ORDER Q:1

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

6040.6F

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SUBJ: **AIRWAY FACILITIES NAS TECHNICAL EVALUATION PROGRAM**

1. PURPOSE. This order defines the Airway Facilities (AF) National Airspace System (NAS) Technical Evaluation Program (NASTEP). The program provides quality assurance and safety decision-making information based on an independent review of four major areas:

a. How well facilities and services meet their intended objectives.

b. How well the maintenance program is executed.

c. How well assets are managed.

d. How well customer needs are being met.

2. DISTRIBUTION. This order is distributed to the division level within Airway Facilities, Office of System Architecture and Investment Analysis; Office of Communications, Navigation, and Surveillance Systems in Washington; to the branch level in the regional Airway Facilities divisions, the FAA Academy, and FAA Logistics Center; to the division level at the Technical Center; and to all Airway Facilities field offices with a standard distribution.

3. CANCELLATION. Order 6040.6E, Airway Facilities NAS Technical Evaluation Program, dated September 14, 1995, is canceled.

4. EXPLANATION OF CHANGES. The technical evaluation program has been changed significantly to refocus an in-depth technical evaluation with emphasis on review of performance analysis. This revision:

a. Includes minimum technical reviews for site visits.

b. Requires approximately one-fourth of all facilities/services within the scope of NASTEP to be evaluated annually.

c. Maintains a flexible approach to technical evaluation, with stronger direction for performance analysis and technical support for field staff.

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Initiated By: AOP-200

d. Implements a revised quarterly and annual reporting requirement.

e. Introduces new software to reflect trending and issue tracking..

f. Requires customer input and feedback.

g. Provides a process flow-chart diagram.

5. FORMS. FAA Forms 6040-30, Executive Summary and Approval; 6040-31, Inspection Data; 6040-32, Action Item Record; and 6040-33 through 6040-39, Facility Analysis Work Sheets, are obsolete. New reporting forms are provided through nationally distributed software and computer-generated counterparts.

6. BACKGROUND.

a. The technical evaluation program is an important management tool for quality assurance of the services that AF provides to its customers. It is the main component in the overall evaluation of AF maintenance activities. Each technical evaluator or team of evaluators acts for the regional AF division manager in assessing the quality and effectiveness of the NAS.

b. In 1994 the Airway Facilities Executive Board directed the realignment of the national technical inspection program, as defined in Order 6040.6D, Airway Facilities Technical Inspection Program, to reduce the resources necessary to conduct a sound technical oversight program. A national work group was chartered to conceptually redesign the program for implementation beginning in FY-1996. Key objectives of the program include new ways of conducting the technical quality assurance process, increased user input, lower cost, and production of objective information suitable for all levels of management decision making.

c. In 1996 through 1997 an implementation review and AAF-20 management evaluation, along with a request from the Strategic Planning Team, prompted changes associated with refocusing the technical evaluation program. Special emphasis was on technical support areas; i.e., performance records, maintenance logs, technician and specialists training, as well as services provided by the NAS and how well they match customer needs.

7. SCOPE.

a. The NASTEP applies to all commissioned facilities and services listed in the Facilities, Services, and Equipment Profile (FSEP) databases that are Federal Aviation Administration (FAA)-owned/leased or FAA-maintained, including Joint Surveillance System (JSS) facilities as defined in the latest edition of

Order 6430.2, Minutes of FAA/ Department of Defense (DoD) Joint Radar Planning Group (JRPG). Evaluations of non Federal facilities which are not FAA-maintained are defined in the latest edition of Order 6700.20, Non Federal Navigational Aids and Air Traffic Control Facilities.

b. JSS facilities are used jointly by both the FAA and the U.S. Military to minimize cost to the government and maximize use of the frequency spectrum. The JRPG was established to coordinate the day-to-day maintenance and operation of these facilities. The FAA's and DOD's inspection programs vary in detail in their policies and procedures, and any change must be coordinated through the JRPG. Details of Joint Technical Inspections (JTI) are discussed in more detail in Appendix 2, Joint Technical Inspections.

8. PROGRAM OBJECTIVES. The objectives of the AF technical evaluation program are to:

a. Provide an independent review of the services provided by the NAS and show how well they match customer needs, as well as the effectiveness of the AF maintenance program.

b. Identify, define, and report deviations from standards, technical problems, and other deficiencies.

c. Identify instances of exceptionally well-maintained facilities.

d. Monitor technical evaluation program status, progress, and responsiveness.

e. Inform involved parties of program status through summary feedback reporting.

f. Ensure compliance with the JRPG policies for JSS facilities.

g. Manage evaluation resources in an efficient, cost effective manner.

h. Identify, define, and report anticipated critical problems.

i. Improve the technical abilities of the technicians and improve the operation of the systems.

j. Investigate facilities and services identified on the National Poor Performer list.

9. PROGRAM OVERVIEW.

a. The NASTEP defined by this order and an associated guideline document, NASTEP Implementation Guidelines, initial publication dated October 1, 1995, Version 1.0, accomplishes AF's technical oversight responsibilities by evaluating 100 percent of the facilities within its scope on their performance and service to the user(s). The program shifts the past focus from inspection to

evaluation, from individual facilities to a larger environment, and from inspections by individuals to a collaborative activity with the Systems Management Offices (SMO). Appendix 1, Program Overview Flow Diagram, shows how program activities occur chronologically. For each group of facilities in the scheduling cycle, a two-step process is used:

(1) The first step, completed on 100 percent of the facilities within the scope of this order, is to solicit and analyze data on groups of facilities and services and input from all interested parties, including non FAA users of the NAS. Much of this data gathering and analysis can be accomplished remotely (without travel). Based primarily on the results of this effort, a prioritized list of facilities that will receive site visits is prepared. (See paragraph 12 and the NASTEP Implementation Guidelines for details.)

(2) The second step, typically completed in the general area of the group of facilities and services, is to meet with FAA and non FAA personnel, validate issues which surfaced during the data gathering effort, and conduct an in-depth technical inspection during visits to a specified minimum number of the facilities on the prioritized list. (See paragraphs 13 and 14 and the NASTEP Implementation Guidelines for details.)

b. Consistency in results is achieved by a combination of clearly-defined program-specific evaluator software and training, nationally defined regional and national issue reports, and annual program conferences. A maximum of flexibility is left to the regions to execute the program's activities. Reports include information which is relevant to managerial decisions relating primarily to facility performance improvement and customer support. (See paragraphs 16, 17, and 18 for details.)

c. Three types of field program activities are facility technical INSPECTIONS, facility GROUP TECHNICAL EVALUATIONS, and follow-up facility technical INVESTIGATIONS. Most of the program's activities are focused on group evaluations, for which facilities are assigned to logical groups and evaluated for possible onsite visits on a 4-year cycle. A specified minimum percentage of all facilities will receive an onsite visit, during which any or all of the activities of an inspection may be conducted, depending upon the pre-visit analysis and onsite findings. (See paragraph 11 for details.)

d. Four types of technical evaluation issues/findings are defined and reported. Critical, significant, pending, and information only issues. These are maintained initially in regional databases to produce specified quarterly and annual reports and support a variety of ad hoc queries. The reports are analyzed for trends by each region and forwarded to the national program office for national trend analysis. (See paragraph 16 for details.)

e. Periodic and as-required program telecons and meetings analyze system-wide trends, identify the highest-priority issues for resolution, and provide a forum for standardizing program activities. (See paragraph 16 for details.)

10. PROGRAM RESPONSIBILITIES.

a. The Quality Assurance and Performance Division, AOP-200 shall:

(1) Provide overall management of the AF NASTEP.

(2) Establish, maintain, and publish guidelines and standardize reports to ensure consistency in administration and reporting practices of each regional AF division technical evaluation program

(3) Analyze, compile, and publish national issue and program status reports as described in paragraph 16.

(4) Provide and maintain evaluator training and program software as defined in paragraphs 17 and 18.

(5) Identify and negotiate acceptance by appropriate office(s) of primary responsibility (OPR) for evaluation issues determined to have national impact.

(6) Update the status of all open issues on a quarterly basis.

(7) Provide funding for program meetings.

b. The regional AF divisions shall:

(1) Establish a centralized technical evaluation program to plan, schedule, coordinate, and conduct technical inspections and evaluations as required by qualified personnel.

(2) Provide funding and resources for program accomplishment.

(3) After team lead or evaluator's signature, review and sign evaluation reports within 10 working days, and assign action to the appropriate office.

c. Each regional NASTEP organization shall:

(1) Determine the need for special inspections; e.g., poor performers list.

(2) Coordinate inter-regional assistance for evaluations where local or regional expertise is not available.

(3) Determine the need for special inspections. For joint-use facilities, the appropriate military agency may assist in the determination process.

(4) Accomplish the reporting activities described in paragraph 16.

(5) Coordinate with military representatives for participation in inspections of joint-use facilities and equipment. The military should have equal inspection rights (the military and FAA representatives are equal partners) for that portion of a facility inspection where military-owned, FAA-maintained equipment is inspected.

(6) Identify the appropriate action office for evaluation issues assigned to the branch and negotiate acceptance.

(7) Update the status of all open regional issues on a quarterly basis.

(8) Participate in program telecons and meetings with the national program office.

d. AF SMO managers shall:

(1) Provide a group technical evaluation team member from the SMO Technical Support Staff, System Support Center (SSC), or other organization as appropriate to participate in evaluations at the option of the SMO.

(2) Participate in other program activities as requested or appropriate.

(3) Take corrective action on all issues assigned to the SMO in inspection/evaluation reports.

(4) Update the status of all open SMO issues on a quarterly basis.

e. Technical evaluators shall:

(1) Perform thorough and objective evaluations in compliance with the program objectives.

(2) Perform the following minimum requirements, documenting any exceptions or mitigating circumstances during site visits:

(a) Check 100 percent of the key performance parameters. When multiple units of similar equipment comprise the facility visited, check 2 or 25 percent (whichever is larger) of the equipment.

(b) Review 1 year of maintenance logs.

(c) Review complete Facility Reference Data File (FRDF).

(d) Review 1 year of technical performance records.

(e) Review and verify that all required orders are present and current.

(f) Review and validate aircraft accident reporting procedures in the latest editions of Orders 6000.15, General Maintenance Handbook for Airway Facilities, and 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting.

(g) Review and verify certification/intervals for 1 year.

(h) Document any Joint Acceptance Inspection (JAI) exceptions affecting advertised service.

(i) Document instances that adversely impact advertised services and refer to guidance in Order 6000.15; i.e., exceeded certification intervals, certification parameters out of tolerance, whether or not immediately corrected, and notify local AF management.

(3) Serve as quality assurance specialists and technical consultants representing the regional AF division.

(4) Prepare accurate, timely, and comprehensive inspection and service evaluation reports.

(5) Finalize reports within 10 days of the exit briefing.

f. Each action office for an issue shall provide quarterly status updates to the national program office or the appropriate region's program office.

11. PROGRAM ACTIVITY TYPES. The NASTEP is comprised primarily of four regionally-conducted activity types:

a. Group technical evaluations are conducted on nine types of groups comprised of often interrelated facilities/services which together provide services to pilots and air traffic controllers. (See paragraph 12a(1).) The regions have total flexibility in choosing the types and number of groups used in their evaluation program. A field trip is normally made to each group's area where selected facilities may be subject to onsite visits for sampling inspections.

b. Facility technical inspections are activities at a specific facility and are typically conducted during after-accident investigations, upon request by regional or SMO management personnel, or as required by other national orders.

c. Facility and/or system technical investigations are in-depth inspection efforts, directed at any or all characteristics of a particular facility or group, and are usually corrective in nature. During group evaluations, the need for investigations (usually subsequent) is determined from analysis of services, interviews with users and technicians, flight inspection or National Airspace Performance Reporting System (NAPRS) data, etc.

d. Poor performer investigations. The NASTEP reporting system will record the analysis and evaluation of those facilities specifically identified as poor performers. Special inspections will require site visits; however, a site visit may be waived by AF regional division manager, with justification included in the executive summary of the technical evaluation report. While analysis of each poor performer shall be included in a NASTEP report, multiple facilities may be reported on single reports.

12. SCHEDULING OF TECHNICAL EVALUATIONS, INSPECTIONS, AND INVESTIGATIONS.

a. Scheduled group evaluations should include 100 percent of the facilities and services within the scope of this order on a 4-year cycle, with 25 percent per year. JSS facilities will be scheduled on a 3- year cycle.

b. Group evaluations, including any associated facility onsite visits, shall be scheduled using the following process:

(1) Typically, the choice of group types and the specific population of facilities/services within a group will not change significantly from cycle to cycle. Any number of groups can be defined. The facilities/services within a group can be chosen by one, some, or all of the following methods based on regional preference, geographical constraints, costs, and other criteria by:

(a) Technical discipline or specialty; e.g., environmental facilities, Instrument Landing Systems (ILS), ASR-9s, etc.

(b) Airports, including facilities physically located on the airport and off-airport facilities logically related to the airport.

(c) Airspace coverage; e.g., facilities supporting an Air Route Traffic Control Center (ARTCC).

(d) Operational use, such as an instrument approach, Standard Instrument Departure (SID), or Standard Terminal Arrival Route (STAR).

(e) Service.

(f) SMO.

(g) SSC; i.e., part of a SMO.

(h) Cost center code.

(i) Any other logical or convenient method; e.g., all or any part of a region's facilities, Remote Center Air/Ground (RCAG) and their controlling ARTCCs.

(2) By screening 100 percent of the facilities/services in each group through various data gathering and analysis activities, a list of candidate facilities is developed for onsite visits. The purpose of an onsite visit is primarily to validate the problem or condition identified in the pre-evaluation analysis that resulted in the facility being placed in the candidate list for visits. Of the total number of facilities in the groups scheduled each year, 50 percent must be visited. Facilities may or may not be visited, depending upon the analysis. In some groups the analysis may determine that no group evaluation trip is necessary, or that no facilities need to be visited; in other groups, all the facilities may need an onsite visit. By the end of each year, a minimum of 50 percent of the facilities in that year's groups must have received an onsite visit. The 50 percent value may be adjusted each year by agreement of the national and regional program offices and is based on considerations, such as changes in the maintenance environment and larger numbers of employees per supervisor, etc.

(3) During the group evaluation trip, if any, the list of facilities receiving an onsite visit may be modified according to newly-obtained information.

c. Facility inspections shall be scheduled on an as-needed basis for all facilities. In addition, JSS facilities shall have periodic facility inspections scheduled on a 3-year cycle. If a region's primary objective is to base its evaluation program on technical inspections rather than group evaluations, or if inspections are used until trained group evaluators are available, scheduling of those inspections is the same as for group evaluations, a 4-year cycle.

d. Facility and/or system investigations shall be scheduled on an as-needed basis.

13. GROUP TECHNICAL EVALUATOR(S). The number and types of evaluators will vary depending upon the type of group evaluation being conducted. All activities related to a scheduled group evaluation may be conducted by a single evaluator or a team of several evaluators. If a team is used and travel is required, the members may all travel during the same week(s), or during different weeks.

14. CONDUCTING TECHNICAL GROUP EVALUATIONS. Guidelines for evaluators in planning and conducting group evaluations are published in a separate AOP-200 document, NASTEP Implementation Guidelines, initial publication October 1, 1995, Version 1.0. It is intended to be a description of the most general type of evaluation process, and specific portions may not apply for a given group.

15. TYPES, ASSIGNMENT, AND CLOSURE OF TECHNICAL EVALUATION ISSUES.

a. All evaluation findings shall reflect conditions as found and categorized in one of four types of issues. A detailed discussion of issue priorities and categories is found in the NAS Implementation Guidelines.

(1) **Critical Issue.** An issue that adversely affects an advertised service has a substantive detrimental impact on the user or clearly compromises safety; i.e., false targets affecting the flow of air traffic, incomplete or missing safety modifications, key parameters out of tolerance. Each critical issue requires action from immediate to no more than 30 days from the date of the final signature on the technical evaluation report.

(2) **Significant Issue**. An issue that has the potential to become critical, affects an advertised service, has a negative impact on the user, or could substantially improve service, etc. Each significant issue requires action within 2 years.

(3) **Pending Issue**. An issue identified during the course of an evaluation, which requires additional investigation. It must be placed in one of the other three categories of issues prior to final publication of the evaluation report.

(4) **Information Issue**. All issues other than critical, significant, or pending issues. These issues are included in the group evaluation report for information.

b. Assignment of critical and significant issues may be made only to the SMO, the regional NASTEP office, or the national NASTEP office. The regional or national office may in turn negotiate the assignment and acceptance for the resolution of these issues to another regional or national OPR, but remains responsible for tracking the status of these issues.

c. Closure of a critical or significant issue is accomplished by the OPR through the NASTEP office. Closure of issues originated by AF customers should be coordinated with the originator to determine that the resolution is satisfactory or closure is appropriate before changing the status of the issue. Issues that require extensive time for closure shall not be marked closed until the project is completed even if the action is initiated within 30 days. Resolution efforts should be documented in the comment field in the issue section of the NASTEP software. Cleared issues may be reopened should telcons, meetings, or other activities reveal the need

16. PROGRAM REPORTS AND STANDARDIZATION TELCONS/MEETINGS. The NASTEP relies on several types of mandatory reports and standardization telcons/meetings to maintain a high quality information product while allowing maximum flexibility in program execution between regions.

a. Reports should be generated in standardized formats by nationally-developed and distributed program software.

(1) A Group Evaluation Report documents the data and user input gathered and analyzed prior to and during a group location visit (if any). It places each evaluation finding in one of three categories of issues. It is prepared and signed by the evaluator(s), initialed by the evaluator or lead evaluator's supervisor and the OPR branch manager, and signed by the division manager or designee.

(2) A Facility Inspection Report documents individual facility status. It is prepared by an evaluator.

(3) A Quarterly Regional Issues Report compiles various data from the regional database, including critical and significant issues listed in a brief format. These reports are prepared by the regional NASTEP organization and distributed to all local branches, SMOs, and the national program office with a trend analysis cover memorandum. Apparent regional trends are identified initially through manual analysis of the regional database and input from evaluators, branches, and SMOs, etc., as candidates for emerging national trends. Issues having national impact, as determined by analyzing/comparing the quarterly regional reports, will be raised through appropriate channels by the national program office for resolution. A combined package of all the regions' quarterly reports will be distributed nationally. A 4-year schedule of technical evaluations shall be attached to the quarterly regional issues report. The schedule shall reflect the most recent status of evaluation accomplishments.

(4) Quarterly Program Status Report summarizes program status and emerging national trends to the executive level within Headquarters. This report includes the status of national issues and is prepared by the national program office, and it is distributed to all regional divisions and other appropriate offices.

(5) An Annual Report summarizes resource utilization, program accomplishment, prioritized national trends, and details on trend abatement status. This report is prepared by the national program office, distributed to all regional divisions and other appropriate offices, and presented to the AF Executive Board at the first meeting following the end of the fiscal year.

b. Telcons and meetings between the national and regional program offices will be held as deemed necessary and appropriate to discuss program accomplishment, identify difficulties, propose changes to this order, and identify/analyze the issue trends to be placed in the annual report.

17. NASTEP SOFTWARE. An effective and standardized program will require unique applications software for evaluators and program managers. Although the complete specifications of the software are purposely left out of this order for flexibility, the requirements as a minimum include:

a. A "Windows" interface with run-time licensing.

b. Convenient issue entry for the evaluator, including an onsite screen text editor and spell checker, and import/export capability with several popular word processors.

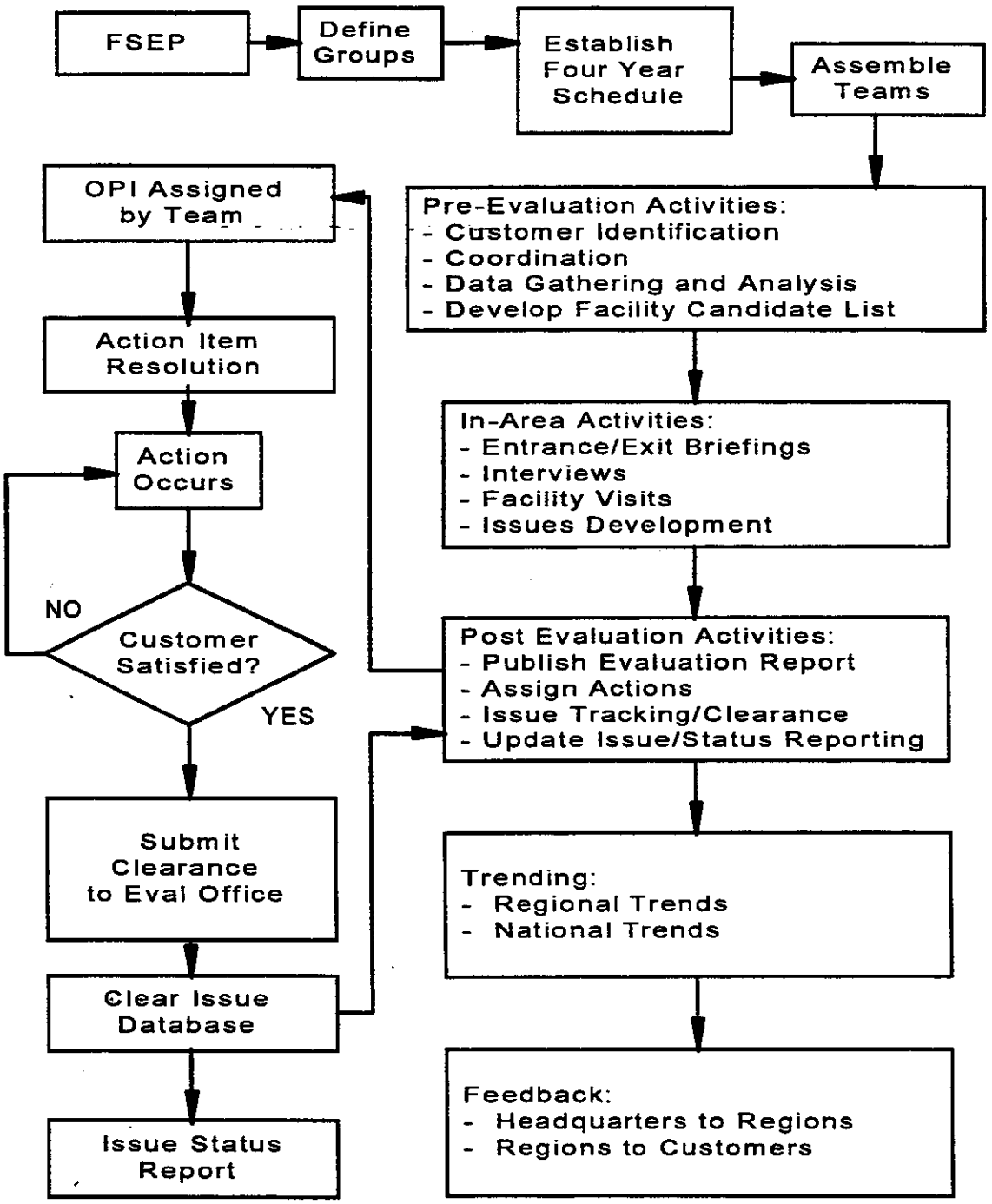
c. Standard report generation with automatic pre-printed forms.

18. TECHNICAL EVALUATOR TRAINING. Because of the expanded scope of the NASTEP and increased contact with non FAA users when compared to the previous technical inspection program, a standardized training curriculum for evaluators is required. While discipline-specific knowledge; e.g., navigation, communications, radar, environmental, etc., is assumed for all evaluators, subjects such as interviewing techniques, interpersonal behavior, dealing with the public, and pilot/controller use of the NAS facilities and services may represent new skills. A training outline is contained in the separate guidelines document and includes a required internally-developed course, which at least one member of each group evaluation team must have received. Optional courses are also identified.

Stanley Rivers

Stanley Rivers
Director of Airway Facilities

APPENDIX 1. PROGRAM OVERVIEW FLOW DIAGRAM



APPENDIX 2. JOINT TECHNICAL INSPECTION

1. **GENERAL**. A joint inspection team consisting of representatives from the FAA and appropriate military agency will conduct inspections. JTIs will be conducted on a 3-year cycle with the first inspection to commence within 3 years of commissioning. All key performance parameters including associated sub-items shall be checked. Key performance parameters are identified by arrows in FAA equipment handbooks, Chapter 3, Standards and Tolerances and Air Force equipment checklists. The JRPG approved checklists will be attached to the AF NASTEP Implementation Guidelines found at each JSS site.

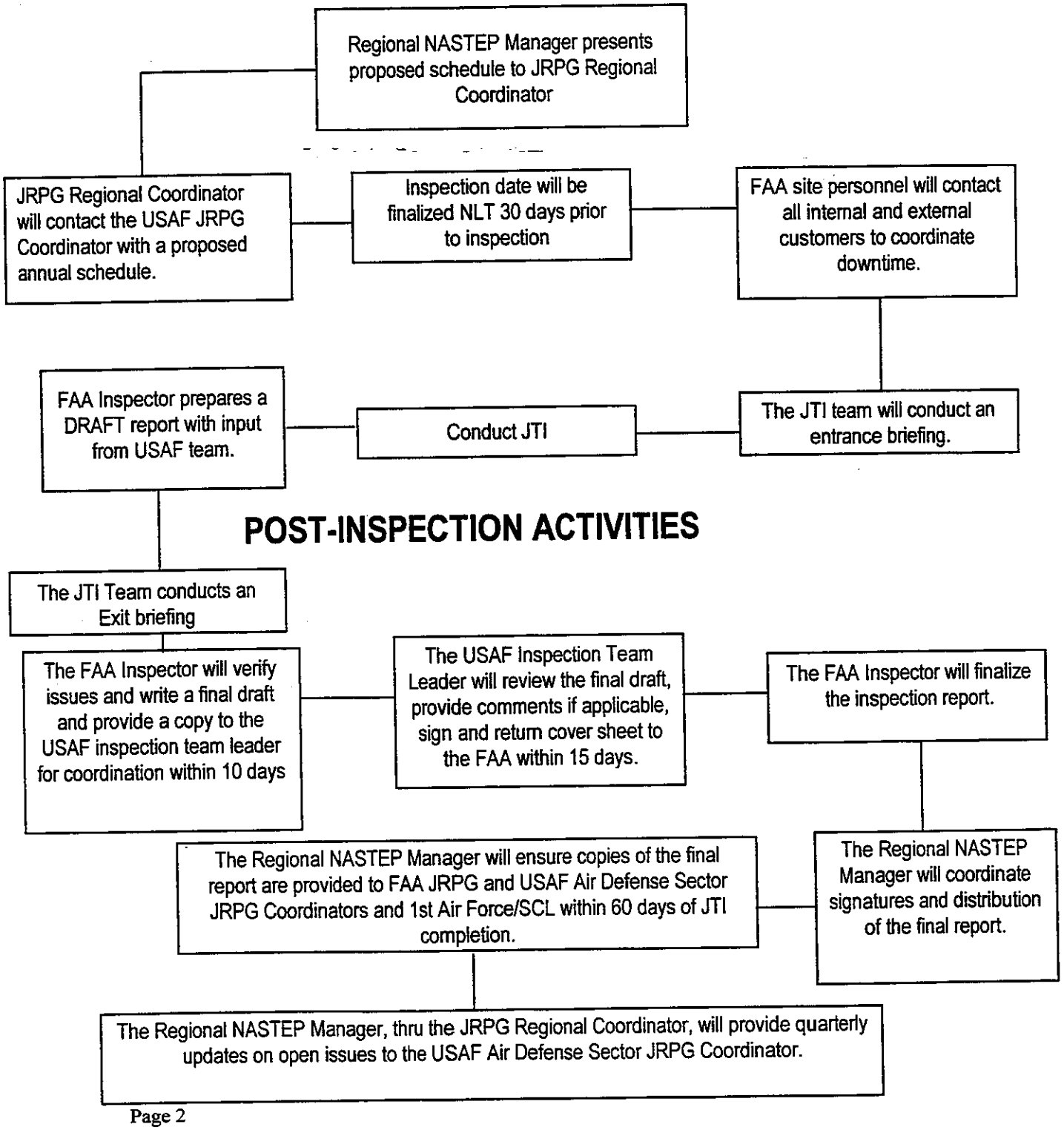
2. **REPORTING AND DISTRIBUTION**. The JTI report will detail all out-of-tolerance conditions found during the inspection and specify the actual reading measured and the required standard to be met. A table showing the number of key and other parameters checked and the number of out of tolerance conditions for each facility will be included in the Executive Summary of the report. A copy of the final joint inspection report shall be provided to the military within 60 days following the completion of the inspection.

AOP shall provide quarterly status reports to the National JRPG Co-chair and 1 AF/SCM. First Air Force SCM is responsible for distribution of these status reports to military organizations. Regional NASTEP Program managers distribute quarterly JTI status reports to regional JRPG coordinators.

3. **JTI PROBLEM RESOLUTION**. Problems found during a JTI shall be resolved as follows:

a. Problem resolution should be attempted through the combined effort of the senior military representative and the FAA SSC manager. If their efforts are unsuccessful, the problems should be escalated to the next level.

b. The AF SMO manager may enlist regional help if a problem is beyond their resources. If additional military help is required, assistance may be petitioned from the military agency that receives services from the facility. Coordination for requesting any assistance will be through the regional JRPG coordinator. If necessary, the FAA JRPG co-chair will coordinate with the appropriate military office and ensure the required action is taken.

APPENDIX 2. JOINT TECHNICAL INSPECTION (CONTINUED)

PRE-INSPECTION ACTIVITIES