



**AERONAUTICAL INFORMATION
SERVICES AND CARTOGRAPHY
INSPECTORS VIRTUAL COURSE**



CHAPTER FIVE

Audit/Inspection of an AIS and Cartography Provider

COURSE CONTENT

- ❑ Aviation Safety Oversight and the USOAP-CMA;
- ❑ The AIS and Cartography Safety Oversight
- ❑ Development and Review Regulations and other Oversight Documentation
- ❑ Tools used in AIS and Cartography oversight
- ❑ Audit/Inspection of an AIS and Cartography Providers
- ❑ Post-Audit Activities and audit/inspection Outcomes
- ❑ AIS and Cartography Competency Assessment and Certification (CE - 6)
- ❑ Continuous Surveillance of an AIS and Cartography provider (CE -7)
- ❑ Resolution of AIS and Cartography safety issues (CE - 8)
- ❑ Enforcement of AIS and Cartography Related Standards and Regulations (CE - 8)

COURSE OBJECTIVES

At the end of this course the participant should be able to:

- Describe the ICAO Safety Oversight function and the USOAP/CMA;
- Demonstrate an understanding of the State Safety Oversight including the AIS and Cartography Inspector Roles within the Oversight organization
- Understand the duties and responsibilities an AIS and Cartography Inspector;
- Develop and Review Regulations, Guidance Material and other oversight documentation
- Develop and effectively utilize the tools used for the oversight of AIS and Cartography Service Providers;
- Conduct an Audit of an AIS and Cartography Service provider;
- Write and disseminate an audit report and undertake follow-up activities;
- Be able to undertake Resolution of safety issues and enforcement actions

Why Audits and Inspections

- A role undertaken by the State to ensure that the national aviation industry complies with the applicable safety-related legal framework to provide a level of safety equal to, or better than, that defined by the SARPs;
- foundation upon which safe global aircraft operations are built;
- An unsafe situation in one country will impact the health of international civil aircraft operations

Why Audits and Inspections

- It is the responsibility of Contracting States to regulate and supervise all their aviation activities to ensure the safe, efficient and regular operation of air services;
- The role is anchored in article 12, 37 and 38 of the Chicago Convention

Definitions

- **Audit:** A systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which requirements and audit criteria are fulfilled.
- **Inspection.** An examination of specific activities, products or services of an aviation licence, certificate, approval or authorization holder (or applicant) performed by civil aviation inspectors to confirm compliance with requirements for the licence, certificate, approval or authorization already issued (or being issued) by the State;
- **Inspector.** A qualified person authorized by the State to carry out oversight activities for civil aviation

AIS & Carto Audits and Inspections

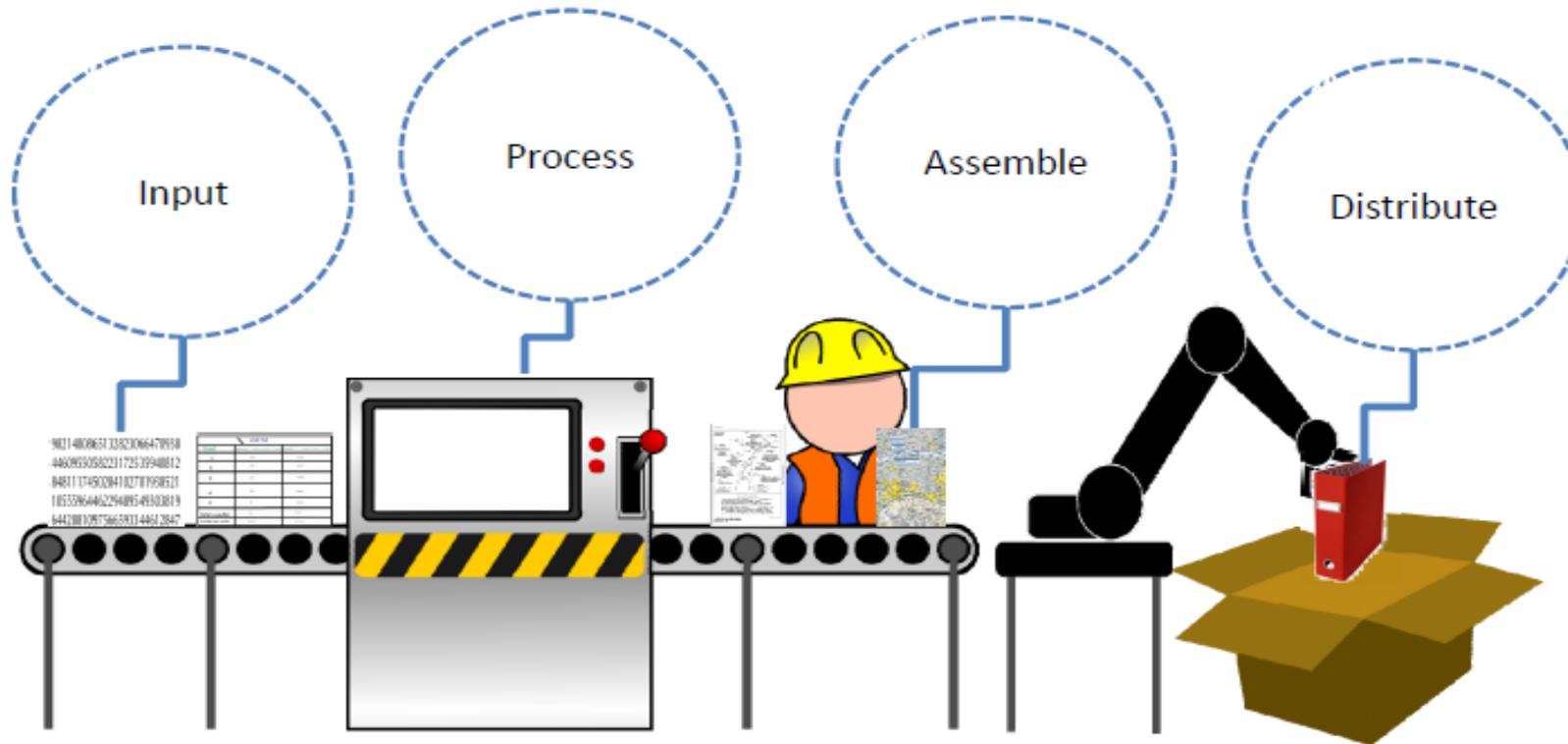
Systematic audits and Inspections are required in the following ANSP areas :

- Air Traffic Services
- Flight procedures Design
- Communication, Navigation and Surveillance
- Meteorological services
- Aeronautical Information Services and Aeronautical Information Management
- Cartographic services
- Search and Rescue

AIS & Carto Audits and Inspections

Aeronautical Information Services

The Information Factory



AIS & Carto Audits and Inspections

Differences between Regulatory Audits and Inspections

Regulatory Audits	Regulatory Inspections
<ul style="list-style-type: none">• Apply to the overall arrangements, or elements thereof, of the ANS processes or services.	<ul style="list-style-type: none">• Apply to particular ANS service or specific parts of the ANS system.
<ul style="list-style-type: none">• Verify compliance of Documented provisions and other established arrangements against safety regulatory requirements/standards, ICAO SARPs, CAA rules/regulations, actual operational practices against documented procedures and other established arrangements.	<ul style="list-style-type: none">• Verify by testing and/or examination whether prescriptive safety regulatory requirements/standards have effectively been complied with.

AIS & Carto Audits and Inspections

Differences between Regulatory Audits and Inspections

Regulatory Audits	Regulatory Inspections
Focus special attention on processes with wider scope.	Focus normally on a particular element of ANS system with smaller scope.
Represent prime safety oversight technique.	May serve as an oversight technique supplementary to audits.
Usually conducted by a team of auditors in accordance with more comprehensive procedures and having a definite notice to ANSP	May be conducted by one inspector in accordance with simpler procedures with or without notice e.g. adhoc surveillance

AIS & Carto Audits and Inspections

- Audits/inspections enable the oversight organization to:
 - ✓ verify the service provider's level of compliance with requirements.
 - ✓ validate that preventive controls established by an ANSP to mitigate risks are effective.
- The AIS and Cartography oversight organizations therefore use audits to ascertain the level of compliance;
- Audits may be systemic or targeted to specific services;
- Audits may be conducted on-site or virtually, and include the review of documents, records, and other data provided by the service provider.

AIS & Carto Audits and Inspections

- Audits/inspections provide the oversight entity and other authorities with evidence of AISP's compliance with applicable safety processes, regulatory requirements, and implementation arrangements, and attempt to identify the need for improvement or corrective action;
- They are independent of departmental internal audits undertaken as part of its quality control and quality assurance;
- Are conducted by qualified oversight inspectors; and
- Lead to the correction of any identified non-compliance issues.

Audit / Inspection programme

The oversight department is required to establish and implement, a surveillance programme which should include, at a minimum, the elements below;

- the types of surveillance activities (e.g. audits, inspections, tests);
- the timeframe or frequency of the activities;
- items to be covered or scope of the activities; and
- related methodology/procedures, job aids and guidance on how the activity should be conducted, starting from the notification of the service provider, if applicable, to the closure of the deficiencies identified during the activities.

Audit/Inspection programme

The oversight audit program should;

- Enable audit/inspection of areas of concern with the highest identified risk, or with a focus on those areas where problems have been identified;
- Cover all the processes within AIS and Cartographic provider services,
- Ensure that audits are conducted in systematic a manner;
- Enable conduct of follow-up activities to ensure effective implementation of corrective actions.

Elements of a surveillance Program

- a) The AIS & Cartography provider to be audited
- b) Audit/inspection type
- c) The team composition
- d) Resources required - Budget
- e) Audit/inspection dates

Factors that influence the scope and depth of a surveillance programme

- type of the Inspection/Audit;
- the period back in time that systems are subject to review (typically from the last Inspection/Audit to the present);
- the enforcement record of the organization;
- the confidence in corrective actions taken by the organization as a result of a previous Inspection/Audit; and
- Inspector/Auditor and financial resources available.

Audit Plans

- For each organization approved to carry out aviation activities, an audit plan should be developed based on the applicable surveillance programme.
- The plan should detail the type of activities to be performed and the specified timeframe as well as the scope of each activity, as applicable.
- The purpose of the safety oversight audit plan is to outline the sequential process of the on-site/virtual audit and provide the service provider with valuable information on the conduct of the audit.

Audit Plans

The purpose of the safety oversight audit plan is to outline the sequential process of the on-site audit and provide the ANSP with valuable information on the conduct of the audit. The safety oversight audit/inspection plan can be reviewed when necessary.



Contents of an audit plan

- dates of the on-site/virtual safety oversight audit;
- objectives of the safety oversight audit;
- scheduled dates for opening and closing meetings;
- identification of the provider's key personnel (safety oversight coordinator would have been already appointed and acknowledged to Authority);
- scope of the on-site safety oversight audit to be conducted and audit areas to be covered;
- identification of documents necessary to conduct the safety oversight audit;

Contents of an audit plan

- travel and administration plans (security clearances, health requirements, etc.) as well as the travel schedules of audit members;
- the audit preparation briefing material for team members and the on-site audit mission package;
- identification of priority issues brought to the attention of AIS provider from reviewing material provided and other documents available to CAA or information received on the status of Services
- Team members' assignments and responsibilities.

Note: See Handout 5.1

Types of Audit / Inspection

- a) Pre-certification - conducted prior to the issuance of the certificate.
- b) Post certification/routine conformance -conducted for the purpose of determining an organization's overall level of conformance to regulatory requirements
- c) Additional authority Audit/inspection - conducted prior to the granting of an additional authority
- d) Special-purpose -conducted to respond to safety concerns or circumstances other than those requiring a pre-certification inspection/audit, an additional authority inspection/audit or a routine conformance inspection/audit

Phases of Audits / Inspections

The audit process consists of the following four distinct phases of activities:

- The pre-audit;
- The physical audit;
- The post-audit; and
- The audit follow-up.

Audit / Inspection Phases

Pre-Audit Administrative Activities

Audit preparation is the most time-consuming, complex, and critical phase of any audit. The success of the audit will largely depend on how well the audit is planned. Planning includes:

- assembling expertise
- building an effective team
- preparing a strategy for determining compliance
- coordinating logistics
- training team members to use the checklists, and
- setting up an efficient schedule

Audit / Inspection Phases



Figure 1: Pre-audit activities

Pre-Audit/Inspection Phase

Audit Research

- Throughout the audit preparation process, audit team members should thoroughly research the audit topic to ensure that all applicable requirements have been captured, and that they have not changed. Requirements may be found in ICAO standards as well as respective State regulations and directives, standard operating procedures, corrective action plans, etc.
- Important research questions include:
 - a) What initiated the audit?
 - b) What are the results of any past audits on the audit area?
 - c) Are there enforcement actions against the AISP related to this audit area?
 - d) Which requirements are applicable to this audit area?

Phases of Audits / Inspections

Pre-Audit Activities

a) Inspector Assignment

- Inspectors/Auditors assigned to an inspection/audit team shall report to the team leader for the duration of the Inspection/Audit.
- To ensure continuity, Inspectors / Auditors assigned to an inspection/audit shall not be released from their duties prior to the completion of their assignments set out in the inspection/audit plan;
- Team members must be able to focus on inspection/audit activities and must therefore be released from other responsibilities during the term of the inspection/audit

Phases of Audits / Inspections

- The Audit/Inspection team members will normally be based on the type of the Audit/Inspection. Specialists and observers may be included as appropriate
 - ✓ *Team leader*
 - ✓ *Team members*
 - ✓ *Observers*



Phases of Audits / Inspections

Pre-Audit Activities

b) Inspector/Auditor qualification

- The assigned inspector for a particular audit must be qualified;
- Inspectors providing specialist assistance and those under training may be included as team members with the approval of the Director Safety;
- Any work undertaken by these officers must be reviewed by a qualified member who will sign and take responsibility for the tasks completed

Auditor Qualities and Characteristics

Auditor

- Have appropriate technical knowledge
- Use a variety of audit strategies & techniques
- Be able to apply these techniques properly

Auditor Qualities and Characteristics

- Analytical
- Constructive
- Diplomatic and tactful
- Good listener
- Inquisitive and objective
- Professional in style, bearing and manner – able to command respect
- Resilient
- Self-confident
- Versatile

Auditor Qualities and Characteristics

Should Have	Should not Have
Patience	Impatience
Good judgments	Fear of unpopular judgments
Enthusiasm & interest	Poor timekeeping & Laziness
Strong personality	Weak personality
Honesty in his reporting	Rigid opinions
Knowledge & experience	Non-professional approach
A positive approach	A negative approach
An open mind	Bias

Phases of Audits / Inspections

Pre-Audit Activities

c) Observers

- An observer may be included in the inspection/audit team by mutual agreement of the Director Safety and the appropriate team leader.
- The observer may be a CAA Inspector/Auditor or any other person authorized by the management.

d) Confidentiality

- Owing to the sensitive nature of inspection/audits, confidentiality of inspection/audit information is important;
- Inspectors/Auditors shall exercise judgment and discretion when discussing matters pertaining to the inspection/audit;

Phases of Audits / Inspections

Pre-Audit Activities

e) Inspection Team meetings;

- administrative details;
- Inspection/Audit plan review and amendment, ensuring that all team members have received appropriate inspection/audit plan;
- confidentiality and access to information;
- use of checklists;

Phases of Audits / Inspections

Pre-Audit Activities

e) Inspection Team meetings;

- Communication modalities;
- pre-inspection/audit review and physical Inspection/Audit overview; and
- briefing on the organization's current activities, trends, performance and previous inspection/audit history including corrective action and follow-up

Phases of Audits / Inspections

Pre-Audit Activities

e) Notification

- The auditee notified at least fourteen (14) days prior to the planned audit date
- The notification period for inspections shall be (7) days prior to the planned inspection date.
- The notification period for audits planned on shorter notice will be at the discretion of the Authority.
- The scope of the audit may determine the lead-time for this contact.

Phases of Audits / Inspections

Pre-Audit Activities

f) Review of Documentation

- All reference manuals and documents to be used during the Audit/Inspection;
- ANSP's approved manuals (e.g. Manual of ANS Operations Quality Manual, Training Manual etc.) for conformance to the appropriate standards;
- Review the ANSP's files and records
- Review Checklists



Phases of Audits / Inspections

The audit process consists of the following four distinct phases of activities:

- The pre-audit;
- The physical audit;
- The post-audit; and
- The audit follow-up.

Physical Inspection/Audit

- The physical Audit/Inspection phase will be implemented in accordance with the Audit/Inspection plan.
- The purpose of this phase is to verify conformance with regulatory requirements and to assign findings where non-conformance has been confirmed.
- Audit/Inspection results will be communicated to the organization under review at daily meetings and/or the exit meeting.
- Once an Audit/Inspection has commenced, it should not be terminated without approval of the Head of the inspectorate.

Physical Audit/Inspection

Audit team is expected to:

- conduct an opening meeting with facility management;
- collect data, analyze collected data and verify that analysis;
- record findings;
- conduct team briefings; and
- conduct a closing meeting with facility management while visiting facilities/sectors during on-site audits.

Physical Audit/Inspection

Audit Team Roles and Responsibilities:

Audit Team Leader

- a) Ensure all phases of the audit are completed in accordance with requirements (e.g., Work Instruction or Handbook)
- b) Act as an audit Team Lead as required
- c) Prepare all required audit documents
- d) Collect and compile all records from the audit team(s)
- e) Brief management of audit observations

Physical Audit/Inspection

Audit Team Roles and Responsibilities:

Team Member

- a) Follow direction of Audit or Team Lead
- b) Carry out assigned tasks
- c) Collect and verify data
- d) Document and report all observations
- e) Keep audit/team lead informed

Physical Audit/Inspection

Opening/Entry Meeting

- Conducted on the first day of the audit/inspection with the audited party
- both parties have an opportunity to meet and discuss on relevant details and arrangements.
- sets the tone for the physical Audit/Inspection and should be attended by the service provider's senior management and all members of the Audit/Inspection team.
- This meeting will outline the inspection/audit process and confirm any administrative requirements
- Facilitates the effective conduct of the physical inspection/audit while minimizing disruptions to the ANSP operations.

Physical Audit/Inspection

Opening/Entry Meeting

- Used to introduce the audit team and their roles;
- ensures that all planned audit activities can be performed.
- other participants, including observers and guides, interpreters and an outline of their roles;
- the audit methods to manage risks to the organization which may result from the presence of the audit team members.

Physical Audit/Inspection

Opening/Entry Meeting

During the meeting the following items should be considered, as appropriate:

- a) the audit objectives, scope and criteria;
- b) the audit plan and other relevant arrangements with the auditee, such as the date and time for the closing meeting, any interim meetings between the audit team and the auditee's management, and any change(s) needed;
- c) formal communication channels between the audit team and the auditee;
- d) the auditee being kept informed of audit progress during the audit;
- e) the availability of the resources and facilities needed by the audit team;
- f) matters relating to confidentiality and information security;
- g) relevant access, health and safety, security, emergency and other arrangements for the audit team;

Physical Audit/Inspection

Conduct of the Audit/Inspection

- ranges from the simple observation of an activity to the detailed analysis of a system or process using comprehensive checklists or forms.
- Includes the review of files and records, interviews, use confirmation requests, observation of the service provider's operations

Communication During the Audit

- necessary to make formal arrangements for communication within the audit team, as well as with the auditee, the audit client;
- periodically exchange information, assess audit progress and reassign work between the audit team members, as may be needed;
- team leader to communicate the progress, any significant findings and any concerns to the auditee as appropriate;
- Evidence collected during the audit that suggests an immediate and significant risk should be reported without delay to the auditee;
- In the event that the audit evidence indicates that the audit objectives are unattainable, the audit team leader should report the reasons to the audit client and the auditee to determine appropriate action.

Review of information while conducting audit

Auditee's relevant documented information should be reviewed to:

- determine the conformity of the system, as far as documented, with audit criteria;
- gather information to support the audit activities.

Note: adequate documented information should be provided within an acceptable time frame for review

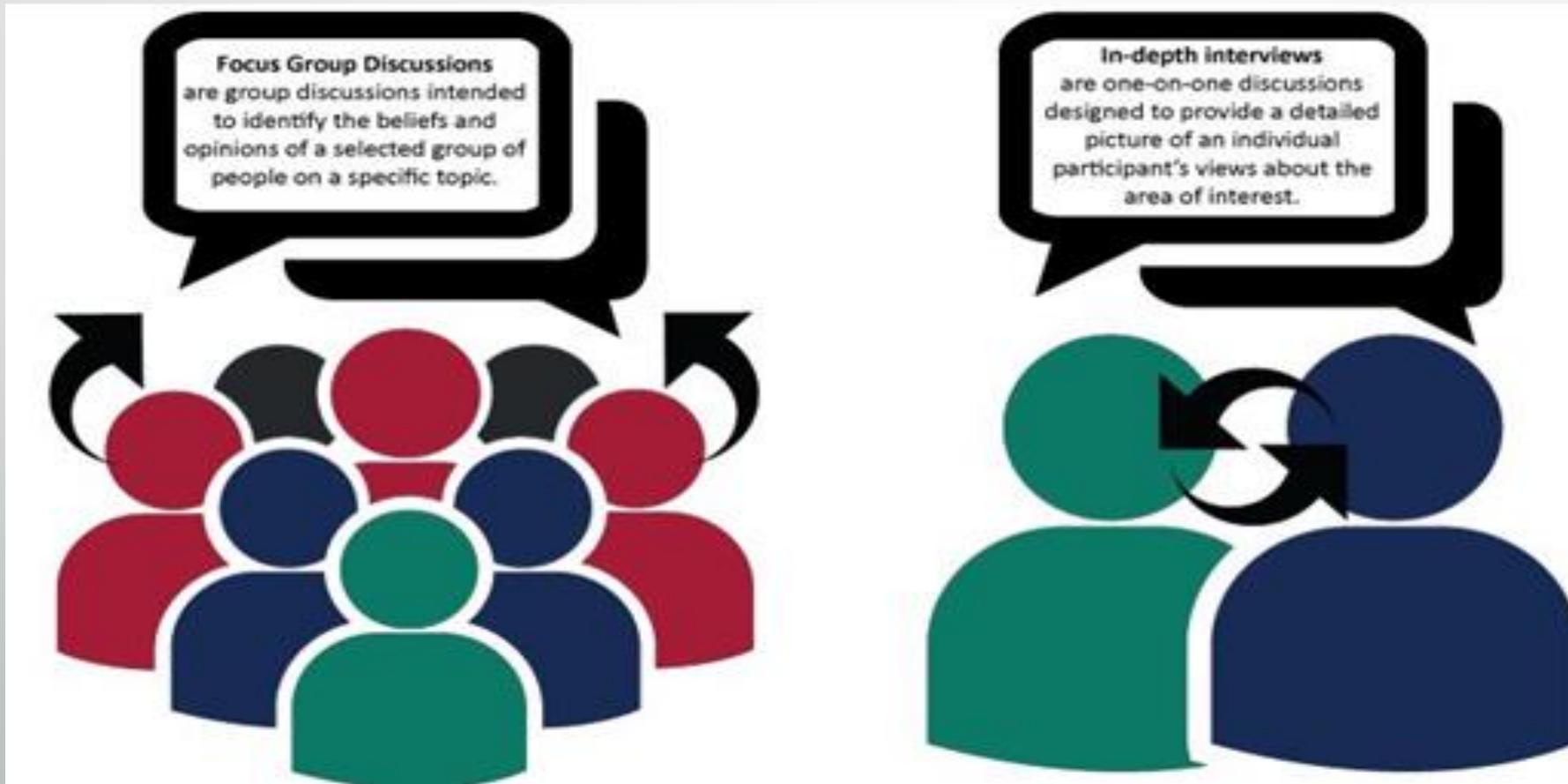
Evidence Gathering Techniques

The following methods will be used to gather information

- Detailed documentation review
- Random sampling of documentation
- Interviews
- Observations
- Checklists

Evidence Gathering Techniques

1. Interviewing the Service Provider's Personnel



Physical Audit/Inspection Phase

Interviewing the AIS /Cartography Provider's Personnel

- In-depth interviews are the best since they involve a one on one interaction and designed to provide a detailed picture of the audited/inspected entity.
- Responses given by the auditee should be documented during or as soon as possible following the interview.

Physical Audit/Inspection Phase

Interviewing the AIS /Cartography Provider's Personnel

- a) prepare carefully prior to the interview by defining the areas to be explored and setting specific objectives (guidance material may be included in the appropriate manual);
- b) explain why the interview is taking place;
- c) use open ended questions and avoid complex questions or phrases;
- d) ensure that questions are understood;
- e) listen carefully to answers and allow interviewee to do most of the talking;
- f) avoid being side-tracked from your original objectives;
- g) terminate the interview if the atmosphere becomes highly negative;
- h) thank the interviewee at the conclusion of the interview; and
- i) document responses during or as soon as possible following the interview.

Interview

- Probe & test the system with your questions;
- Try the hypothetical question;
 - ✓ What happens if..... how, when... who.....?
 - ✓ Suppose the Tell me....Show me.....?
 - ✓ What would you do when..... why.....?
- The 'obvious' or 'silly' open question often results in a useful reply

Interview

- Remember;
 - Talk to the person doing the job.
 - Avoid your 'guide' answering the questions
 - Speak slowly, clearly & concisely, one Question at a time. Use short sentences.
 - Make sure your question is understood, use simple words and be articulate
 - Rephrase your question if it is not understood.
- Let them come back later with an answer if the information is not available

Manifestations Resistance

Resistance – Lack of cooperation

- Concealment of information
- Retention of information
- Deadlock in communication
- Refusal to answer questions
- Verbal aggressiveness, discussion
- Voluntary and systematic lateness
- Waste of time : long meals, coffee breaks
- Flattery
- Planned and unplanned interruptions
- Memory loss, loss of documents

Physical Audit/Inspection Phase

2. Observation

- It offers the inspector the opportunity to gather 'live' data from naturally occurring situations e.g. Checking status of AIS and Cartography systems as they are being utilized ;
- In this way the auditor/inspector can look directly at what is taking place rather than relying on second-hand accounts.
- What people do sometimes differs from what they say and observation provides a reality check.

Physical Audit/Inspection Phase

2. Observation

When doing observations consider the following:

- Do I want to look, or listen, or hear or both?
- Do I want to observe in real time, or later, or both?
 - ✓ If in real time, do I record on paper or electronically?
 - ✓ If later, do I capture events by voice recorder, or video, or still camera, or in text
- Do I want to observe continuously, or for fixed periods, or at fixed intervals?
- Do I want to observe the whole arena, or just part of it?
- Do I want to observe the same events/people all the time, or to change?
- Do I want to do the observation myself or involve others?

Physical Audit/Inspection Phase

An effective audit Team shall:

- Exercise good time management
- Use checklists to collect evidence
- Employ positive questioning techniques and listen to the auditee's response
- Take notes
- Sample evidence provided
- Link evidence together for trends
- Summarize the findings

Physical Audit/Inspection Phase

Daily briefings (*Team briefings*)

- ensure adherence to the Inspection/Audit plan;
- validate confirmation requests and Inspection/Audit findings;
- resolve issues or problems arising from the day's activities; and
- provide the team leader with the information necessary to update the Authority where applicable

Physical Audit/Inspection Phase

Daily briefings (AISP Briefing)

- Scheduled to minimize any disruption
- Update the ANSP's management on Inspection/Audit progress
- Discuss any Inspection/Audit findings that have been identified.

Physical Audit/Inspection Phase

Completing Checklists

- Checklists provide a systematic approach for the conduct of an Audit/Inspection and are designed to identify specific items for review and make reference to the applicable regulatory requirement, be it to a regulation, standard or control manual requirement.
- Checklists should not limit the Auditor/Inspector's ability to explore other areas where warranted.

Physical Audit/Inspection Phase

Completing Checklists

- Use of the applicable checklist(s) is mandatory
- Assist Inspectors/Auditors in determining the level of conformance to regulatory requirements
- Based on the results of the completed checklist, a determination of the strengths and weaknesses of the ANSP's control system will be possible
- Although each item on the checklist need not be checked, this system will be most effective if all items are evaluated
- There may be times where it is not possible to review a particular specialty area element.

Physical Audit/Inspection Phase

Completing Checklists.

Checklists assist the inspection/audit team to;

- a) confirm whether the ANSP's operation conforms to regulatory requirements;
- b) confirm whether controls are operating effectively and as intended and specified in the appropriate manual; and
- c) gather evidence or supporting documentation and prepare an inspection/audit finding, where non-conformance with a regulatory requirement is identified,

Physical Audit/Inspection Phase

Completing Checklists.

- The AIS inspector is expected to make entries/complete the checklist to indicate the level of compliance by the service provider.
- The checklist is divided into several areas depending on State guidelines.

Physical Audit/Inspection Phase

Completing Checklists

	Checklist Item	Comments
1	Inspection Item	Provides details of areas to be verified/checked for compliance by the service provider
2	Assessment Outcome	Indication of the outcome on the level of assessment by the inspector
	Yes (Y)	Denotes full compliance that is acceptable
	No (N)	Denotes non-compliance that is not acceptable
	Not Checked (NC)	Inspection item not checked
	Not Applicable (NA)	Inspection item not applicable
3	Remarks	Remarks from the inspector
4	Regulatory Requirements	Indication of the applicable regulations that need to be complied with.

Physical Audit/Inspection Phase

Completing Checklists

AIS and Cartography Inspection checklist would typically consist of various elements:-

- a) Organization/Administrative Issues/Documentation;
- b) Processes/Procedures;
- c) Personnel Requirements/Training;
- d) Facilities that support effective service delivery and compliance to regulatory requirements.

Note: The above elements are checked against the regulations in force and approved operating procedures.

Audit Evidence

- Evidence verify that the system described & required exists and functions properly.
- Evidence should be collected by;
 - Interviews
 - Examination of documents
 - Observation of activities & conditions
 - Photographs

Audit Evidence

Information gained from one source must be checked with another, for example;

- From another interviewee
- By observation of the activity - 'Show Me'
- From examination of procedure documents
- From examination of work records
- From examination of products

Documentation

- Keep a record of all audit/inspection observations;
- All non-compliances are documented in a clear, concise manner and are supported by evidence;

The following must be recorded during the audit/inspection:

- a) Non-compliance with the State regulation.
- b) Non-compliance with company procedures.
- c) Non-compliance with good practice.

Documentation

The final report should only have findings which have;

- a) Factual evidence of a deficiency or non compliance
- b) Factual agreement of those responsible on-site
- c) Good & understandable reasons why it is a deficiency
- d) Potential for system-wide presence

***Note:** Be willing to discuss, rather than argue, over problems & potential findings*

Documenting findings

Write Audit findings that are:-

- a) Concise
- b) To the point
- c) Clear
- d) Expressed in Meaningful terms

Documenting findings

Audit Conclusions should address the following:-

- a) Extent of non conformity with the audit criteria
- b) Effective improvement to the management system
- c) Achievement of the audit objectives
- d) Root cause of the findings

Physical Audit/Inspection Phase

Exit meeting.

- On completion of an audit, the auditors convene a post-audit meeting with the officer in-charge of the audited party.
- The auditors have the discretion to either hold such meeting on the same day of the audit or choose another date for this occasion.
- The purpose of this meeting is to provide both the audit team and the audited party an opportunity to cover the following aspects:
 - a) Review of the objective and scope of the audit;
 - b) Summary of the audit activities;
 - c) Presentation of draft findings and recommendations; and
 - d) Agree on post-audit actions by both the audit team and the audited party.

Exercise No.3

*Completing an Audit/
Inspection checklist
(from a case study)*



End of Chapter 5

Thank You