
VOLUME 6. SURVEILLANCE

CHAPTER 1. GENERAL POLICIES AND PROCEDURES

SECTION 1. GENERAL

1. INTRODUCTION. The FA Act authorizes the Secretary of the Department of Transportation to conduct inspections of air operators. The FAA is empowered, by statutory requirement, "...to carry out the functions, powers, and duties of the Secretary relating to aviation safety." One of the most significant duties of the FAA is to conduct surveillance in all areas of air transportation safety. Surveillance is a continuing duty and responsibility of all aviation safety inspectors in the flight standards organization. The term "surveillance," as used in this handbook, relates to this ongoing duty and responsibility and related programs. Surveillance programs provide the FAA with a method for a continual evaluation of operator compliance with the FAR's and safe operating practices. Information generated from the surveillance programs permits the FAA to act upon deficiencies which affect or have a potential effect on aviation safety. For surveillance programs to be effective, they must be carefully planned and executed during the conduct of specific inspection activity. Inspections provide specific data which can be further evaluated, therefore they support and maintain ongoing surveillance programs. Inspections are specific work activities which have the following characteristics:

- A specific work activity title and PTRS code
- A definite beginning and a definite end
- Defined procedures
- Specific objectives
- A requirement for a report of finding (either positive, negative, or both)

3. OBJECTIVE OF SURVEILLANCE PROGRAMS. The primary objective of surveillance is to provide the FAA, through the conduct of a variety of inspections, with an accurate, real-time, and comprehensive evaluation

of the safety status of the air transportation system. This surveillance program objective is accomplished by inspectors performing the following:

- Determining each operator's compliance with regulatory requirements and safe operating practices
- Detecting changes as they occur in the operational environment
- Detecting the need for regulatory, managerial, and operational changes
- Measuring the effectiveness of previous corrective actions

5. PLANNING AND EXECUTING SURVEILLANCE PROGRAMS. There are four phases involved in planning and executing any type of surveillance program. These phases are as follows:

- *Phase One* - Developing a surveillance plan by determining the types of inspections necessary and the frequency of those inspections
- *Phase Two* - Accomplishing the surveillance plan by conducting the inspections
- *Phase Three* - Analyzing surveillance data gathered from inspection reports and related information from other sources
- *Phase Four* - Determining appropriate course of action

A. Phase One: Developing a Surveillance Plan. The development of a surveillance plan requires planning at the headquarters, regional, district office, and individual inspector levels. A surveillance program may be based on the need to conduct routine and ongoing surveillance or the need to conduct special emphasis surveillance as a result of certain events such as accidents, related incidents, related

violations, and strikes. When planning a surveillance program, FAA personnel should determine the program objectives, evaluate the resources available, and determine the specific types of and numbers of inspections to be conducted in support of that program. The National Program Guidelines (NPG) provide a base level of surveillance data which should be evaluated. The results of this evaluation should be used as a basis for planning future surveillance programs. This information along with other related information such as previous inspection reports, accident/incident information, compliance and enforcement information, and public complaints, should be used to determine both the types of, and frequency of, inspections to be conducted during the surveillance program. When developing a surveillance program, inspectors should first consider NPG requirements. The NPG requirements, however, only provide a base level of surveillance data. Therefore, an operator's compliance status and other factors such as ongoing certification work activities should be considered when developing a surveillance program. Other factors which should be considered are the geographic areas where the various types of inspections should be conducted and the frequency of those inspections.

B. Phase Two: Conducting Surveillance Plan Inspections. During the conduct of the surveillance plan inspections, accurate and qualitative inspection reporting is essential. High quality inspection reporting is necessary for the effective accomplishment of the third and fourth phases of a surveillance program.

C. Phase Three: Analyzing Surveillance Data. After the inspection data has been reported, an evaluation of the information obtained from inspection reports and related sources must be conducted. The purpose of this

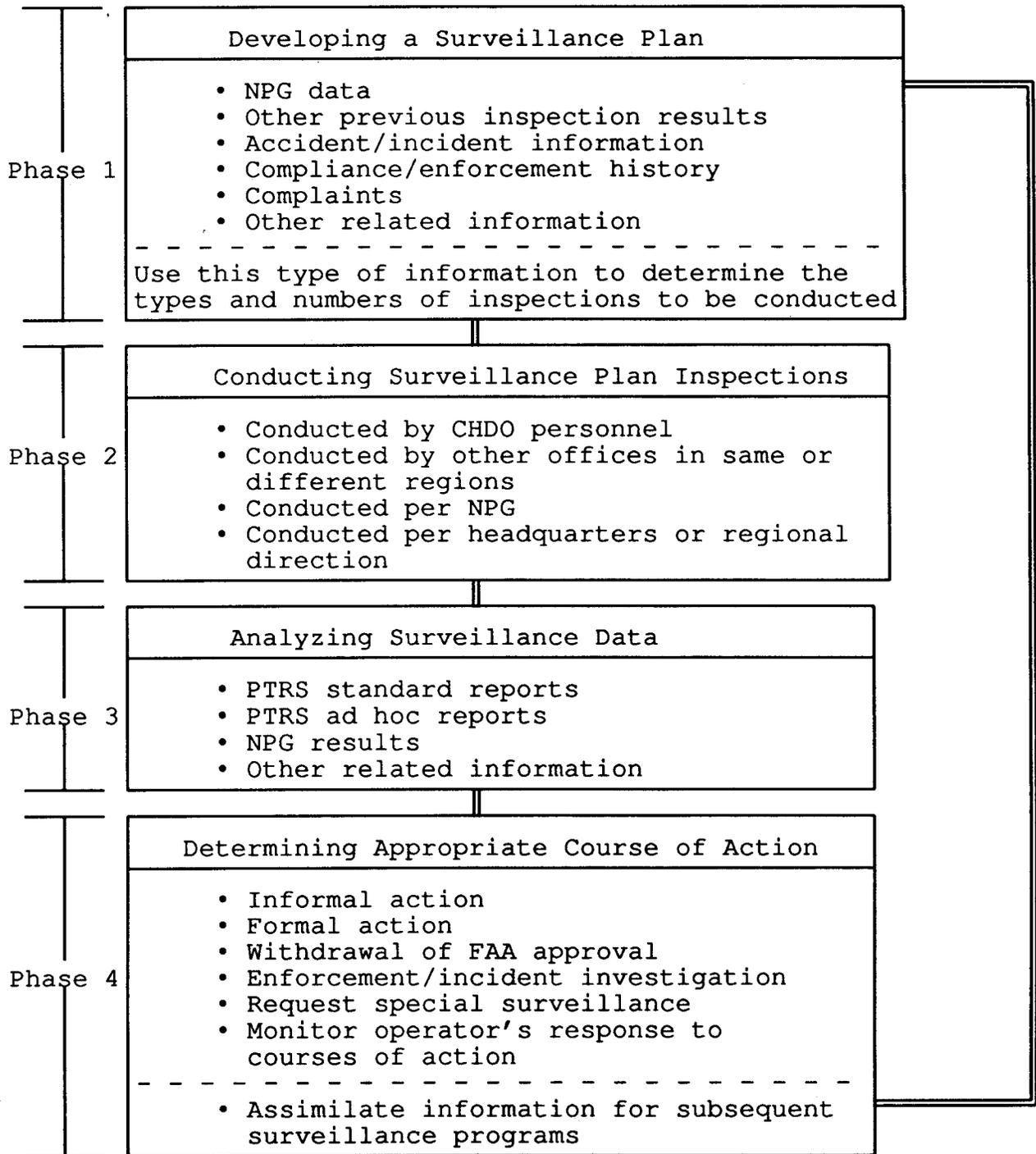
evaluation is to identify the areas of concern and note areas such as the following:

- Noncompliance with regulations or safe operating practices
- Both positive and negative trends
- Isolated deficiencies or incidents
- Causes of noncompliance, trends, or isolated deficiencies

D. Phase Four: Determining Appropriate Course of Action. Inspectors and POI's must use good judgement when deciding on the most effective course of action to be taken. The appropriate course of action depends on many factors. There are also many actions which can be taken, such as: taking no action; informal discussion with the operator; formal written request for corrective action; withdrawal of FAA approval of a program, manual, or document; and, initiation of an incident or enforcement investigation. Results of the evaluation of surveillance data and the operator's response to the course of action taken should be considered. Part of the fourth phase of a surveillance program is for the FAA to determine, as a result of the information gathered from the program, what will become the inspection requirements for subsequent surveillance programs. Depending on the situation, it may be appropriate to increase or decrease the rate at which inspections are conducted during subsequent surveillance programs. It may be appropriate to change the emphasis or objectives of surveillance programs by changing the types and numbers of inspections to be conducted.

E. The following diagram illustrates the four phases of a surveillance program:

THE FOUR PHASES OF A SURVEILLANCE PROGRAM



7. SURVEILLANCE PLANNING AND EVALUATION RESPONSIBILITIES. There are six organizational elements within flight standards which are responsible for ensuring that comprehensive surveillance programs are to be developed and maintained. These six elements are as follows:

- Washington headquarters
- Regional flight standards division
- District offices
- Principal operations inspectors
- Geographic program managers
- Aviation safety inspectors

A. *Washington Headquarters.* Washington headquarters (AFS-1) has the primary responsibility for establishing national surveillance programs and for developing the direction and guidance for inspectors to use when conducting these programs. These responsibilities include developing pertinent inspector handbook material to control and guide national inspection programs such as NPG and other special surveillance programs. Washington headquarters is responsible for evaluating surveillance data from a national standpoint. The data used for national evaluation is obtained from the centralized national database. Washington headquarters has the additional responsibility of ensuring that the NPG inspection data and other types of surveillance data are available to the appropriate regional offices.

B. *Regional Flight Standards Divisions.* Regional flight standards division offices have primary responsibility for the implementation of national surveillance programs including the assignment of NPG and other national inspection requirements. The regional offices serve to assure quality control and to coordinate district office surveillance planning. These regional offices are also responsible for evaluating surveillance data from a regional standpoint. Regional offices must also ensure that reports of nationally or regionally directed inspections are forwarded to the appropriate CHDO.

C. *District Offices.* FAA district office managers play a key role in developing effective surveillance programs. These managers are responsible for ensuring that principal operations inspectors, program managers,

and unit supervisors are planning and conducting effective surveillance programs. These programs must include inspections of operators whose certificates are held by the district office as well as inspections of operators who conduct operations within the geographic area of the district office. District office managers are responsible for ensuring that these programs provide high quality surveillance data.

D. *Principle Operations Inspectors.* POI's are the primary surveillance program planners in the FAA since they are the focal point for all operational matters between the FAA and the certificate holder. POI's must ensure that there are periodic reviews of all aspects of the certificate holder's operations. They must specifically determine the operator's compliance status by establishing effective surveillance programs, and evaluating previous surveillance data and other related information. POI's must establish a continuing program for evaluating surveillance data to identify trends and deficiencies and to decide upon and take appropriate courses of action.

E. *Geographic Program Managers.* Geographic program managers are responsible for planning and carrying out inspection programs within their area of responsibility and for ensuring the inspection results are accurately recorded. These managers ensure that all of the activities of certificate holders conducting operations in their geographic area are inspected and the results are reported to the POI through the Program Tracking and Reporting System (PTRS). The geographic program manager is specifically responsible for: assigning available inspectors to conduct the necessary inspections; providing on-the-job training for assigned inspectors; and for supervising assigned inspectors for efficiency and effectiveness.

F. *Aviation Safety Inspectors.* Individual inspectors are responsible for conducting inspections in accordance with the direction, guidance, and procedures in this handbook. A primary responsibility of each inspector is to report inspection results in a clear, concise, and factual manner. Supervisory inspectors are responsible for reviewing inspection reports for clarity and accuracy. Supervisory inspectors should also review any on-site corrective actions that may have been taken by the inspector, and determine if any follow-up action is appropriate.

9. DETERMINING INSPECTION REQUIREMENTS. When developing a surveillance program, POI's must determine the number and types of inspections that should be conducted. For a routine surveillance program, there should be a representative number of each type of inspection. Circumstances or results from previous

inspections, however, may indicate that a specific area should receive emphasis and therefore more inspection activity of a particular type. Conversely, surveillance data may indicate that certain types of inspections are ineffective or that fewer inspections can effectively accomplish the objective.

A. When determining the number of inspections that should be accomplished, the POI should consider the complexity and size of the operator. A method which can be used to consider complexity and size is to separate an operation into homogenous groups. Examples of homogenous groups include pilots, mechanics, aircraft, flight attendants, training and qualification records, line stations, and various types of manuals. Each of these groups can be considered separately when determining the

number and types of inspections that should be conducted.

B. When considering a large homogenous group, such as trip records, certain statistical methods may be useful to inspectors for determining how many inspections to conduct.

(1) A specific number, or sampling, of a group can produce a 95% confidence level that a sufficient number of inspections will be accomplished to properly assess the compliance status of that particular area. The following table provides guidance for sample sizes (the number of inspections) of varying population sizes (the homogenous group) that will result in a statistical confidence level of 95%:

Table 6.1.1.1
Number of Inspections Recommended to Achieve
95% Confidence Level

Population of Homogeneous Group	Recommended Number of Inspections
Up to 100	50% (50)
200	40% (80)
400	35% (140)
500	33% (165)
1000	28% (280)
2000	16% (322)
3000	11% (330)
4000	8.8% (352)
5000	7.7% (355)
10,000	3.7% (370)

(2) Samples may be drawn from the homogenous group in several ways. To be acceptable for statistical evaluation, however, the sample to be inspected must be random. The following is one method of conducting a random sampling. A sampling interval must first be established. For illustration purposes, an interval of nine will be used. Out of the first nine items of a rank (airman records in alphabetical order), the first item is chosen at random. Thereafter every ninth record

is selected. For example, if a sample size of 330 records is selected from a homogenous group of 3000 records (see table 6.1.1.1), the sampling interval would be every ninth record (3000 divided by 330). If an inspection starts at a randomly selected record between 1 and 9, and continues with the selection of every ninth record thereafter, a 95% confidence level will be produced. When a method such as this is used, all elements (records) in the group are given equal chance of inclusion in the sample.

C. Each type of inspection varies in its basic objective. Many types of inspections, however, share common events or elements in the aviation system. For example, pilots are evaluated during en route inspections, IOE inspections, simulator training sessions, and required checks. POI's should consider this when developing surveillance programs. For example (and to illustrate the use of the previous table), if an operator employs 500 flight crewmembers (PIC's, SIC's, and FE's), it is recommended that at least 33% (or 165 flight crewmembers) be evaluated during a surveillance program. If the objective is to inspect this number of flight crewmembers, the inspection may include any combination of en route inspections, IOE observations, training sessions, line checks, or proficiency checks for a total of 165 inspections.

D. The information in table 6.1.1.1 is guidance only and should not be construed as a mandatory method for determining the number of inspections to be conducted during a surveillance program. The primary objectives of a surveillance program are for the inspectors to conduct inspections which are qualitative and which provide effective results. The quality of inspections must be given a higher priority than the actual number of inspections conducted. Inspections that produce qualitative information which can be systematically evaluated and used as a basis for taking effective courses of action are more important than the number of inspections conducted. POI's should review and when necessary revise their surveillance programs semi-annually and annually to adjust them according to national surveillance programs and to ensure that the programs are effective and are meeting planned objectives.

11. EVALUATION OF INSPECTION RESULTS.

A. Inspector evaluation of inspection results is a key phase of any surveillance program. The primary purpose of evaluating surveillance data is to identify both negative and positive trends as well as deficiencies which are not associated with an apparent trend. POI's should determine the appropriate course of action to take based on their evaluation of inspection results. This evaluation of inspection results is also important in terms of redefining and implementing subsequent surveillance objectives and inspection activity. POI's must adopt systematic methods that permit accurate and effective evaluation of inspection results. Additionally, other related information from incidents, accidents, enforcement actions and other sources may provide valuable trend information which may relate to the operator's safety and compliance status. POI's should use all available

inspection results and related information to decide on appropriate courses of action. For example, if in a series of ramp inspection reports a trend of deficiencies in the use of the MEL is identified, but the cause of these deficiencies cannot be identified, the POI may need to adjust the emphasis on the types of inspections conducted. In this case, training program inspections, manual inspections, or flight control inspections (flight release procedures) may be more effective in determining the cause of these deficiencies. In this example, the POI's initial course of action might be to informally discuss the identified trend of deficiencies with the operator. After other types of inspection results identify the cause of the deficiencies, the POI can take an effective course of action by formally requiring the operator to correct the problem at its source. The previous example is illustrative only of how surveillance information may be used to determine the courses of action to be taken for a particular situation.

B. There are several broad areas of interest in a surveillance program that, when organized into more defined elements, will provide an effective and comprehensive evaluation of surveillance data. The Program Tracking and Reporting System (PTRS) is an effective tool which the POI should use during the ongoing evaluation of a surveillance program. Inspection results are available in ad hoc formats or in established report formats for real-time and comprehensive data analysis (see section 2). The PTRS is designed to process surveillance data by organizing the data into broad areas of interest and by collecting elements of information within those broad areas. The PTRS is discussed in detail in section 2 of this chapter. This system provides for the organized retrieval of surveillance data that is related to a broad area of interest. In the PTRS these broad areas of interest are referred to as "primary areas." The PTRS, as currently designed, organizes the broad areas of interest (primary areas) under the following titles:

- Air Carrier Operations
- General Aviation Operations
- ATC/Airspace
- Airports
- Air Agencies
- Air Carrier Airworthiness
- General Aviation Airworthiness
- Aircraft ATA Codes

- Crewmembers

(1) Each primary area is further organized by a key word list of elements of information. This framework provides a method for POI's to use when organizing surveillance information for effective trend evaluation strategies. The following is a list of the major titles of the elements of information (relating to operations) that are currently designed into the PTRS:

- Personnel
- Manuals
- Records/Reports
- Training
- Facilities/Equipment
- Conformance (compliance with regulations and safe operating practices)
- Operations (flight conduct)
- Flight Control

- Key Personnel Programs
- Management
- Aircraft

(2) Each of these elements of information provides for a database of related information obtained from inspection reports. By grouping inspection results from related types of inspections, any developing trends or areas that will require an appropriate course of action (or additional emphasis) during subsequent inspections, are more readily identified. For example, surveillance data related to the element of information titled "personnel" can be obtained from the following types of related inspection reports:

- En route inspections (IOE and line checks)
- Ramp inspections
- Proficiency check inspections
- Training inspections
- Other related inspections

12. - 24. RESERVED.

[PAGES 6-8 THROUGH 6-14 RESERVED]

