PREP SCHEDULE—GOVERNMENT—LED AREA EXERCISES—Continued

Area	Agency	Date/qtr[1]	Participant
SF/LA/LB/San Diego (MSO San Francisco, MSO Los Angeles/Long Beach & MSO San Diego).	CG SONS[2]	2	
Prince William Sound (MSO Anchorage)	CG	3	
EPA Region I	EPA	3	
South Texas (MSO Corpus Christi)	CG	4	

PREP SCHEDULE—INDUSTRY—LED AREA EXERCISES

Area	Planholder type[3]	Date/qtr[1]	Participant
Calendar Year 2002:			
Tampa (MSO Tampa)	v	1	
Northwest (MSO Puget Sound)	v	1	
South LA/LB (MSO LA/LB)	f(mtr)	1	
EPA Oceania	f(nonmtr)	1	
EPA Region II	p	2	
Eastern Wisconsin (MSO Milwaukee)	v	3	
Detroit (MSO Detroit)	v	3	
Maine/New Hampshire (MSO Portland)	v	3	
Providence (MSO Providence)	v	3	
Virginia Coastal (MSO Hampton Roads)	f(mtr)	4	
Houston/Galveston (MSO Houston/Galveston	p	4	
Alabama/Mississippi (MSO Mobile)	f	4	
EPA Region VI	f(nonmtr)	4	
Calendar Year 2003:			
New Orleans (MSO New Orleans)	p	2	
W. Lake Erie (MSO Toledo)	f(nonmtr)	2	
North Coast Area (MSO San Francisco	f(mtr)	2	
EPA Region IV	f(nonmtr)	2	
EPA Region IX	p	2	
Northwest Area (MSO Portland)	v	3	
Eastern Great Lakes (MSO Buffalo)	f(mtr)	3	
Cleveland, OH (MSO Cleveland)	f(mtr)	3	
Caribbean Area (MSO San Juan)	v	4	
Jacksonville (MSO Jacksonville)	v	4	
EPA Region III	f(nonmtr)	4	
Calendar Year 2004:			
New York City (Activities NY)	f(mtr)	1	
Southern Coastal NC (MSO Wilmington)	v	1	
Guam (MSO Guam)	v	1	
Long Island Sound (MSO Long Island Sound)	f	2	
EPA Region V	f	2	
EPA Region VII	f(nonmtr)	2	
San Francisco Bay (MSO San Francisco with MSO LA/LB)	tbd SONS[2]	3	
Saulte Ste Marie (MSO Saulte Ste Marie)	f	3	
South TX Coastal Zone (MSO Corpus Christi)	v	3	
SW LA / SE Texas (MSO Morgan City)	p	3	
Maryland Coastal CG (Activities Baltimore)	v	4	
Chicago (MSO Chicago)	v	4	
Northwest (MSO Seattle)	v	4	

[1] Quarters: 1 (January-March); 2 (April-June); 3 (July-September); 4 (October-December).
[2] SONS: Spill of National Significance.
[3] Planholder Type: v-vessel; f(mtr)-marine transportation-related facility; f(nonmtr)-nonmarine transportation-related facility; p-pipeline; tbd-to be determined.

Dated: January 10, 2002.

Joseph J. Angelo,

Director of Standards, Marine Safety and Environmental Protection.

[FR Doc. 02–1514 Filed 1–18–02; 8:45 am]

BILLING CODE 4910–15–U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee Meeting on Air Carrier and General Aviation Maintenance Issues

AGENCY: Federal Aviation Administration (FAA) DOT.

ACTION: Notice of public meetings.

SUMMARY: The Federal Aviation Administration (FAA) is issuing this notice to advise the public of two meetings of the Aviation Rulemaking Advisory Committee to discuss Air Carrier and General Aviation Maintenance Issues. Specifically, the committee will discuss two tasks concerning quality assurance and ratings for aeronautical repair stations.

DATES: The meetings will be held on January 31 and February 20–21, 2002, from 9 a.m. to 5 p.m. Arrange for teleconference capability and

AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC)

Air Carrier and General Aviation Maintenance Issues

Meeting Minutes

DATE: February 20-21, 2002

TIME: 9:00 a.m. to 5:00 p.m.

PLACE: General Aviation Manufacturers Association, Washington, DC.

Day 1: February 20, 2002

The Assistant Chair, Ms. Sarah MacLeod, called the meeting to order at 9:05 a.m.

Agendas were distributed (Attachment 1) and an attendance sheet was circulated (Attachment 2). Mr. David Cann, Assistant Executive Director, read instructions governing the conduct of the meeting.

Ms. MacLeod welcomed everyone and asked that they introduce themselves. She opened the discussion by asking the Federal Aviation Administration (FAA) to discuss the purpose and/or objective of quality assurance (QA) from it's perspective. Ms. MacLeod also asked the FAA to discuss what performance criteria the Agency is trying to capture. FAA responded with the following three purposes/objectives for QA:

1. To ensure that repair stations are following their manual,
2. To ensure that the standards of part 43 of Title 14,

   code of Federal Regulations are met, and

3. To prevent inferior/defective products from getting out.

A lengthy discussion ensued on the benefits of QA. The committee discussed the current level of safety that part 145 repair stations realize without QA and whether or not quality assurance can increase that level of safety. The committee briefly discussed Joint Aviation Authority (JAA) QA requirements (see handout, Attachment 3) and International Civil Aviation Organization (ICAO) requirements (see handout, Attachment 4). Some committee members maintained that if JAA, ICAO, and Transport Canada, which have QA requirements, do not show a level of safety significantly greater than that of the U.S., which currently does not have QA requirements, then there is no safety justification in requiring QA for part 145 repair stations. Other committee members argued that a regulatory requirement for QA is not necessary because the demands of the

market ensure quality. Still other members argued that QA is a necessary element to ensuring safety and that mandating the requirements must be accomplished.

After reviewing the task, the group decided to proceed with making recommendations pertaining to QA. The group noted that recommending that FAA not regulate QA could be one of its recommendations.

Mr. Walter Desrosier, General Aviation Manufacturers Association, distributed a paper that provided information on the design and implementation of an internal quality audit program (Attachment 5). The committee determined that the regulations provide many quality system elements. However, building from FAA's framework and the information presented by Mr. Desrosier, the committee agreed, solely for the purpose of completing the task, that four elements of a quality system were not specifically addressed by the regulations.

1. Auditing,
2. Root-cause determination,
3. Corrective action and follow-up, and
4. Management review.

The committee agreed to discuss each of these elements in detail at the February 21, 2002, meeting and Ms. MacLeod adjourned the meeting at 5:00 p.m.

Day 2: February 21, 2002

The Assistant Chair, Ms. Sarah MacLeod, called the meeting to order at 9:01 a.m.

Agendas were distributed (Attachment 6) and an attendance sheet was circulated (Attachment 7). Mr. David Cann, Assistant Executive Director, read instructions governing the conduct of the meeting.

Ms. MacLeod gave an overview of the meeting from the previous day and the committee resumed its discussion of the four elements. The committee narrowed the scope and defined each element. Each element was discussed in depth and captured in a working outline (Attachment 8).

To ensure that the committee remained on track, Ms. MacLeod reviewed the requirements

of the task. The committee determined that it had met the requirement to (1) review current

industry practices, (2) identify quality assurance systems currently used by some repair stations, (3) analyze the elements of the systems used by the aviation industry, and (4)

present a review of regulatory requirements that comprise an quality assurance system. Therefore, the committee proceeded to identify various options regulating quality assurance programs. The following three options were identified:

1. Regulate all repair stations under the concept discussed previously (referring to the four elements).
2. Regulate only those repair stations working for a 14 CFR part 121, 125, 129, or 135 operator.
3. No regulations, voluntary QA only.

The task requires the committee to present the advantages and disadvantages of each option and identify the costs and benefits associated with each option. The committee created a matrix to capture this information (Attachment 9). Each committee member is responsible for filling out the matrix and forward the results to Ms. MacLeod. The results will be added to the technical report. Ms. MacLeod will forward the technical report to the committee for review prior to the April meeting.

Ms. MacLeod adjourned the meeting at 3:45 p.m.

Future Meetings, Dates, and Locations

The next committee meeting will be held March 11-12, 2002, at Helicopter Association International in Alexandria, Virginia.

Action Items

1. Ms. MacLeod will send the matrix to the committee members for their input on the design of the quality assurance matrix. She will incorporate their comments and suggestions and send out the final matrix.
2. The committee members will fill out the matrix and forward their responses to Ms. MacLeod by a specified date.
3. Ms. MacLeod will also send out information on rating and classes in preparation for the March 2002 meeting no later than Tuesday, February 26, 2002.

Attendance

The February 20, 2002, meeting of the ARAC to address Air Carrier/General Aviation Maintenance issues was attended by 23 people, including committee members, alternates, government employees, and members of the general public.

The February 21, 2002, meeting of the ARAC to address Air Carrier/General Aviation Maintenance issues was attended by 24 people, including committee members, alternates, government employees, and members of the general public.

Public Notification

An announcement of the meeting was published in the Federal Register on January 22, 2002 (67 FR 2946).

Approval

I certify that the above minutes are accurate.

/s/Ms. Sarah MacLeod,

Assistant Chair for ARAC Air Carrier/General Aviation Maintenance Issues

Issued: June 1, 2002.

9 Attachments

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

GENERAL AVIATION MANUFACTURERS ASSOCIATION
1400 K STREET, NW., SUITE 801
WASHINGTON, DC 20005

MEETING AGENDA

FEBRUARY 20, 2002

- Opening remarks and committee administration.
- Discussion of quality assurance for aeronautical repair stations
- Lunch
- Discussion of quality assurance for aeronautical repair stations
- Discussion of future meeting dates and locations
- Adjourn

Attachment 2

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

FEBRUARY 20, 2002

MEMBER (M) NON-MEMBER (N)	NAME	AFFILIATION	TELEPHONE/ FAX NUMBER	E-MAIL ADDRESS
	DAVE CANN	FAA	(202) 267-3546	DAVE.CANN@FAA.GOV
M	SARAH MACLEOD	Assistant Chair (ARSA)	703·739·9543|9488	sarahsays@arsa.org
M	Jim Gess	Independent Pilots Assoc	770-306-1327	jgess@ipapilot.org
m	Tim Boyle	Teamsters	502-241-6658	tands boyle@prodigy.net
M	WALTER DESROSIER	GAMA	(202) 637 1379	WDESROSIER@GENERALAVIATION.ORG
M	Janice Maniatis	MADA/F	770.486.5630	jmaniati@ATT.NET
N	Mike Leibrecht	DOT Office of Inspector General	404 562-3788	mike.j.leibrecht@oig.dot.gov
N	Curtis Gelber	Dot office of Inspector General	404 562-3797	Curtis.s.gelber@oig.dot.gov
M	Rosita Scoones	Boeing	425-237-4716 F) 425 237-9866	Rosita.M.SCOONES@Boeing.com
M	RICHARD PERI	AEA	202-585-1144	rigp@AEA.NET
m	C.H. "SKIP" JONES	AIA	202-371-8433 371-8471	JONES@AIA-AEROSPACE.org

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

FEBRUARY 20, 2002

MEMBER (M) NON-MEMBER (N)	NAME	AFFILIATION	TELEPHONE/ FAX NUMBER	E-MAIL ADDRESS
~~Joe Sirico~~ (N)	Joe Sirico	PEW	860-565-6233 860-755-4538	sirico@pwa.com
M	Lance Nuckolls	Aircraft owners + Pilots Assn (AOPA)	301-695-2086 301-695-2214	Lance.Nuckolls@aopa.org
M	CHAD BIERMAN	AVIATION SUPPLIERS ASS'N	202-478-5424 " " 5426	Chad.Bierman@WashingtonAviation.com
M	DAVID SCHOBER	PAMA	202 730 0264 202 730 0259	DSCHOBER@PAMA.ORG
M	MIKE WHISSELL	TRANSPORT CANADA	613 952-9104 613 952-3298	whissem@tc.gc.ca
M	Ric Anderson	Air Transport Assn. (ATA)	202-626-4134 -6576	randerson@airlines.org
N	JOE BUTTNER	DALLAS AIRMOTIVE - MILLVILLE	856-825-6000 -0078	jbuttner@dallasairmotive.com
N	Steve Serdikoff	Phaneuf Assoc. Inc.	(202)898-1410	serdikoffe earthlink.net
N	Robert Moten	FAA	202-267-3813	Robert.Moten@FAA.GOV
N	Susanne Johnson	FAA	202-493-4521	susanne.johnson@FAA.gov
N	Vanessa Wilkins	FAA	(202) 267-8029 (P) 267-5015 (F)	vanessa.wilkins@FAA.gov
Via Telephone Y	Dave Smith	NATA	(201)462-4023	

Elements of a Basic Quality System for Regulatory Compliance	What regulation covers some of or the entire element?	What isn't covered by the regulatory system? Should it or can it be covered by the regulations?	Recommendations
Standard	Part 145		
Working group assignment	The Federal Aviation Administration (FAA) is issuing this notice to advise the public of two meetings of the Aviation Rulemaking Advisory Committee to discuss Air Carrier and General Aviation Maintenance Issues. Specifically, the committee will discuss two tasks concerning **quality assurance** and **ratings** for aeronautical repair stations. **DATE**		TCCA AWM 501 Definition of Quality Assurance: "Quality assurance" means a planned and systematic pattern of all actions necessary to provide confidence that aeronautical products will conform to approved design data and be in a condition for safe operation.
System for complying to the standards (often not always written up in a manual that addresses each of the elements of the standard)	145.45	145.45 speaks of an "inspection system that will produce satisfactory quality control" Should there be discussion of quality assurance?	*Require the repair station to have a manual (kept current) that explains how it complies with each FAA regulation that applies to it. This would be a continuation of the compliance plan document usually submitted as a part of the application* **Inspection manual should describe system by which the following three objectives are complied with.** **Objective 1 of a quality system:** Compliance to FARs This is accomplished by providing clear policy and procedure for each requirements of FAR 145. These are contained and/or enabled within the "Repair Station Manual" document. Any changes in the FARs should cause an amendment to the "Repair Station Manual", to describe

Attachment 3

			company system changes. **Objective 2 of a quality system:** Quality (assurance) System should ensure the repair station is in compliance to it's "Repair Station Manual" This is where the internal audit comes in. There should be scheduled and random audits. i) The scheduled audit (yearly?) should be thorough enough to ensure company personnel are in compliance with company policy and procedures. ii) The random audits should apply to each product line and should ensure the final product is in compliance to airworthiness requirements. Note: Individuals certifying maintenance are exercising a quality control measure directly applicable to the maintenance they have accomplished. **Objective 3:** Any discrepancy discovered during activities of Objective 1 or 2 should be captured on an audit finding form. All findings should be closed loop, where corrective action is monitored to ensure it was effective, and to ensure there are no repeats of the non-conformance.*for the 145 certificate*
Quality policy	145.57(a)	145.57(a) is one of the many conditions for the issuance of a Repair Station Certificate. 145.211(a) Should this paragraph also	**Quality policy should be in keeping with the objectives described above.**

		address quality assurance?	Note: Some of the quality characteristics that make up the specifications of the final product may not be measurable by review at time of certification. **E.g.1:** Compliance to Human Factors training regulations. Compliance to a requirement to have a system where "maintenance errors" are recorded as findings, requiring human factors analysis **E.g. 2:** Compliance to drug and alcohol requirements. Note: The purpose of a quality system wholly focused on end product reviews would be to capture defective products. In aviation, defective products lead to accidents.
Organization	145.39 145.75 145.2 – Part 121, subpart L, except for 121.363, 121.369, 121.373 and 121,379	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	There should be independence between the individuals that accomplish Quality System reviews and from those that provide corrective action for any finding uncovered during these reviews.
Management review		Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	The accountable manager must be made aware of any audit finding that can be directly linked to an aviation safety concern.
General	??		
Quality system procedures	145.45	Should there be text that covers quality assurance?	**Procedures as described below.** Objective 1:

			i) Monitoring FARs for changes. Accomplishing this objective is accomplished through the Repair Station Manual FAA amendment procedure Objective 2: i) Internal audit, documented process (detailed check sheets for each quality characteristic that make up the maintenance specifications) should provide for consistent scope, depth and detail of the review. ii) Random audits, documented process (detailed check sheets for each product line where quality characteristics are measured and recorded) should be for all product lines, when and where the maintenance is accomplished. The frequency and quantity of these random audits should demonstrate a good level of confidence in the final product. iii) "Quality Control" accomplished by the individuals certifying maintenance. All maintenance is certified one way or another. The

			individual that certifies the maintenance must be aware that there cannot be any compromise on safety. Procedures for these certifications must be in compliance to Repair Station policy. Objective 3: i) Approved organization must develop an audit finding form, that includes four elements: (a) standard, (b) problem, (c) planned corrective action, (d) follow up to ensure corrective action is effective. ii) audit findings can be generated by any individual that works for the approved organization iii) audit findings could be the result of periodic audit, quality control review or random sampling iv) audit findings are controlled by the quality system personnel v) audit finding corrective action is the responsibility of the person that designs the system (assures independence) vi) corrective action must be

			monitored to ensure the change was effective. vii) start of an internal audit period should begin with the review of findings of the previous audit period. This is to capture repeat findings. end of an internal audit period should include an executive summary that provides insight of the type of findings experienced, and a description of systemic changes taken to prevent reoccurrence.
Quality planning	145.39(a) and (b) 145.53	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	Objective 1: as needed Objective 2: i) yearly (?) for internal audit ii) ongoing for random audit iii) ongoing for quality control review of final products by those that certify them. Objective 3: ongoing
Contract review		Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	The Repair Station should have Quality System measures to ensure contracted maintenance is accomplished in accordance with applicable airworthiness requirements.
Design control	SFAR-36		
Document and data control	145.2 145.57(a)	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	Quality system records must reflect all that is accomplished, must be protected from loss or theft, and (suggestion) must be kept for at least 3 years. (It should be the same as the largest possible FAA audit frequency)
Purchasing	???		
Control of customer-	145.2	Conditions that must be met. This could	Individual that installs the

supplied product		be defined as "quality characteristics" of the approved organization.	aeronautical products on the aircraft, makes the final decision
Product identification and traceability		Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	Individual that installs the aeronautical products on the aircraft, makes the final decision.
Process control	43.13(a) 145.57(a)	Should there be discussion of Quality Assurance?	Process for quality system reviews must ensure thoroughness and consistency.
Inspection and test status	145.45(c-f) 43.9 43.11	Should there be discussion of Quality Assurance?	Compliance to Repair Station Manual must be assured Compliance to airworthiness requirements must be assured
Control of nonconforming product	145.35(d)	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	
Handling, storage, packaging, delivery	145.2 145.47 145.49	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	
Control of quality records	145.43 145.49 145.61 145.79	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	Delineated in the Repair Station Manual Records must be protected from damage or loss, and must be kept for 3 years?
Training	145.2	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	All employees must be trained on applicable portions of the Repair Station Manual
Servicing	145.57(a) 145.2	Conditions that must be met. This could be defined as "quality characteristics" of the approved organization.	
Statistical techniques	43.13(b)		

Audits to assure that the system meets desired standards (compliance with the standard—audit checklist should be developed from the standard) Internal quality audits	FAA surveillance 121.373 audits	Should there be discussion of Quality Assurance?	*145 performs self-audits; third party performs audits; standardize records of the audits* Quality System objective 2 described above, applies Third party may perform the audit review, however, the corrective action and follow up to any finding must remain with the approved organization.
Review of the audit results (identify failures and inadequacies)	FAA usually orally briefs repair station following audit; a written exposition of deficiencies is provided		*Require the repair station to review its own audits or third party audits and maintain records thereof* Quality System objective 3 described above, applies
Identification and implementation of improvements Corrective and preventative action	Civil penalty system penalizes those who are found deficient; those who correct deficiencies may be eligible for administrative action	There should be text that mandates verification that any corrective action taken is verified to have been effective. There should be a means to capture recurring findings.	*Require correction of identified regulatory deficiencies (would be redundant since the regulations already require these elements, although a time limit on correction could be added)* Quality System objective 3 described above, applies

Chapter 2. Definitions

November 2, 2000

When the following terms are used in the Standards and Recommended Practices for aeronautical information services, they have the following meanings:

Accuracy. A degree of conformance between the estimated or measured value and the true value.

Note.--For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position failing.

Aeronautical data. A representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.

Aeronautical information. Information resulting from the assembly, analysis and formatting of aeronautical data.

Aeronautical Information Circular (AIC). A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

Aeronautical information service. A service established within the defined area of coverage responsible for the provision of aeronautical information/data necessary for the safety, regularity and efficiency of air navigation.

AIP Amendment. Permanent changes to the information contained in the AIP

AIP Supplement. Temporary changes to the information contained in the AIP which are published by means of special pages.

AIRAC. An acronym (aeronautical information regulation and control) signifying a system aimed at advance notification based on common effective dates, of circumstances that necessitate significant changes in operating practices.

Air Defence Identification Zone (ADIZ). Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services (ATS).

AIS product. Aeronautical information provided in the form of the elements of the integrated aeronautical information package (except NOTAM and PIB), including aeronautical charts, or in the form of suitable electronic media.

ASHTAM. A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

Assemble. A process of merging aeronautical information from multiple sources into a data base and establishing a baseline for subsequent processing.

Note.--The assemble phase includes checking the data and ensuring that detected errors and omissions are rectified.

Cyclic redundancy check (CRC). A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Data base. One or more files of data so structured that appropriate applications may draw from the files and update them.

Note.--This primarily refers to data stored electronically and accessed by computer rather than in files of physical records.

Data quality. A degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity.

Direct transit arrangements. Special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.

Ellipsoid height (Geodetic height). The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

Geodesic distance. The shortest distance between any two points on a mathematically defined ellipsoidal surface.

Geodetic datum. A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

Attachment 4

Geoid. The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.

Note.--The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.

Geoid undulation. The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.

Note.--In respect to the World Geodetic System--1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.

Heliport. An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration-to human performance.

Integrated Aeronautical Information Package. A package which consists of the following elements:

--AIR including amendment service;
--supplements to the AIP:
--NOTAM and pre-flight information bulletins (PIB);
--AIC;
--checklists and summaries.

Integrity (aeronautical data). A degree of assurance that an aeronautical data and its value has not been lost nor altered since the data origination or authorized amendment.

International airport. Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

International NOTAM office. An office designated by a State for the exchange of NOTAM internationally.

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Movement area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the aprons(s).

NOTAM. A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Orthometric height. Height of a point related to the geoid, generally presented as an MSL elevation.

Position (geographical). Set of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of a point on the surface of the Earth.

Precision. The smallest difference that can be reliably distinguished by a measurement process.

Note.--In reference to geodetic surveys, precision is a degree of refinement in performance of an operation or a degree of perfection in the instruments and methods used when making measurements.

Pre-flight information bulletin (PIB). A presentation of current NOTAM information of operational significance, prepared prior to flight.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

Quality. Totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs (ISO 8402*).

Note.--Entity is an item which can be individually described and considered (ISO 8402)*

Quality assurance. All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality (ISO 8402*).

Quality control. The operational techniques and activities that are used to fulfil requirements for quality (ISO 8402*).

Quality management. All activities of the overall management function that determine the quality policy, objectives and responsibilities, and implementing them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system (ISO 8402*).

Quality system. The organizational structure, procedures, processes and resources needed to implement quality

management (ISO 8402*).

*ISO Standard 8402 -- *Quality Management and Quality Assurance--Vocabulary*, Second Edition.

Requirements for quality. Expression of the needs or their translation into a set of quantitatively or qualitatively stated requirements for the characteristics of an entity to enable its realization and examination (ISO 8402*).

Resolution. A number of units or digits to which a measured or calculated value is expressed and used.

Restricted area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

Route stage. A route or portion of a route flown without an intermediate landing.

SNOWTAM. A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

Station declination. An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

Traceability. Ability to trace the history, application or location of an entity by means of recorded identifications (ISO 8402*).

Validation. Confirmation by examination and provision of objective evidence that the particular requirements for a specific intended use are fulfilled (ISO 8402*).

Verification. Confirmation by examination and provision of objective evidence that specified requirements have been fulfilled (ISO 8402*).

Note.--Objective evidence is information which can be proved true, based on facts obtained through observation, measurement, test or other means (ISO 8402).*

*ISO Standard 8402 -- *Quality Management and Quality Assurance--Vocabulary*, Second Edition.

e) the current aeroplane status of compliance with the maintenance programme; and

f) the detailed maintenance records to show that all requirements for signing of a maintenance release have been met.

8.4.2 The records in 8.4.1 a) to e) shall be kept for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service, and the records in 8.4.1 f) for a minimum period of one year after the signing of the maintenance release.

8.4.3 In the event of a temporary change of operator, the records shall be made available to the new operator. In the event of any permanent change of operator, the records shall be transferred to the new operator.

8.5 Continuing airworthiness information

8.5.1 The operator of an aeroplane over 5 700 kg maximum certificated take-off mass shall monitor and assess maintenance and operational experience with respect to continuing airworthiness and provide the information as prescribed by the State of Registry and report through the system specified in Annex 8, Part II, 4.2.5 and 4.2.8.

8.5.2 The operator of an aeroplane over 5 700 kg maximum certificated take-off mass shall obtain and assess continuing airworthiness information and recommendations available from the organization responsible for the type design and shall implement resulting actions considered necessary in accordance with a procedure acceptable to the State of Registry.

Note. -- Guidance on interpretation of "the organization responsible for the type design" is contained in the Continuing Airworthiness Manual (Doc 9642).

8.6 Modifications and repairs

All modifications and repairs shall comply with airworthiness requirements acceptable to the State of Registry. Procedures shall be established to ensure that the substantiating data supporting compliance with the airworthiness requirements are retained.

8.7 Approved maintenance organization

8.7.1 Issue of approval

8.7.1.1 The issue of a maintenance organization approval by a State shall be dependent upon the applicant demonstrating compliance with the requirements of 8.7 for such organizations.

8.7.1.2 The approval document shall contain at least the following:

a) organization's name and location;

b) date of issue and period of validity;

c) terms of approval.

8.7.1.3 The continued validity of the approval shall depend upon the organization remaining in compliance with the requirements of 8.7 for an approved maintenance organization.

8.7.2 Maintenance organization's procedures manual

8.7.2.1 The maintenance organization shall provide for the use and guidance of maintenance personnel concerned a procedures manual containing the information specified in 11.4.

8.7.2.2 The maintenance organization shall ensure that the procedures manual is amended as necessary to keep the information contained therein up to date.

8.7.2.3 Copies of all amendments to the procedures manual shall be furnished promptly to all organizations or persons to whom the manual has been issued.

8.7.3 Maintenance procedures and quality assurance system

8.7.3.1 The maintenance organization shall establish procedures, acceptable to the State granting the approval, which ensure good maintenance practices and compliance with all relevant requirements of this chapter.

8.7.3.2 The maintenance organization shall ensure compliance with 8.7.3.1 by either establishing an independent quality assurance system to monitor compliance with and adequacy of the procedures, or by providing a system of inspection to ensure that all maintenance is properly performed.

8.7.4 Facilities

8.7.4.1 The facilities and working environment shall be appropriate for the task to be performed.

8.7.4.2 The maintenance organization shall have the necessary technical data, equipment, tools and material to perform the work for which it is approved.

8.7.4.3 Storage facilities shall be provided for parts, equipment, tools and material. Storage conditions shall be such as to provide security and prevent deterioration of and damage to stored items.

8.7.5 Personnel

Chapter 8. Aeroplane Maintenance

November 5, 1998

Note 1. -- For the purpose of this chapter "aeroplane" includes: powerplants, propellers, components, accessories, instruments, equipment and apparatus including emergency equipment.

Note 2. -- Reference is made throughout this chapter to the requirements of the State of Registry. When the State of the Operator is not the same as the State of Registry, it may be necessary to consider any additional requirements of the State of the Operator.

Note 3. -- Guidance on continuing airworthiness requirements is contained in the Continuing Airworthiness Manual (Doc 9642).

8.1 Operator's maintenance responsibilities

8.1.1 Operators shall ensure that, in accordance with procedures acceptable to the State of Registry:

a) each aeroplane they operate is maintained in an airworthy condition;

b) the operational and emergency equipment necessary for an intended flight is serviceable;

c) the Certificate of Airworthiness of each aeroplane they operate remains valid.

8.1.2 An operator shall not operate an aeroplane unless it is maintained and released to service by an organization approved in accordance with 8.7, or under an equivalent system, either of which shall be acceptable to the State of Registry.

8.1.3 When the State of Registry accepts an equivalent system, the person signing the maintenance release shall be licensed in accordance with Annex 1.

8.1.4 An operator shall employ a person or group of persons to ensure that all maintenance is carried out in accordance with the maintenance control manual.

8.1.5 The operator shall ensure that the maintenance of its aeroplanes is performed in accordance with the maintenance programme.

8.2 Operator's maintenance control manual

8.2.1 The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance control manual, acceptable to the State of Registry, in accordance with the requirements of 11.2.

8.2.2 The operator shall ensure that the maintenance control manual is amended as necessary to keep the information contained therein up to date.

8.2.3 Copies of all amendments to the operator's maintenance control manual shall be furnished promptly to all organizations or persons to whom the manual has been issued.

8.2.4 The operator shall provide the State of the Operator and the State of Registry with a copy of the operator's maintenance control manual, together with all amendments and/or revisions to it and shall incorporate in it such mandatory material as the State of the Operator or the State of Registry may require.

8.3 Maintenance programme

8.3.1 The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance programme, approved by the State of Registry, containing the information required by 11.3. The design and application of the operator's maintenance programme shall observe Human Factors principles.

Note. -- Guidance material on the application of Human Factors principles can be found in Circular 216 (Human Factors Digest No. 1 -- Fundamental Human Factors Concepts), *Circular 238* (Human Factors Digest No. 6 -- Ergonomics) *and Circular 253* (Human Factors Digest No. 12 -- Human Factors in Aircraft Maintenance and Inspection).

8.3.2 Copies of all amendments to the maintenance programme shall be furnished promptly to all organizations or persons to whom the maintenance programme has been issued.

8.4 Maintenance records

8.4.1 An operator shall ensure that the following records are kept for the periods mentioned in 8.4.2:

a) the total time in service (hours, calendar time and cycles, as appropriate) of the aeroplane and all life limited components;

b) the current status of compliance with all mandatory continuing airworthiness information;

c) appropriate details of modifications and repairs to the aeroplane and its major components;

d) the time in service (hours, calendar time and cycles, as appropriate) since last overhaul of the aeroplane or its components subject to a mandatory overhaul life;

8.7.5.1 The maintenance organization shall nominate a person or group of persons whose responsibilities include ensuring that the maintenance organization is in compliance with 8.7 the requirements for an approved maintenance organization.

8.7.5.2 The maintenance organization shall employ the necessary personnel to plan, perform, supervise, inspect and release the work to be performed.

8.7.5.3 The competence of maintenance personnel shall be established in accordance with a procedure and to a level acceptable to the State granting the approval. The person signing a maintenance release shall be qualified in accordance with Annex 1.

8.7.5.4 The maintenance organization shall ensure that all maintenance personnel receive initial and continuation training appropriate to their assigned tasks and responsibilities. The training programme established by the maintenance organization shall include training in knowledge and skills related to human performance, including co-ordination with other maintenance personnel and flight crew.

Note. -- Guidance material to design training programmes to develop knowledge and skills in human performance can be found in Circular 216 (Human Factors Digest No. 1 -- Fundamental Human Factors Concepts)*; Circular 217* (Human Factors Digest No. 2 -- Flight Crew Training: Cockpit Resource Management (CRM) and Line-Oriented Flight Training (LOFT)*; Circular 217* (Human Factors Digest No. 3 -- Training of Operational Personnel in Human Factors)*; and Circular 253* (Human Factors Digest No. 12 -- Human Factors in Aircraft Maintenance and Inspection).

8.7.6 Records

8.7.6.1 The maintenance organization shall retain detailed maintenance records to show that all requirements for the signing of a maintenance release have been met.

8.7.6.2 The records required by 8.7.6.1 shall be kept for a minimum period of one year after the signing of the maintenance release.

8.7.7 Maintenance release

8.7.7.1 A maintenance release shall be completed and signed to certify that the maintenance work performed has been completed satisfactorily and in accordance with the procedures described in the maintenance organization's procedures manual.

8.7.7.2 A maintenance release shall contain a certification including:

a) basic details of the maintenance carried out;

b) date such maintenance was completed;

c) when applicable, the identity of the approved maintenance organization; and

d) the identity of the person or persons signing the release.

The Aviation Rulemaking Advisory Committee; Air Carrier and General Aviation Maintenance Issues (ARAC) is working to evaluate the current requirements of quality assurance programs for aeronautical repair stations and making recommendations whether the FAA should include such systems in the regulations. In order to better account for industry's opinions on this subject and collect factual data, the ARAC is soliciting industry input. Specifically, you are requested to address two of the subtasks from the FAA that the ARAC has accepted as are summarized below. These are:

Attachment 9

Subtask: Identify various options for regulating quality assurance programs and the advantages and disadvantages of each option. The ARAC has already determined that it will evaluate three options and that there are four elements to be considered as shown in the matrix. Please address each element for each option. There is also a "Prefer" column to indicate your preferred option for addressing quality assurance in the repair station industry.
Subtask: Provide information on the economic impact of applying the various options to the different segments of the repair station industry.

The data and costs provided by individual respondents will be accumulated into the overall estimates summarized by the ARAC and provided to the FAA. Individual information will not be made available to the FAA.

Instruction Information for Completing the Matrix: For the purposes of the cost-benefit analysis for the ARAC's technical report it is assumed that the entire regulatory quality system will be audited once a year. Additionally, please assume the corrective action that will be required by new section 145.211(c)(ix) will be incorporated into the quality assurance elements listing in the matrix, if it is found during an audit.

I. The cost and benefits portion of the matrix can be filled out in 2 ways:
(1) Generically, by providing information on how such cost and benefits will depend on size, location, and complexity of the operation; or,
(2) Specifically, by being as detailed as possible. At a minimum detalied cost estimates should include the manhours and type of personnel need to perform each of the functions required to accomplish (a)-(h) below.

In either case, please consider all the cost elements including, but not limited to:

(a) Developing a compliance document for the Repair Station Manual that incorporates each of the four "quality assurance" elements.
(b) Development of the auditor training and job requirements. Note: this may be a part time use of an existing employee.
(c) Training, as necessary, the auditor(s).
(d) Development of the audit checklist for the individual repair station.
(e) Developing a system to track findings and follow-up. This may include a computer or use thereof.
(f) Estimating the time necessary to perform the audits and follow up.
(g) Developing and maintaining the audit report for management
(h) Estimating the time to prepare and conduct a management review of the quality system

II. For respondents without maintenance facilities, it is important that you estimate the savings that you expect to receive by implementation of the Quality Assurance elements at a repair station vendor.

III. In the "Prefer" column indicate the order of preference for each option. "1" is most favored and "4" is least favored.

Indicate whether respondent is a repair station □; air carrier □; or "Part 91" entity □; or specify_____.
Indicate maintenance shop population, if applicable_____.

Option 1	**Prefer**	**Pro**	**Con**	**Economic Impact.** Include both initial cost for implementation and annual cost. If you currently have a similar system, use that for your cost basis.	
				Costs in manhours plus any fixed costs	**Savings**
Require all repair stations to include the 4 QA elements in their quality systems under Part 145		Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Initial Manhours of: Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost Recurring (Annual) Manhours Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cos t	

Option 2	Prefer	Pro	Con	**Economic Impact.** Include both initial cost for implementation and annual cost. If you currently have a similar system, use that for your cost basis.	
				Costs in manhours plus any fixed costs	**Savings**
Regulate only those repair stations working for a 121/125/129/135 with a continuous airworthiness maintenance program		Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Initial Manhours of: Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost Recurring (Annual) Manhours of Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost	

Option 3	Prefer	Pro	Con	**Economic Impact.** Include both initial cost for implementation and annual cost. If you currently have a similar system, use that for your cost basis.	
				Costs in manhours plus any fixed costs	**Savings**
No regulations, voluntary only		Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Initial Manhours of: Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost Recurring (Annual) Manhours of Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost	
Do you current have a system that substantially meets includes the Quality Elements described above for other reasons, such as JAA or other regulatory agency requirement, industry requirement or as a best practice? Yes ☐ No ☐					

Best Practice
Internal Quality Audit Program

SCOPE OF THIS PRACTICE. This document provides information that may be used by Production Approval Holders (PAH's), operating under Title 14 Code of Federal Regulations (14 CFR) part 21, Certification Procedures for Products and Parts (part 21), to design and implement an internal quality audit program. The procedures and practices outlined in this document can be applied to all aerospace industry manufacturers. This document also incorporates a section on corrective action that discusses the role of root cause corrective action in addressing quality system deficiencies.

Although there is no regulatory requirement for an internal quality audit program, the Federal Aviation Administration (FAA) encourages such a program, to increase the awareness of management and all employees of their responsibility to promote continuous compliance with all regulatory requirements and good operating practices. Establishing the type of program described in this document is voluntary.

BACKGROUND. Since the advent of the FAA Aircraft Certification Systems Evaluation Program (ACSEP), PAH's are finding some of their quality system deviations to be repetitive. This indicates that corrective actions identified and implemented by the PAH's do not always rectify the root cause of the deviations. Use of an effective internal quality audit program and a corrective action system will promote identification and resolution of such quality system deviations.

DEFINITIONS. The following definitions apply to the discussion in this document and may not be the same as similar terms used in other documents or applications:

a. Finding. A conclusion, supported by objective evidence, that there has been or is a process or product that is deficient in meeting the requirements of an established standard.

b. Observation. A noteworthy feature of a system or procedure. The feature noted may be positive or negative. All observations should be brought to the attention of management to ensure that the feature is corrected, preserved, or perhaps adopted in other places.

c. Internal Audit. A comprehensive, continual monitoring process that is initiated and managed by top quality assurance (QA) management. The personnel conducting the various audits in support of the internal quality audit program may be internal or external to the process. The objective of this process is to promote attitudes and procedures that focus on controlling processes, rather than depending on corrections of deficiencies, to meet quality goals.

INTERNAL QUALITY AUDIT PROGRAM. An internal quality audit program should be part of the overall quality system, be approved by top QA management, and have a detailed written description of the key elements of the program. Each PAH is unique with regard to size, facilities, personnel, resources, and methods of operation. Therefore, different types of programs

Attachment 5

may be appropriate for individual organizations. The three basic audit programs commonly used are: (1) a dedicated internal quality audit department; (2) a dedicated individual manager with part-time auditors provided from throughout the organization; and (3) a combination of internal and external resources. The most critical elements of an audit program are: (1) an adequate level of independence; (2) a reporting process that ensures an accountable manager is aware of the audit results; and (3) an effective corrective action process to correct deficiencies and prevent recurrence of deficiencies. The program should have a structure and process designed to improve all system elements/processes that affect product quality. The key elements of an internal quality audit program are:

a. Audit Planning.

(1) Audit Schedules. Specific audit schedules should be developed to identify areas/activities subject to audit and assure they are audited in a predetermined frequency and defined timeframe. Audit schedules should be based on the criticality of the activity being audited, with consideration to factors such as audit result history, production volume, process performance, high-risk areas, and management concerns. As circumstances change, the schedule may require adjustment.

(2) Auditor Selection. The internal quality audit program should specify that evaluators receive training in auditing, audit principles, and systems analysis techniques. This training could be from any one, or a combination of, the following sources:

(a) Employer-provided training course or on-the-job training.
(b) College courses.
(c) Home study course materials.
(d) Industry seminars and workshops.

When full-time dedicated audit resources are not practical, developed procedures should show that persons performing audits or supervising audit teams do not have direct responsibility for the areas being audited.

When two or more auditors are assigned to an audit, management should designate a Lead Auditor or Team Leader to be responsible for coordination, planning, audit assignments, observation classifications, presentations, and reports.

(3) Audit Preparation. One of the most important audit activities, and often the least considered, is preparation for the audit. As a first step, an auditor needs to be cognizant of internal requirements, external requirements, and other factors that may impact the process. A few examples of these influences within the aviation environment include:

(a) Regulatory requirements.
(b) FAA guidance and policy.
(c) Contractual requirements.
(d) Corporate/Company requirements.

(e) Organization quality manual.
(f) Unusual processes.
(g) New technology.
(h) Critical parts and processes.
(i) Equipment and facilities.
(j) Safety.

An auditor should use current FAA programs and materials, available through the local MIDO and/or the AIR-200 Home Page at http://www.faa.gov/avr/air/air200/200home.htm, to ensure that the audit program addresses appropriate requirements.

(4) Checklist Development. An essential part of planning an audit involves development of an appropriate checklist. A thorough audit program will be designed to determine and evaluate how an organization's quality manual, operating procedures, process controls, methods, and practices account for and incorporate all internal and external requirements. The auditor must study these criteria and translate them into a well defined checklist. On the simplest level, a checklist denotes points to be checked and helps the auditor determine the correct order in which to proceed with an audit. A checklist supplements an auditor's memory and provides the basis for reconstructing an audit trail. In essence, a checklist question is the transposition of a standard, regulation, or procedural requirement into a question.

b. Conducting the Audit. An auditor needs objective evidence to answer audit questions. The audit checklist should be used by the auditor to gather this evidence to determine compliance or noncompliance to the quality system and/or standard being evaluated against. Evidence is gathered via review of parts, documents, observation of activities, record checks, and interviews with key individuals in the area(s) under review. Evidence gathered during the audit should be documented as the audit is conducted, and preliminary results should be shared with the auditee as each step of the audit is completed. Upon completion of an audit, results are presented to cognizant management to assure full understanding of the findings/observations before a written report is prepared.

c. Reporting the Results. A report should be prepared documenting the results of the audit. Procedures should be in place that allow straightline reporting of the audit team to top QA management. The audit report should include, at a minimum:

(1) Date the audit was conducted.
(2) Auditor performing the audit.
(3) Standard/procedure the audit was conducted against (i.e., part 21, internal procedure, etc.).
(4) Summary of findings, including brief descriptions of the findings and supporting references to related procedures, records, etc.
(5) Evaluation and relative importance of a finding. A single occurrence of a deficiency that posed no risk to a deliverable product might be considered a "minor" finding. Conversely, multiple occurrences of a deficiency indicating a trend or a deficiency posing risk to a deliverable product, might be considered a "major" or "critical" finding.

(6) Summary of observations, both positive and negative.

d. Corrective Action Plan Development and Implementation. It is the responsibility of the process owner to analyze the audit report, determine root causes of deficiencies, develop a corrective action plan to address the root cause of the deficiency, correct existing deficiencies, and prevent recurrence of the deficiencies in the future. Top QA management is responsible for corrective action validation, verification, and follow-up reviews associated with the internal quality audit process.

(1) Determination of Root Cause. The key to determining root cause is to identify underlying causes (a fundamental breakdown or failure of the process), not effects. Some questions to ask in determining root cause can include:

(a) Is the company policy/procedure clear?
(b) Does the procedure address who does what and when?
(c) Does the procedure/training correctly address how to perform the process?
(d) Does the process consistently produce the desired outcome?
(e) Have the employees been trained to perform the process?
(f) Have the employees been trained on revisions to the process?
(g) Has the process been tested for human factors issues (fatigue, ergonomics)?
(h) Has the equipment (tooling, gauges, machinery) been maintained and calibrated?
(i) Is the equipment adequate/correct for the process?
(j) Is the material appropriate for the application/process?
(k) Is there a material deficiency?
(l) Is the training program adequate?

Once arriving at the suspected root cause, begin asking "why?" CONTINUE to ask "why" until you reach an answer that is fundamental to the organization (company policies/procedures, systems, training, etc.) or is fundamental to the environment (weather, gravity, momentum, etc.).

(2) Development of the Corrective Action Plan. Based on determination of the root cause, prepare a written plan (including actions, implementation dates, and responsible personnel) to be implemented to correct the deficiency and remove the root cause to prevent recurrence.

(3) Approve the Corrective Action Plan. Prior to implementation, the process owner and QA management should review the corrective action plan for concurrence and approval.

(4) Implement the Corrective Action. The process owner implements the process changes as defined in the corrective action plan.

(5) Validate the Corrective Action. Upon completion of corrective action implementation, QA management should verify that the process changes were effective in correcting the existing deficiency and preventing recurrence. If the validation process indicates that the corrective action was not effective, the process owner will initiate additional corrective

action and notify QA management of the new corrective action implementation plan. Revalidation of new corrective action should be built into the implementation plan to ensure long-term consistency.

e. Close the Audit Findings. After indication of completion from the process owner, QA management will verify that the process changes were effective in correcting the existing deficiency and preventing recurrence. If the verification process indicates that the corrective action was not effective, QA management will request additional corrective action and revalidation from the process owner.

f. File Report. Audit reports, including corrective action and closure data, should be maintained on file for a minimum or two years, and be accessible for reference by future auditors.

g. Process Flow Map. A process flow map for the audit process described above can be found in Appendix 1.

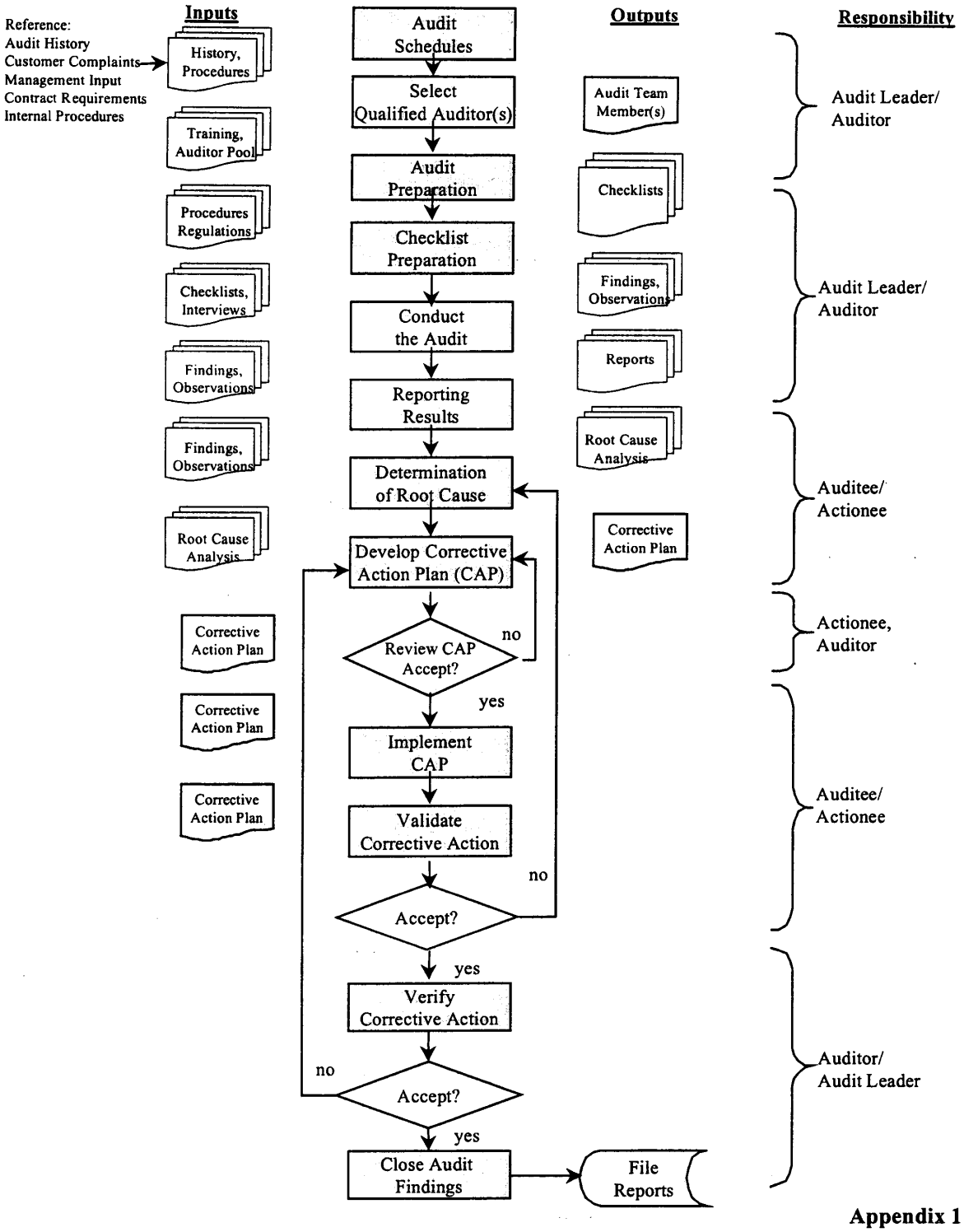
CONCLUSION. Development of internal quality audit programs, as discussed in this document, should help to ensure that company policies and procedures are responsive to growth, change, and continual compliance with requirements. Furthermore, the FAA strongly encourages PAH's to make internal quality audit programs an integral part of their management process and take full advantage of the FAA Voluntary Disclosure Program. Information and guidance on this program may be found in FAA Advisory Circular (AC) 00-58, Voluntary Disclosure Reporting Program. This program allows, in most cases, the FAA to consider foregoing civil penalty when a part 21 approval holder has promptly disclosed to the FAA an apparent violation and has taken prompt action to correct the violation and prevent its recurrence. A copy of this AC may be obtained by mail. Send written request to:

U.S. Department of Transportation
Subsequent Distribution Office, SVC-121.23
Ardmore East Business Center
3341Q 75th Avenue
Landover, MD 20785

Aviation safety is best served by programs that allow PAH's to identify and correct system deficiencies, rather than expend significant resources correcting system breakdowns, recalling, replacing/repairing products, and facing FAA compliance and enforcement actions.

Nothing Follows

Internal Quality Audit Process Map



Appendix 1

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

GENERAL AVIATION MANUFACTURERS ASSOCIATION
1400 K STREET, NW., SUITE 801
WASHINGTON, DC 20005

MEETING AGENDA

FEBRUARY 21, 2002

- Opening remarks and committee administration.
- Discussion of quality assurance for aeronautical repair stations
- Lunch
- Discussion of quality assurance for aeronautical repair stations
- Discussion of future meeting dates and locations
- Adjourn

Attachment 7

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

FEBRUARY 21, 2002

MEMBER (M) NON-MEMBER (N)	NAME	AFFILIATION	TELEPHONE/ FAX NUMBER	E-MAIL ADDRESS
N	DIANA L. FROHN	FAA	202 · 267 · 7027 FAX: 202 · 267 · 5115	diana.frohn@faa.gov
M	Ric Anderson	Air Transport Assn (ATA)	202-626-4134 -6576	randerson@airlines.org
M	MIKE WHISSELL	TRANSPORT CANADA	613 952-9104 613 952-3298	whissem@tc.gc.ca
M	DAVID SCHOBER	PAMA	202 730 0264 202 730 0259	DSCHOBER@PAMA.ORG
M	CHAD BIERMAN	Aviation Suppliers Assn	202-478-5424 -5426	Chad.Bierman@WashingtonAviation.com
M	LANCE Nuckolls	AOPA	301-695-2086 301-631-2214	LANCE.Nuckolls@aopa.org
N	JOE SIRICO	UTC / PEW	860-565-6233 860-755-4538	siricojj@pwch.com
M	C.H. "SKIP" JONES	AIA	202-371-8433 371-8471	jones@AIA-AEROSPACE.org
M	ROSE SCOONES	BOEING	425 237 4716 (F) 425 237 9866	Rosita.M.Scoones@boeing.com
N	Curtis Gelber	DOT / OIG	404 562-3797	Curtis.S.Gelber@oig.dot.gov
N	Mike Leibrecht	DOT / OIG	404 562-3788	mike.j.leibrecht@oig.dot.gov

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

FEBRUARY 21, 2002

MEMBER (M) NON-MEMBER (N)	NAME	AFFILIATION	TELEPHONE/ FAX NUMBER	E-MAIL ADDRESS
M	Janice Maniatis	MASAF	770.486.5630	jmaniati@att.net
M	Jim Gess	IPA	770-306-1307	jgess@ipapilot.org
M	WALTER DESROSIER	GAMA	202 637-1379	WDESROSIER@GENERALAVIATION.ORG
M	SARAH MACLEOD	ARSA | Assistant Chair for ARAC	703.739.9543 | 9488	sarahsays@arsa.org
M	DAVID SMITH	Jet Aviation NATA	telephone in	
M	CHRIS LEONARD	ISAMP	telephone in	
	DAVE CANN	FAA	202-267-3546	Dave.Cann@FAA.Gov
N	Vanessa Wilkins	FAA	202-267-8029 (P) 202-267-5015 (F)	Vanessa.wilkins@faa.gov
N	RALPH MALCOLM	AVIATION CONSULTING	703-254-1672	N4RM@STARPOWER.NET
	Susanne Johnson	FAA	~~202~~ 202-493-4521	susanne.johnson@faa.gov

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

FEBRUARY 21, 2002

MEMBER (M) NON-MEMBER (N)	NAME	AFFILIATION	TELEPHONE/ FAX NUMBER	E-MAIL ADDRESS
N	Robert Moten	FAA	202-267-3813	Robert.Moten@FAA.Gov
N	Steve Serdikoff	Phaneuf Assoc. Inc.	(202)898-1410	serdikoff@earthlink.net
N	JOE BUTTNER	DALLASAIRMOTIVE-MILLVILLE	856-825 6000 ext 8	JBUTTNER@DALLASAIRMOTIVE.COM

DRAFT 2/21/02 @ 16:00

Memo

To: ARAC Maintenance Issues Group

From : Sarah

Date:

Re: QA Assignment

Following is a rough, rough outline of the technical report contents. Your assignment is to review only the last page, which is a matrix regarding the pros/cons and cost/benefits of three options for "regulating quality assurance programs."

Technical Report

- Identify QA systems currently used by some repair stations: Committee reviewed current industry quality system elements and matched them to regulatory requirements (see matrix).

- Presented below are the 4 elements that, for the purposes of this technical report, the committee believes are not explicitly required by current regulations.

1. Auditing.

2. Root-cause determination.

3. Corrective action and follow-up.

4. Management review.

Auditing:

- **What:** RS is auditing its operation to ensure that (1) the manual content conforms with the regulations and (2) the operations conform with the manual.
- **How:** Documentation:
    - audit system (methodology, etc.)
        - Should include:
            - ***Audit schedule***: Can be broken into any frequency, provided the entire organization is verified within the applicable interval.
            - ***Auditor selection*** (for internal audits) (Whenever possible, the person performing the audit should not be responsible for those tasks being audited.)
            - ***Audit preparation***: review the regulations and the manual with respect to the area being audited.
            - ***Checklist development:*** On the simplest level, a checklist denotes points to be checked.
            - ***Conducting the audit:*** Gather data to determine compliance or noncompliance with the standard.

Attachment 8

- ***Record of audit:*** Objective evidence that the audit was conducted in accordance with the program and would include the remaining elements (root-cause, corrective and preventative action and follow-up, and management review).

- **Who:** Whoever is identified in the RS audit procedures and evaluates the same items.

The next 3 elements should be performed under 2 instances:

1. After performing an audit.
2. After finding a failure/non-conformity (when you have a QC discrepancy - 145.211(c)(ix)).

Root-cause determination: Timely analysis of the finding to identify the fundamental breakdown or failure of the system that, when resolved, prevents a recurrence of the problem.

a. Resolve the immediate problem in accordance with 145.211(c)(ix),
b. Determine if other products or systems elements are impacted and where other product is.

Corrective Action and Follow-up:

- Timely preparation and implementation of a plan to remove the root cause.
  - Actions (immediate/short/long term)
  - Implementation dates
  - Responsible personnel
- Validation of corrective action.

Management Review:

- The accountable manager is responsible for reviewing audit documentation to ensure that the RS personnel comply with the regulatory requirements. This may include trend analysis of past audit results.

Identify various options for regulating quality assurance programs (the 4 elements) and the advantages and disadvantages of each option.

Provide information on the economic impact of applying the various options to the different segments of the repair station industry

Option	Pro	Con	Economic Impact (broken down between air carrier, part 91, and shop size)	
			Costs	Benefits
Regulate all repair stations under the concepts outlined above				
Regulate only those repair stations working for a 121/125/129/135 with a continuous airworthiness maintenance program				
No regulations, voluntary only				

The cost and benefits can be filled out in 2 ways: Generic information such as cost and benefits will depend on size, location, and complexity of the operation. For the purposes of cost-benefit analysis for this technical report it is assumed that the entire system will be audited once a year. The committee members will attempt to provide specific cost-benefit information on various segments of their membership. The individual company analysis should include (Joe and others will provide specifics for this element) the cost of developing, implementing, and maintaining the system by man hours and type of personnel performing the function.

Recommend (if possible) a preferred quality assurance program/system

The Aviation Rulemaking Advisory Committee; Air Carrier and General Aviation Maintenance Issues (ARAC) is working to evaluate the current requirements of quality assurance programs for aeronautical repair stations and making recommendations whether the FAA should include such systems in the regulations. In order to better account for industry's opinions on this subject and collect factual data, the ARAC is soliciting industry input. Specifically, you are requested to address two of the subtasks from the FAA that the ARAC has accepted as are summarized below. These are:

Attachment 9

Subtask: Identify various options for regulating quality assurance programs and the advantages and disadvantages of each option. The ARAC has already determined that it will evaluate three options and that there are four elements to be considered as shown in the matrix. Please address each element for each option. There is also a "Prefer" column to indicate your preferred option for addressing quality assurance in the repair station industry.
Subtask: Provide information on the economic impact of applying the various options to the different segments of the repair station industry.

The data and costs provided by individual respondents will be accumulated into the overall estimates summarized by the ARAC and provided to the FAA. Individual information will not be made available to the FAA.

Instruction Information for Completing the Matrix: For the purposes of the cost-benefit analysis for the ARAC's technical report it is assumed that the entire regulatory quality system will be audited once a year. Additionally, please assume the corrective action that will be required by new section 145.211(c)(ix) will be incorporated into the quality assurance elements listing in the matrix, if it is found during an audit.

I. The cost and benefits portion of the matrix can be filled out in 2 ways:
(1) Generically, by providing information on how such cost and benefits will depend on size, location, and complexity of the operation; or,
(2) Specifically, by being as detailed as possible. At a minimum detalied cost estimates should include the manhours and type of personnel need to perform each of the functions required to accomplish (a)-(h) below.

In either case, please consider all the cost elements including, but not limited to:

(a) Developing a compliance document for the Repair Station Manual that incorporates each of the four "quality assurance" elements.
(b) Development of the auditor training and job requirements. Note: this may be a part time use of an existing employee.
(c) Training, as necessary, the auditor(s).
(d) Development of the audit checklist for the individual repair station.
(e) Developing a system to track findings and follow-up. This may include a computer or use thereof.
(f) Estimating the time necessary to perform the audits and follow up.
(g) Developing and maintaining the audit report for management
(h) Estimating the time to prepare and conduct a management review of the quality system

II. For respondents without maintenance facilities, it is important that you estimate the savings that you expect to receive by implementation of the Quality Assurance elements at a repair station vendor.

III. In the "Prefer" column indicate the order of preference for each option. "1" is most favored and "4" is least favored.

Indicate whether respondent is a repair station □; air carrier □; or "Part 91" entity □; or specify_____.
Indicate maintenance shop population, if applicable_____.

Option 1	**Prefer**	**Pro**	**Con**	**Economic Impact.** Include both initial cost for implementation and annual cost. If you currently have a similar system, use that for your cost basis.	
				Costs in manhours plus any fixed costs	**Savings**
Require all repair stations to include the 4 QA elements in their quality systems under Part 145		Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Initial Manhours of: Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost Recurring (Annual) Manhours Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cos t	

Option 2	Prefer	Pro	Con	**Economic Impact.** Include both initial cost for implementation and annual cost. If you currently have a similar system, use that for your cost basis.	
				Costs in manhours plus any fixed costs	**Savings**
Regulate only those repair stations working for a 121/125/129/135 with a continuous airworthiness maintenance program		Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Initial Manhours of: Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost Recurring (Annual) Manhours of Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost	

Option 3	Prefer	Pro	Con	**Economic Impact.** Include both initial cost for implementation and annual cost. If you currently have a similar system, use that for your cost basis.	
				Costs in manhours plus any fixed costs	**Savings**
No regulations, voluntary only		Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Audit of quality system Root Cause Analysis of Findings Corrective Action/Follow-up Management Review	Initial Manhours of: Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost Recurring (Annual) Manhours of Hourly ____ Supervisory/ Admin _____ Management ____ Material/system Cost	
Do you current have a system that substantially meets includes the Quality Elements described above for other reasons, such as JAA or other regulatory agency requirement, industry requirement or as a best practice? Yes ☐ No ☐					

presentations no later than 3 business days before a meeting.

ADDRESSES: The meetings will be held at the General Aviation Manufacturers Association, 1400 K Street, NW., Suite 801, Washington, DC 20005.

FOR FURTHER INFORMATION CONTACT: Vanessa R. Wilkins, Federal Aviation Administration, Office of Rulemaking (ARM–207), 800 Independence Avenue, SW., Washington, DC 20591, telephone (202) 267–8029; fax (202) 267–5075.

SUPPLEMENTARY INFORMATION: Pursuant to 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92–463; 5 U.S.C. App II), notice is here by given of two meetings of the Aviation Rulemaking Advisory Committee to discuss air carrier and general aviation maintenance issues. The meetings will be held on January 31 and February 20–21, 2002, from 9 a.m. to 5 p.m. at the General Aviation Manufacturers Association, 1400 K Street, NW., Suite 801, Washington, DC 20005.

On January 31, the committee will discuss ratings for aeronautical repair stations. On February 20, and 21, the committee will discuss quality assurance systems for aeronautical repair stations.

Attendance is open to the interested public, but will be limited to the space available. The FAA will arrange teleconference capability for individuals to participate by teleconference if we receive notification no later than 3 business days before each meeting. Arrangements to participate by teleconference can be made by contacting the person listed in the **FOR FURTHER INFORMATION CONTACT** section. Callers outside the Washington metropolitan area will be responsible for paying long distance charges.

To present oral statements at a meeting, members of the public must make arrangements no later than 3 business days before the meeting. The public may present written statements to the committee at any time by providing 25 copies to the Assistant Executive Director, or by bringing the copies to the meeting. In addition, sign and oral interpretation can be made available at the meeting, as well as an assistive listening device, if requested no later than 10 business days before the meeting. Arrangements may be made by contacting the person listed under the heading **FOR FURTHER INFORMATION CONTACT**.

Issued in Washington, DC, on January 11, 2002.

David E. Cann,

Assistant Executive Director, Aviation Rulemaking Advisory Committee.

[FR Doc. 02–1483 Filed 1–16–02; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement: Lancaster County, Pennsylvania

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of Intent.

SUMMARY: The FHWA is issuing this notice to advise the public that an Environmental Impact Statement will be prepared for the SR 30 Section S01 (US 30) corridor in East Lampeter Township, Salisbury Township, Leacock Township, and Paradise Township, Lancaster County, Pennsylvania.

FOR FURTHER INFORMATION CONTACT: Deborah Suciu Smith, Environmental Specialist, Federal Highway Administration, 228 Walnut Street, Room 536, Harrisburg, Pennsylvania 17101–1720, Telephone: 717–221–3785, or Larry Graeff, Project Manager, Pennsylvania Department of Transportation 2140 Herr Street, Harrisburg, Pennsylvania 17103, Telephone 717–783–5119.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the Pennsylvania Department of Transportation (PENNDOT) and the Lancaster County Planning Commission, will prepare an Environmental Impact Statement (EIS) to identify and evaluate alternatives to address transportation problems within the SR 30 Section S01 corridor. The proposed project study area runs approximately from the PA 896/U.S. 30 intersection on the west and the PA 897/U.S. 30 intersection on the east, including the intersection with PA 41.

Notices of Intent concerning this proposal were previously published in the **Federal Register**. The Notice published on February 27, 1987 described a two-phase approach to identify and evaluate alternatives that would provide a variable means of relieving traffic congestion on Traffic Route (T.R.) 23 and US 30 in Eastern Lancaster County, Pennsylvania. The Notice published on June 16, 1988 announced that separate Environmental Impact Statements to evaluate alternatives for the two projects would be prepared.

Improvements to the corridor are considered necessary to provide for the existing and project traffic demand. A needs study has been undertaken and a range of transportation alternatives, including but not limited to No-Build, Transportation Systems Management (TSM), widening the existing three-lane highways to five lanes, bypasses around communities, and constructing a four-lane limited access highway on new location will be considered. These alternatives will be developed consistent with land use strategies to address the identified transportation needs. The development of alternatives will be based on traffic demands, engineering requirements, environmental and socioeconomic constraints, the county's growth management plan, and public input. Public involvement and inter-agency coordination will be maintained throughout the development of the EIS.

To issue that the full range of issues related to this proposed action are addressed and that all significant issues are identified, comments and suggestions are invited from interested parties. Comments or questions concerning this proposed action and the EIS should be directed to the FHWA at the address above.

(Catalog of Federal Domestic Assistant Program Number 20, 205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Issued on: January 15, 2002.

James A. Cheatham,

Division Administrator, Federal Highway Administration, Harrisburg, Pennsylvania.

[FR Doc. 02–1454 Filed 1–18–02; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement: Lehigh and Northhampton Counties, Pennsylvania; Cancellation of the Notice

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Cancellation of the notice of intent.

SUMMARY: This notice rescinds the previous Notice of Intent (issued May 8, 2000) to prepare an Environmental Impact Statement for a proposed highway project along U.S. Route 22 between its interchanges with Interstate 78 to the west and State Route 248 to