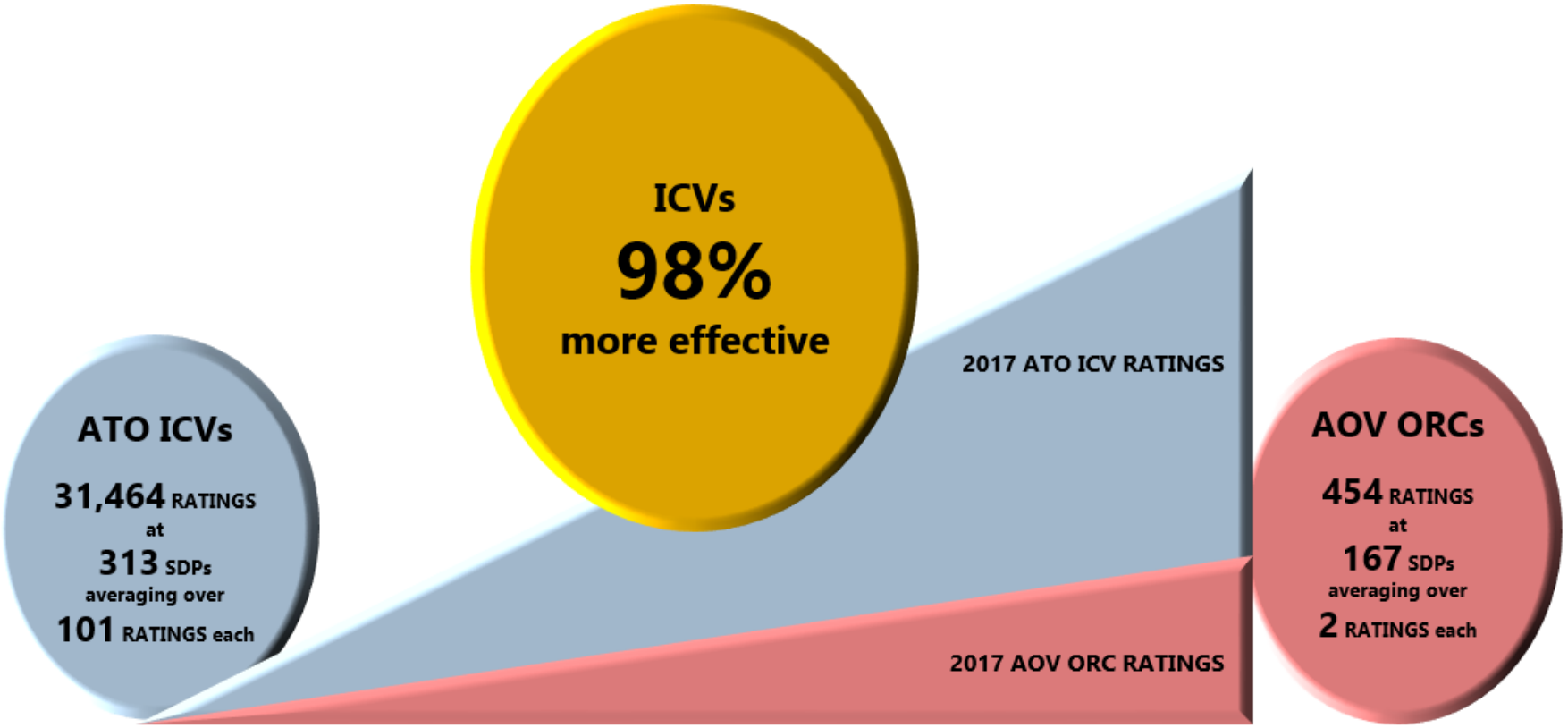
OPERATIONAL RISK MANAGEMENT (COORDINATION)
NAS status or interruption information not formally coordinated with impacted parties

Video: Wrong Surface Landing

FAA Example: Monitoring Data

Monitoring Data	Safety Standards	Safety Policy	Safety Promotion	Safety Risk Management	Safety Assurance	*Status*	*Format*	*Quantitative*	*Qualitative*	*Frequency*
Runway Safety Action Team Report	X		X	X	X	*Possess*	*Excel*	*Yes*	*Yes*	*Weekly*
ATSAP Report	X		X	X	X	*Possess*	*PDF*	*Yes*	*Yes*	*Monthly*
ICV/ECV	X		X	X	X	*Possess*	*Excel*	*Yes*	*Yes*	*Semi-Annually*
Risk Analysis Event Data	X		X	X	X	*Possess*	*Excel*	*Yes*	*Yes*	*Semi-Annually*
AJI Audits and Assessments	X		X	X	X	*Possess*	*Excel*	*No*	*Yes*	*Annually*
Safety Performance Monitoring	X		X	X	X	*Possess*	*PDF*	*Yes*	*Yes*	*Annually*
Top 5 Data	X		X	X	X	*Possess*	*PDF*	*Yes*	*Yes*	*Annually*
Observation - ICV/ECV	X			X	X	*Requested*	*Observation*	*No*	*Yes*	*Quarterly*
Observation - RAP	X			X	X	*Requested*	*Observation*	*No*	*Yes*	*Quarterly*
Observation - SRT	X			X	X	*Requested*	*Observation*	*No*	*Yes*	*Quarterly*
MOR (numerical)	X			X	X	*Requested*	*Excel*	*Yes*	*No*	*Semi-Annually*
QA Trend Tracker	X			X	X	*Offered*	*Excel*	*Yes*	*Yes*	*Semi-Annually*
Facility CAPs	X		X	X	X	*Offered*	*Excel*	*Yes*	*Yes*	*Semi-Annually*
Participation - ECV Planning Meeting	X			X	X	*Offered*	*Participation*	*No*	*Yes*	*Annually*
SMTS	X	X	X	X	X	*Future Request*	*Database*	*Yes*	*Yes*	*Continuous*
COOP Data		X	X			*Future Request*	*Unknown*	*Unknown*	*Unknown*	*Unknown*

FAA Example: Data Driven Prioritization



ICV: Internal Compliance Validation
ORCs: Observation Review Checklist
SDP: Service Delivery Point

Reminder: System Baseline

- **A surveillance program should ensure that the standards of a service provider's capability and competence are equal to or exceed those required at the time of original certification**
  - No ICAO requirement to certify ANSPs
  - "Original certification" = baseline for safety oversight
  - The system should be at least as safe as the baseline

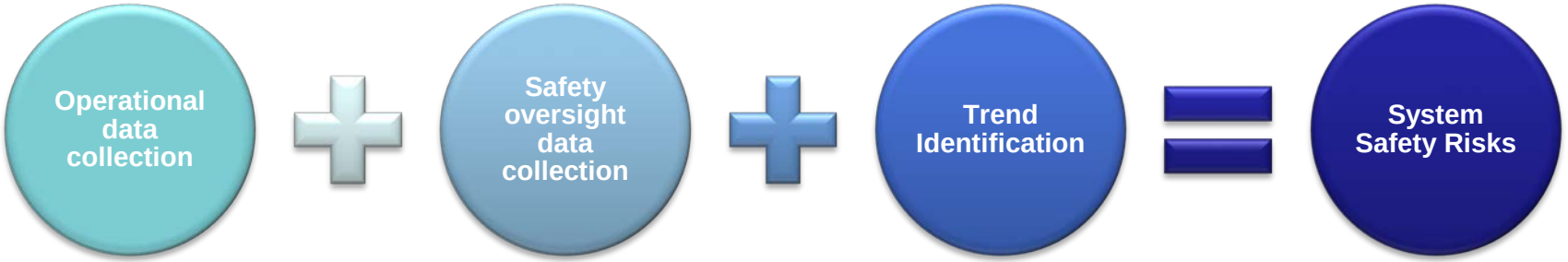
Assess System Risks

- **Adopting a risk-based approach to safety oversight enables regulators to prioritize surveillance activities**
- **Effective risk assessment requires:**
  - ✓ A systems safety approach
  - ✓ Data collection and analysis
  - ✓ Risk classification

Data Collection & Analysis

- Robust **safety data collection and analysis** enables a systems safety approach
- **Effective data collection and analysis requires:**
  - Operational data
  - Safety oversight data
  - Data analysis
  - Trend identification

Developing a Systems Safety Approach



System Statistics

- Number of facilities
- Traffic volume
- Passenger enplanements

Mandatory Occurrence Reports

- Accidents
- Serious Incidents
- Other occurrences

Safety Oversight Data

- Continuous monitoring – Service Delivery Points
- Audits, Assessments, Inspections, Investigations

System Statistics

- **Capture statistics to understand system characteristics and provide context to operational data**
  - Traffic volume
  - Number of airports
  - Number of air traffic facilities
  - Passenger enplanements

Occurrence Reporting

- **Safety occurrence** is the term used to describe all events which have or could have significance in the context of aviation safety
  - Occurrences include:
    - accidents and serious incidents
    - incidents or events that must be reported
    - occurrences of lesser severity which, in the opinion of the reporter, could have safety significance

Reporting Requirements

- **States must:**
  - Establish and operate a mandatory incident reporting system to collect information about actual or potential safety hazards
- **Service providers must:**
  - Report to their national authorities all accidents or serious incidents of which they become aware
  - Develop and maintain within the scope of their SMS a formal process for collecting, recording, acting on and generating feedback about hazards in operations

SKYbrary: Safety Occurrence Reporting (http://www.skybrary.aero/index.php/Safety_Occurrence_Reporting)

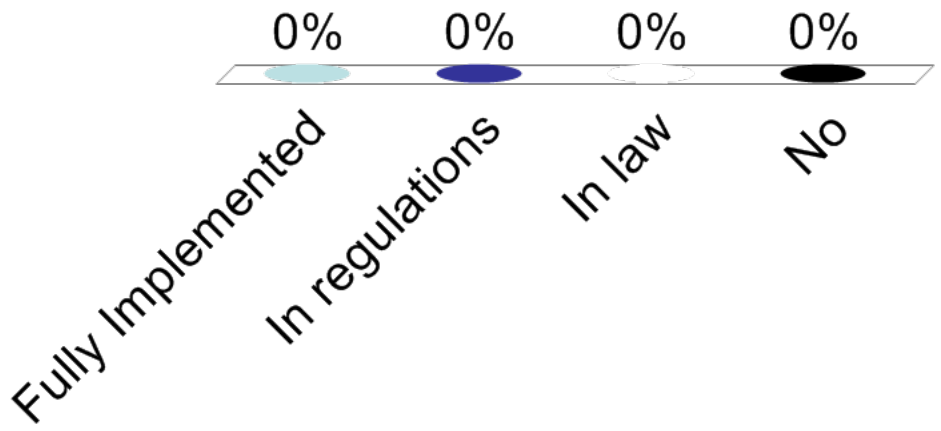
Mandatory Reporting

- **Operational personnel are required to report accidents and certain types of incidents**
  - The objective of mandatory occurrence reporting is to prevent safety occurrences, not to attribute blame or liability if they happen
- **The reporting process should be:**
  - As simple as possible
  - Well documented, including details as to what, where, when and to whom to report
- **Reports must be available to regulators!**

SKYbrary: Mandatory Occurrence Reporting (http://www.skybrary.aero/index.php/Mandatory_Occurrence_Reporting)

Does your ANS oversight organization require occurrence reporting?

A. **Fully Implemented**
B. **In regulations**
C. **In law**
D. **No**



Example: EUROCONTROL ESARR2

- **ESARR2 establishes a minimum list of ATM-related occurrences to be reported:**

Near Collision Incidents			
Separation minima infringement	Inadequate separation	Near-CFIT	Runway incursion where avoiding action was necessary
Potential for Collision or Near Collision			
Runway incursions where no avoiding action is necessary	Runway excursion	Aircraft deviation from ATC clearance	Aircraft deviation from applicable ATM regulation
ATM-specific Occurrences			
Inability to provide ATM services	Failure of Communication function	Failure of Surveillance function	Failure of Data Processing and Distribution function
Failure of Navigation function	ATM system security		

SKYbrary: ESARR2-Reporting and Assessment of Safety Occurrences in ATM (http://www.skybrary.aero/index.php/ESARR2)

FAA Example: Mandatory Reports

The Air Traffic Safety Oversight Service requires the Air Traffic Organization to measure the following:

- ATC operational error rates
- Operational deviation rates
- ATO-related accident rates
- Pilot deviations (ATC contributed)
- Losses of standard separation
- Runway incidents (runway incursion rates at controlled airports)
- Near mid-air collisions
- Missed equipment preventative maintenance
- Expired equipment certifications
- Missed periodic flight inspections
- Failure to mitigate high risk hazards identified as part of a safety assessment
- Results of internal audits and surveys

Other Sources of System Information

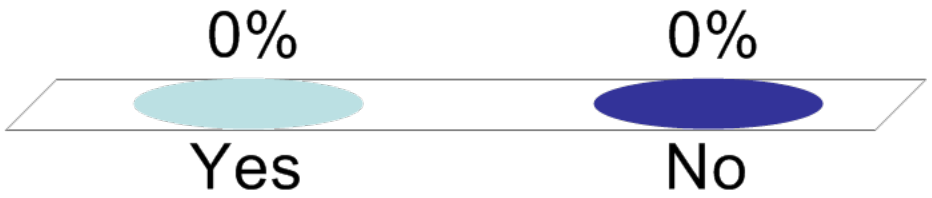
- **Voluntary safety reports**
- **Reports of unsafe conditions in daily operations**
- **External safety recommendations (e.g., AIG authority)**
- **Internal audits (ANSP QA) and prior audits by oversight organization**
- **ANSP safety analysis that accompanies proposed implementation of new system or procedure**

FAA Example: ATO Safety Report

- **Daily "state of the system" briefing**
  - E-mail message distributed each morning
- **The daily Safety Report highlights significant/noteworthy incidents and activities, including:**
  - Accidents
  - Operational incidents
  - Follow-up activities
  - Accident investigation activities

Does your ANS oversight organization utilize occurrence reports in its surveillance program?

A. Yes
B. No



Data Analysis

- **Safety data such as system statistics and occurrence reports should be collected for easy reference and analysis**
  - Create a safety oversight information database
    - Require ANSP to provide access to safety performance monitoring database(s)
    - Require ANSP to provide daily safety reports
- **Include supplemental operational data with additional information**
    - Meteorological forecasts/reports
    - Aeronautical information products

What Is Trend Identification?

- **Trend analysis** is the practice of collecting information and attempting to spot patterns
- **Examination of safety data to identify trends:**
  - Enhances visibility of safety issues at particular airports, ATC facilities, or among groups of operational personnel
  - May predict future events or occurrences

Trend Identification Strategies

- **Detect undesirable trends through analysis of system data**
  - Generate periodic trend reports (charts, graphs, etc.)
- **Analyze airspace, facilities, and operations**
  - Which are the:
    - busiest airports, airways, and airspace segments?
    - most complex airports and airspace?
    - most commonly used and/or complex procedures?

Trend Identification Strategies

- **Collate and compare data to identify interrelationships**
  - Which facilities/locations report the most occurrences?
  - Are there similarities among the occurrences?
- **Use identified trends to inform surveillance decisions**
  - Trends may indicate risks:
    - at individual facilities or groups of facilities
    - in inadequate (weak) or missing requirements

Surveillance Techniques

- **Common safety oversight surveillance techniques include:**
  - Audits
  - Inspections
  - Assessments
  - Investigations
  - Continuous monitoring

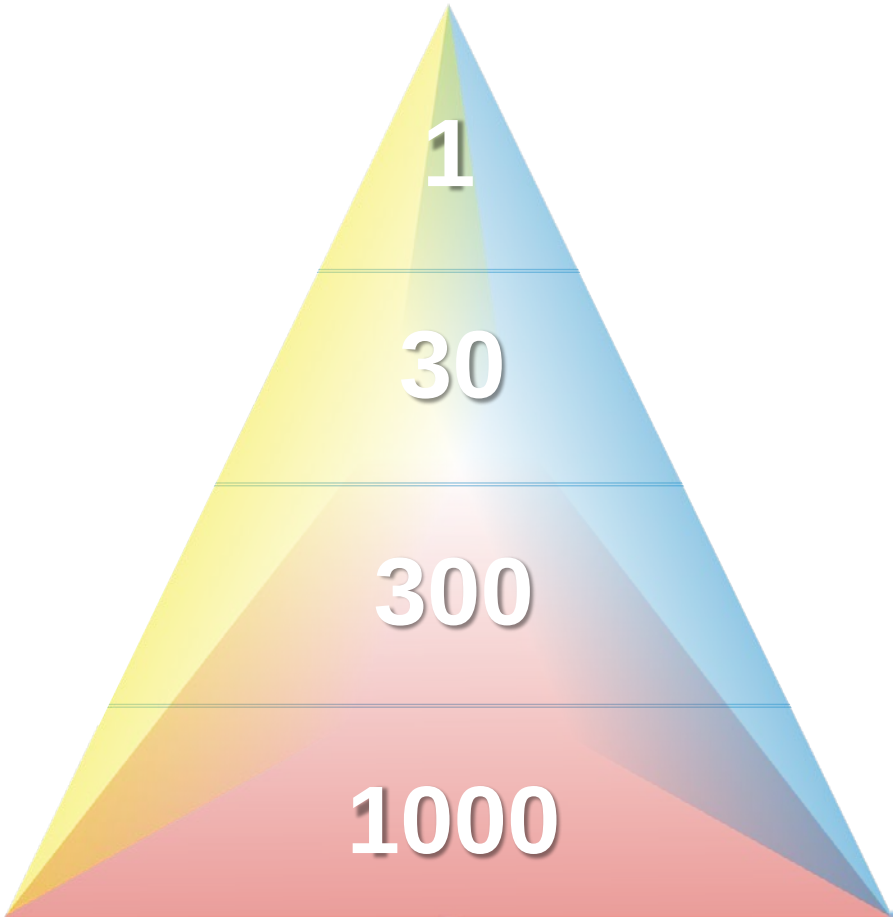
Heinrich's Triangle

Accidents

Incidents

Hazardous Conditions

Unreported "Unsafe Acts



Surveillance Techniques

- **Audits** are conducted to determine the degree of compliance with applicable safety regulatory requirements and with procedural provisions of a Safety Management System[1]
  - Audits are systematic, critical evaluations based on obtaining and analyzing objective evidence
- **Assessments** judge the significance, worth, or quality of a standard, process, practice or procedure
  - Assessments take into account ambiguous requirements or gaps in management controls

[1]SKYbrary: Safety Audits (http://www.skybrary.aero/index.php/Safety_Audits)

Surveillance Techniques

- **Investigations** may be conducted to determine the cause(s) of a safety occurrence
  - Investigations may:
    - Help to understand the events leading up to an occurrence
    - Be used to make safety recommendations[1]
  - The objective of an investigation is to prevent future occurrences

- **Inspections** are conducted to evaluate compliance with a specific set of standards at a single facility
  - Inspections may be shorter and less formal than audits

[1]SKYbrary: Safety Occurrence Investigation (http://www.skybrary.aero/index.php/Safety_Occurrence_Investigation)

FAA Example: Surveillance Techniques

- **The Air Traffic Safety Oversight Service uses the following surveillance techniques:**
  - Audits
  - Assessments
  - Targeted Inspections
  - Investigations
  - Continuous Monitoring
- **Other offices in FAA, including ATO, conduct some of these same techniques as well as Investigations**

FAA Example: Inspections & Investigations

- **Targeted Inspections** are tailored to a particular topic or facility
  - Generally planned in response to an event (accident, incident, etc.)
  - May be scheduled or “no-notice” (unscheduled)
  - Useful in determining whether compliance issues identified during continuous monitoring activities are likely to be isolated or system-wide
- **Investigations** are conducted to evaluate possible non-compliance issues identified outside of an audit or assessment

References

- **FAA Order JO 7210.632, Air Traffic Organization Occurrence Reporting**
- **ICAO Safety Oversight Manual, Doc 9734**
- **ICAO Safety Management Manual, Doc 9859**

What Is An Audit?

- A **systematic**, **independent,** and **documented** process for obtaining objective evidence and analyzing it to determine the extent to which certain criteria are met
  - Gather information, compare information, and present facts
  - Focus on those functions or changes that pose the greatest risk to safety
- Audits should be **well documented** so that an individual audit could be replicated and produce the same results

Types of Audits

- **Methods of Conducting Audits**
  - Onsite
    - Can be scheduled or unscheduled
  - Desk (virtual)
- **Audit Types**
  - New audit
  - Follow-up audit
    - Used to check progress in completing a Corrective Action Plan after a previous audit, or after a significant safety finding
  - Replication audit
    - Re-creates a previous audit

Special Emphasis

- **Special Emphasis Item (SEI)**
  - Narrow scope
  - Compliance based

- **Special Emphasis Request for Information (SERFI)**
  - Data gathering
  - Future purpose

Roles and Responsibilities

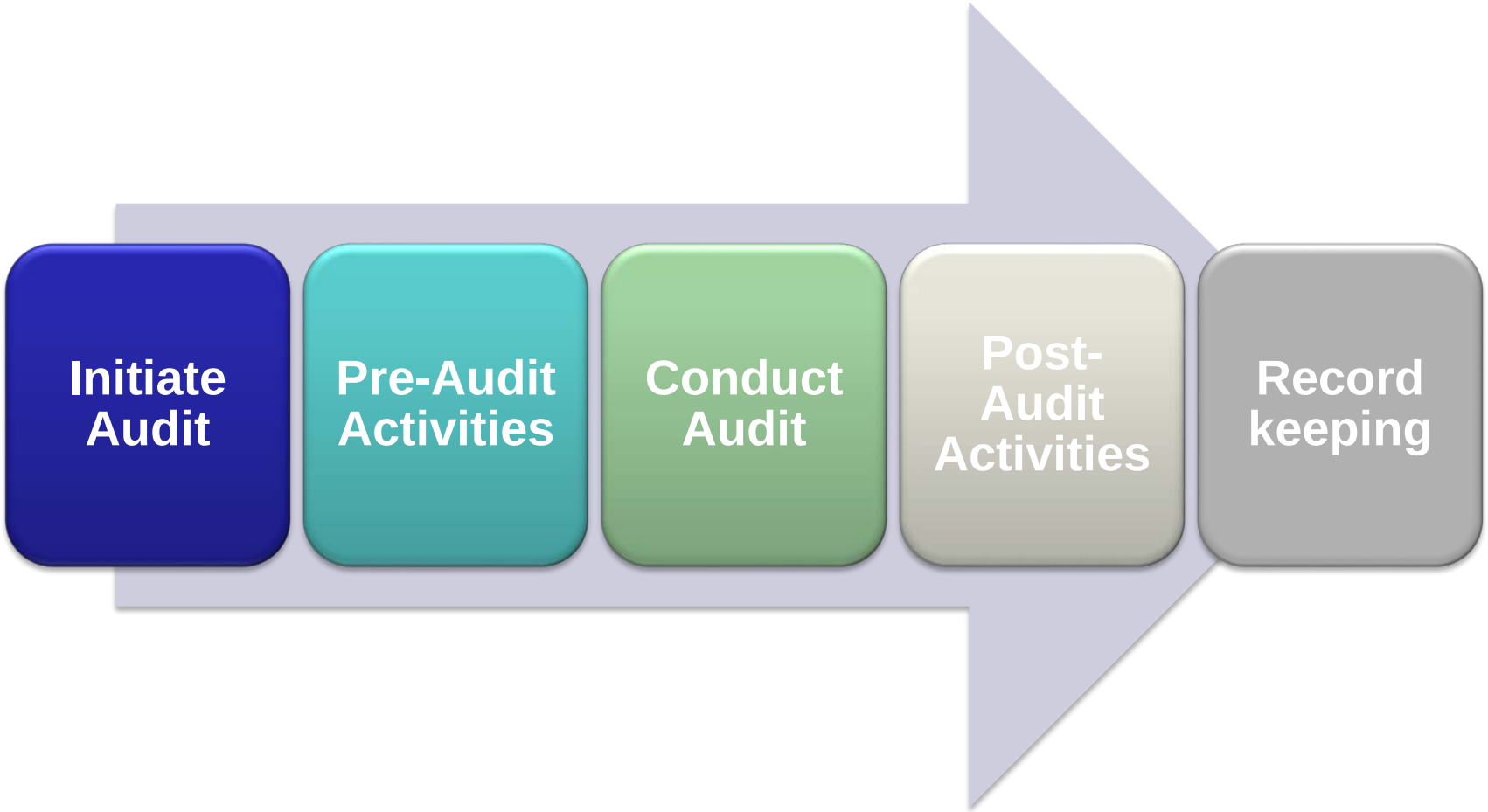
- **The regulator is responsible for:**
  - Developing a meaningful, targeted audit proposal and focus areas
  - Identifying data and information required from the service provider(s)
  - Notifying the service provider of the upcoming audit
    - AOV typically notifies at least 10 days in advance
- **The service provider is responsible for:**
  - Providing safety inspectors access to requested facilities and information
  - Taking action to correct safety issues

Regulating as Problem-Solving

Stages (adapted from **Malcolm Sparrow**)	AOV Solution
1. Nominate potential problem for attention	Audit proposal
2. Define the problem precisely	Audit plan
3. Determine how to measure impact	Audit checklist
4. Develop solutions/interventions	Audit report
5. Implement the plan/periodic monitoring/review/adjustment	Compliance and Follow-up Audits
6. Project closure and long term monitoring/maintenance	

Malcolm Sparrow: The Regulatory Craft

The Audit Process



Phase 1: Initiate Audit

- Identify/select audit topic (audit proposal)
- Confirm audit timeline
- Assign personnel

Initiate Audit: Developing a Proposal

- **Ongoing effort**
  - Anyone in AOV may develop and submit an audit proposal for review
- **Can be triggered by events, such as:**
  - Routine surveillance of service provider(s)
  - Management request
  - Changes to requirements documents or publications
  - High-profile accident, incident, or other occurrence

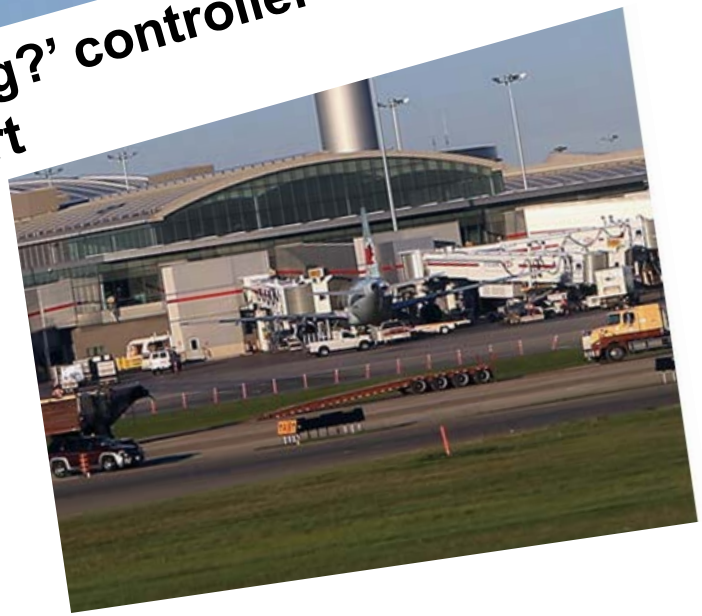
TRIGGERS

Travel News on NBCNEWS.com

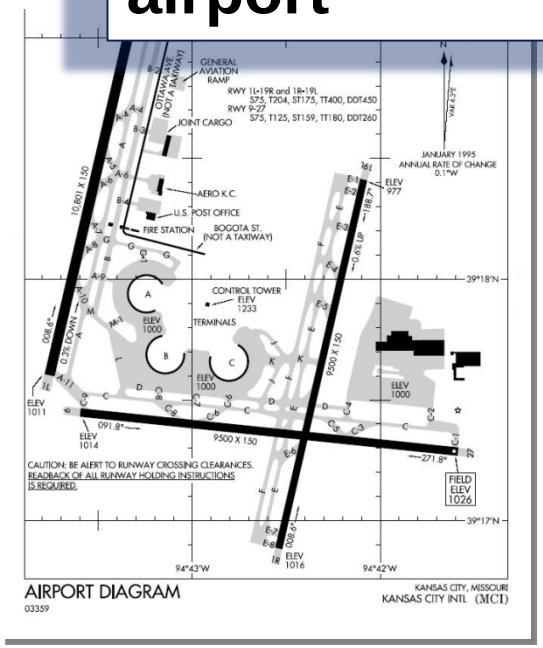
Flight skids off runway at Metro Airport

Experts concerned with g... ...wing airliners

‘Are you kidding?’ controller asks pilot that landed at wrong airport



Boeing 747 mistakenly lands at wrong airport



Audit Timeline

- **The audit timeline:**
  - Ensures accountability
  - May be adjusted as the audit develops
    - i.e. more time added if additional information needed

Standard AOV Audit Timeline				
Notify ANSP	Start Date	End Date	Conclusions for Executive Review	Report Due to ANSP
At least 10 days prior to audit start	Audits generally last 1-3 weeks		Typically within 5 business days following audit End Date	Within 25 business days from Executive Review

Personnel Assignment

- Project Manager
- Audit Lead
- Team Members
- On-the-job training

Phase 2: Pre-Audit Activities

- Conduct topic research
  - Collect, review and analyze information
- Develop objective and scope, audit plan, notification to ANSP, checklists, and datasheet(s)
- Select facilities/sectors to audit
- Confirm target dates in audit timeline
- Conduct pre-audit briefing for audit teams and management

Pre-Audit Activities: Research

- Collect, review, and analyze information
- Evaluate risk indicators
- Develop audit objective, scope, and focus areas
- Identify facilities/locations to audit

Audit Research

- **Key questions to consider:**
  - What prompted the audit?
  - What are the results of any past audits on the topic?
  - Were there any investigations pertaining to this topic?
  - Are there enforcement actions against the ANSP? Responses from the ANSP?
  - What is the current state of the system related to this topic?
  - Which requirements are applicable to this topic?

Objective

- The purpose of the audit
- The objective should tell, in one sentence, the safety-related reason for doing the audit.
- It should tell how this audit will benefit the ATO: the “so what?” factor.
- It indicates the top level concern: the Law, Regulation, Standard being audited or broad subject to be considered.

Scope

- Limits the audit and is directly tied to the objective.
- Defines what will and will not be audited.
- Should explain, briefly, the limits of the auditing activity.
- List the chapters or the specific subject areas you will cover in the audit, i.e.: standard, regulation, etc.

Focus Areas

- **Subset of specific areas to be audited (checklist items) within the audit scope.**
- **Things you could imagine building a relevant checklist on.**
- **The paragraphs you intend to audit, or the issues, procedures, or types of documentation you will look at.**
- **Tied to methodology**

Source: http://blog.cryptographyengineering.com/2013/10/lets-audit-truecrypt.html

Example: Objective, Scope & Focus Areas

- **Objective**
  - To determine ANSP compliance with requirements relating to providing current approach information
- **Scope**
  - The audit will examine requirements for approach controllers to provide current approach information and visual approach clearances
- **Focus Areas**
  - Availability of current approach information
  - Airports in close proximity

Selecting Facilities

- **Key questions to consider in choosing facilities to audit:**
  - Do the selected facilities use or maintain the system or procedure in question?
  - Logistics
  - System state
    - Traffic flow and traffic mix
    - Number of operations
    - Equipment

What other reasons would you use to choose a facility or locations to audit?

Pre-Audit: Prepare the Audit Plan

- The **audit plan** summarizes essential information about the audit, including:
  - Objective and Scope
  - Focus Areas
  - Facilities to be visited
  - Timeline
  - Resources
- Utilize a template for standardization

Pre-Audit: Scheduled vs Unscheduled

- **Scheduled Audits**
  - Require audit notification
  - Notification sent at least 10 business days prior to conducting the audit
- **Unscheduled Audits**
  - Do not require notification, by Executive decision
  - Utilized when advance notice might skew results, or when there is an immediate need for an audit
  - Often, informal notice given to ANSP a day or two in advance

Pre-Audit: Audit Notification

- **A memorandum or letter transmitted to the service provider containing the audit dates, subject, and locations to be audited**
  - Notifications request ANSP to provide points of contact at each facility or location
  - May also request data from the ANSP
- **Utilize a temple for standardization**

Pre-Audit: Develop Checklists

- **What is a checklist?**
  - A checklist is a listing of critical process activities needed to complete the process or operation successfully
  - It is used as a real-time verification that the critical process step has been completed

Checklists can be an effective control tool when designed, used, and supported properly.

Developing Audit Checklists

- **Why create checklists?**
- **Checklists:**
  - Ensure we accomplish the critical elements of an activity
  - Help reduce inadvertent errors
  - Help standardize results when the “human factor” is a significant source of variation
  - Are useful when observing/reviewing processes that are complex or involve repetitive tasks
- **Checklists must reference applicable requirements**

Developing Audit Checklists

- **How to create a checklist:**
  - Locate the requirement
    - Law, Regulation, Directive, Order, etc.
  - Copy the requirement into the checklist
  - Turn the requirement into a question
    - Address one issue per question
      - Break requirements into separate questions if needed
    - Questions should be answerable in “YES/NO” format
- **Utilize a template for standardization**

Example: Requirements (Doc 4444)

- **8.9.5.1** The controller may initiate vectoring of an aircraft for visual approach provided the reported ceiling is above the minimum altitude applicable to vectoring and meteorological conditions are such that, with reasonable assurance, a visual approach and landing can be completed.
- **8.9.5.2** Clearance for visual approach shall be issued only after the pilot has reported the aerodrome or the preceding aircraft in sight, at which time vectoring would normally be terminated.

Example: Doc 4444 Checklist

Requirement:

8.9.5.1 The controller may initiate vectoring of an aircraft for visual approach provided the reported ceiling is above the minimum altitude applicable to vectoring and meteorological conditions are such that, with reasonable assurance, a visual approach and landing can be completed.

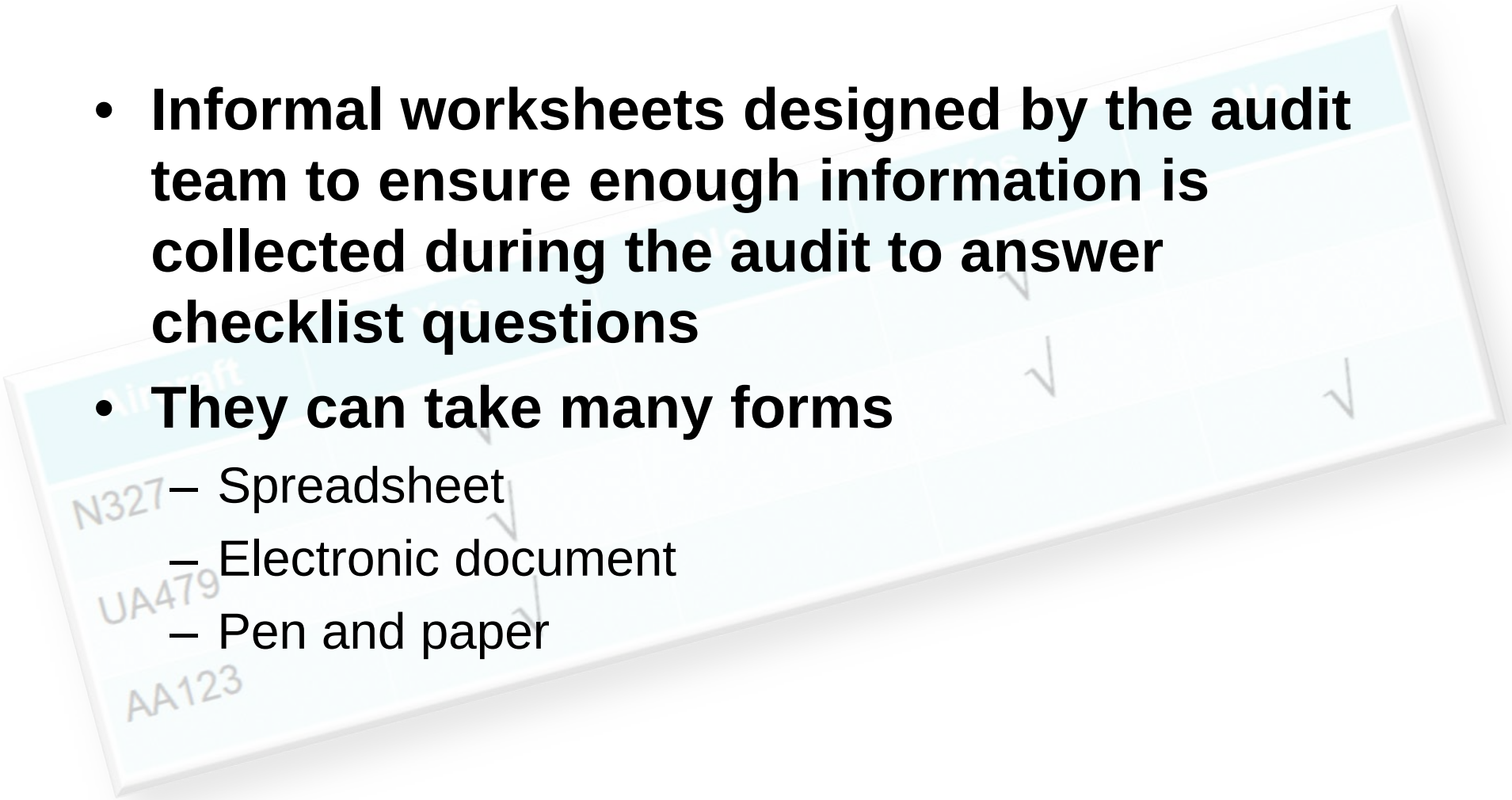
Checklist Questions	Compliance verified? (yes or no)	Evidence and/or Observations
1. Did the controller initiate vectoring?		
2. Was the reported ceiling above the MVA?		
3.		
4.		
5.		

Audit Sampling Methods (where to look and how many to look at, find, discuss or interview)

Additional Comments (use additional pages as needed)

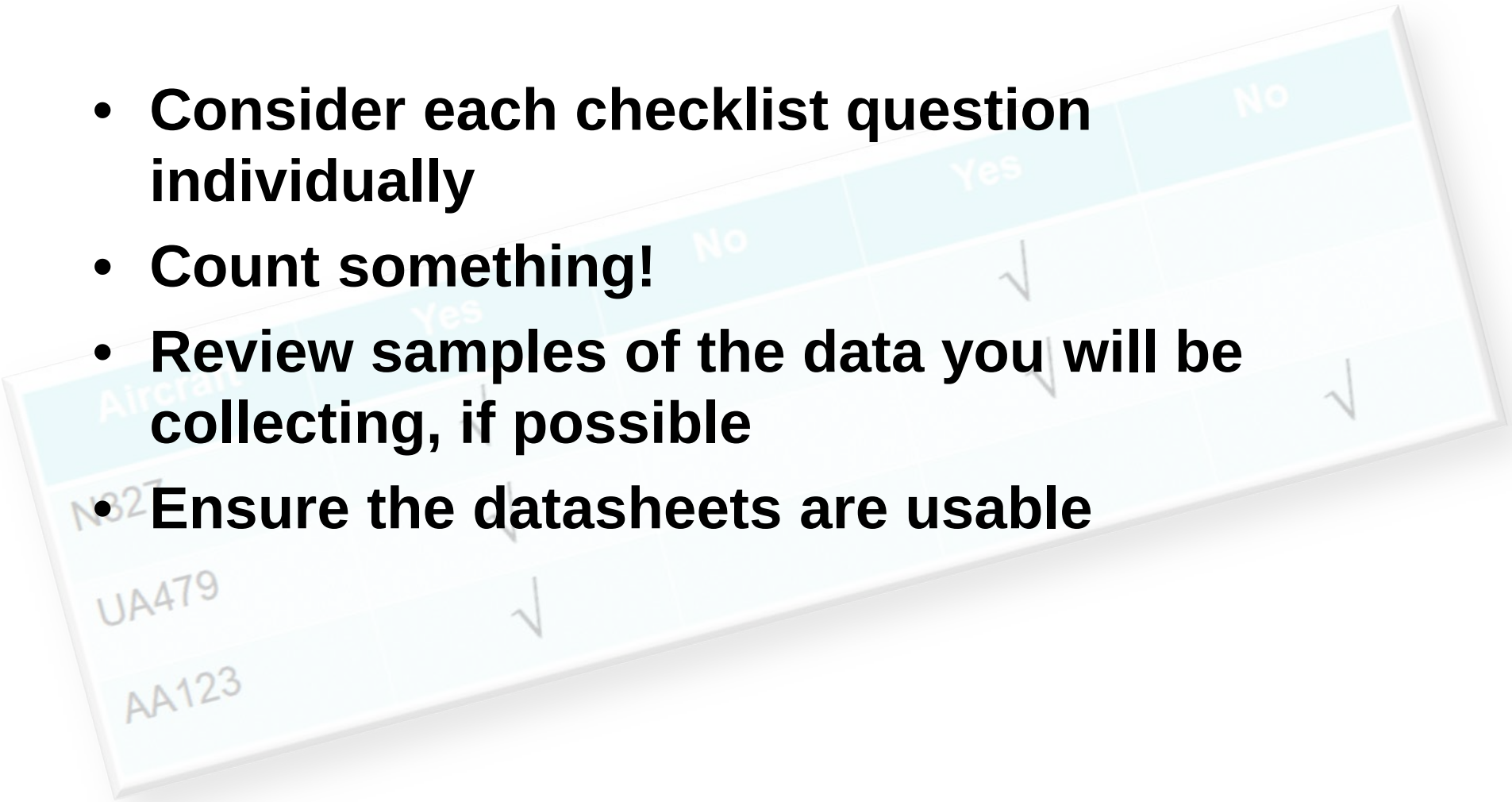
Pre-Audit: Create Datasheets

- **Informal worksheets designed by the audit team to ensure enough information is collected during the audit to answer checklist questions**
- **They can take many forms**
  - Spreadsheet
  - Electronic document
  - Pen and paper



Pre-Audit: Tips for Datasheets

- **Consider each checklist question individually**
- **Count something!**
- **Review samples of the data you will be collecting, if possible**
- **Ensure the datasheets are usable**



Sample Data Sheet

Requirement:

8.9.5.1 The controller may initiate vectoring of an aircraft for visual approach provided the reported ceiling is above the minimum altitude applicable to vectoring and meteorological conditions are such that, with reasonable assurance, a visual approach and landing can be completed.

Did the controller initiate vectoring of an aircraft for visual approach?

Was the reported ceiling above the MVA?

Aircraft	Yes	No	Yes	No
N327	√		√	
UA479	√		√	
AA123	√			√

Pre-Audit Team Meetings

- **Audit teams should meet regularly to complete Pre-Audit activities**
- **Hold a team briefing at least one day prior to the start of an onsite audit**
  - All team members should be present
  - Pre-Audit Team Briefing Objectives
    - Exchange information relative to the audit
    - Ensure common understanding of audit scope
    - Confirm audit locations
    - Review audit methodology
    - Confirm time frame for conducting Opening and Closing meetings at facilities

AOV Team Folders

- **All Team Members should have a standardized team folder containing documentation needed to conduct an audit**
  - Audit Plan
  - Logistical arrangements
  - Facility details (e.g., directions)
  - Checklists
  - Datasheets
- **The Team Lead is responsible for ensuring the folders are standardized**
  - Team Members each prepare individual folders

Phase 3: Conduct the Audit

- **At each facility/location to be visited during the audit:**
  - Conduct opening meeting with facility management
    - Explain the purpose of the audit
  - Complete data collection
    - Observe operations, conduct interviews, and review documentation
  - Conduct closing meeting
    - Summarize audit results

Opening Meeting

- Conducted by the Team Lead
- Introductions
- Review audit objective, scope, and focus areas
- Inform facility management about how the audit will be conducted
- Review any team needs
- Checklists

Professionalism

- Dress appropriately
- Act professionally
- Do not distract staff from duties
- Avoid confrontations with facility staff
- Consider ethics
- Objectivity

Data Collection: Observation

- **Definition:**
  - The act of noting and recording something
  - Detailed examination of phenomena prior to analysis, diagnosis, or interpretation
  - Regarding attentively or watching carefully
- **Allows auditor to see procedures in action**
  - Familiarize yourself with service point
  - Be careful not to disrupt operations

Data Collection: Records Review

- **Examples:**
  - Training records
  - Letters of Agreement
  - Standard Operating Procedures
  - Checklists
  - Memos and emails
- **Protect facility materials and documents**
  - Maintain sensitive materials (personal and facility information)in a secure area and never leave them unattended
  - Do not remove original documents from a facility

Data Collection: Interviews

- Use to gather anecdotal information
- Not objective evidence
- Can be used to determine how to get objective evidence
- Not an interrogation
- Utilize a checklist for standardization
- Be flexible – data received may provide more information outside checklist
- Protect your personal notes

Safety Critical Findings

- Immediately notify a service point manager if you see a safety critical event
- Do not continue auditing – Inform your Lead and your management of the event
- Management will decide further steps and if/when to continue the audit
- Issue may become a safety compliance issue

Initial Data Review

- **Review all data collected as a team**
  - Is the data sufficient to answer all datasheet and checklist questions?
  - Were there any unexpected results, or other issues that you should share with other teams?
- **Prepare to share information with the service point audited**

Closing Meeting

- **Conducted by the Team Lead**
- **Review objective, scope, and focus areas**
- **Summarize location specific audit results**
  - Observations and any other pertinent data
- **Inform of approximate date of audit report**
  - Data from all audited parties aggregated
  - Executives make final determination of results to report
- **Remind of any outstanding requests and due dates**

Phase 4: Post-Audit Activities

- Analyze consolidated data
- Review and validate findings with oversight team
- Prepare Audit Report and send to ANSP
- Track and follow-up on responses and corrective actions

Post-Audit: Analyze Data

- **Compile data from across all audit locations**
  - Provide a representation of the airspace system
- **Compute percentages, where appropriate**
- **Key questions to consider:**
  - Does the data reveal system-wide issues or concerns?
  - Will you recommend observations of noncompliance? Why or why not?

Validation Meeting

- **Should be convened as soon as possible after the audit end date**
  - Recommend within one week after all data is collected and analyzed
- **Present and discuss audit observations with management**

Post-Audit: Writing the Report

- Clearly communicate audit results
- Adhere to audit timeline

Components of an Audit Report

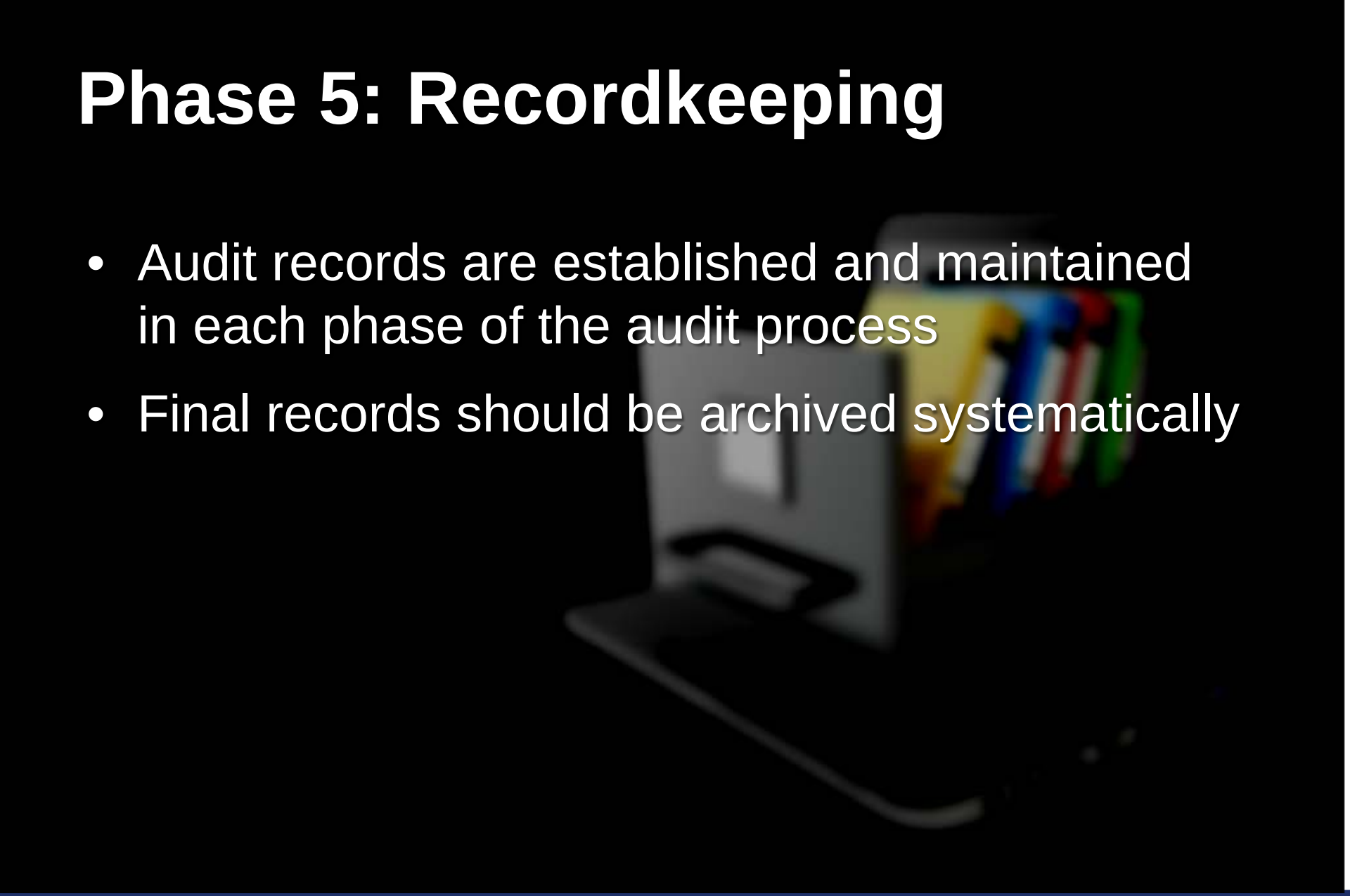
- **Executive Summary**
- **Overview**
  - Background
  - Objective & Scope
    - Describe the focus areas
  - Requirements
  - Methodology
    - Describe how you verified compliance/non-compliance
    - Make your argument!
- **Audit Results**
  - Focus Areas
  - Observations – Compliance, Noncompliance, Other Comments
- **Comments**
  - Recognize compliance, best practices
  - Practices observed that are outside scope of audit

Strategies for Successful Reports

- **Report writing tips:**
  - Risk-based
    - Why is the report relevant?
    - How do the audit topic and results relate to system safety?
  - Present audit observations effectively
    - Convey important information up front in an executive summary
    - Include details in the body of the report
    - Use objective evidence to support conclusions
    - Be accurate & consistent

Phase 5: Recordkeeping

Phase 5: Recordkeeping



- Audit records are established and maintained in each phase of the audit process
- Final records should be archived systematically

Recordkeeping: Document Retention

- **Maintain permanent copies of:**
  - Audit Plan
  - Audit Notification
  - Checklists
  - Audit Report

Important Audit Documents

- **Audit Plan**
  - Describes what will be audited and which facilities will be visited
- **Audit Notification**
  - Memo or letter advising service provider(s) of the audit dates and location(s)
- **Audit Report**
  - Shared with service provider to detail audit results
- **Memorandum of Non-Compliance**
  - Shared with the service provider to detail specifics of non-compliance
- **Corrective Action Plan**
  - To be completed by service provider(s) in response to findings (compliance issues) identified during the audit

What is the most critical and time-consuming phase of an audit?

Strategies for Successful Audits

- **Ask Questions**
- **Think Critically**
  - Analyze information and data with an approach that seeks the most appropriate solution
- **Communicate Effectively**
- **Build Cohesive Teams**
  - Regular team meetings
  - Standardize team materials
- **Be Professional**
- **Adhere to timeline**

Activity

Mock Air Traffic Safety Audit…

Audit Team Roles

- **Team Members**
- **Team Lead**

Team Members Responsibilities

- Designate a Team Lead
- Follow direction of the Team Lead
- Carry out assigned tasks
- Participate in audit briefings and meetings
- Make logistical arrangements as requested
- Adhere to the audit timetable and scope
- Collect and verify data
- Document and report all observations to the Team Lead
- Safeguard all audit documents
- Maintain confidentiality
- Keep the Team Lead informed of progress

Team Lead Responsibilities

- Lead audit team
- Act as the primary point of contact with ANSP and facilities
- Confirm logistical arrangements with audit facilities
- Ensure Team Members make logistical arrangements as required
- Resolve conflicts
- Keep Team Members, management, and ANSP facility personnel informed of audit progress
- Conduct opening and closing meetings with ANSP/facilities
- Analyze and organize evidence to support observations
- Document and/or report all observations
- Report audit results

Objectives

- Review your knowledge of performing a risk-based ANS audit
- Practice using the processes and tools discussed in this workshop
- Develop strategies for successful audits

Part I: Activity Instructions

- **Assemble in small groups of seven**
- **Note your team role and responsibilities**
  - Team Lead or Team Member
- **Review Mock Audit Topics file**
- **Work in teams to develop an audit objective, scope, and focus areas**
- **Access the Audit Plan, Audit Checklist and Audit Briefing presentation files**
- **As a group, complete an audit plan, develop a checklist and prepare an audit briefing**

Federal Aviation Administration