

SECTION 01700 – CONTRACT CLOSE-OUT

PART 1 – GENERAL

1.1 SUMMARY

- A. This section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
1. Inspection procedures.
 2. Project record document submittal.
 3. Operation and Maintenance manual submittal.
 4. Submittal of warranties.
 5. Final Cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 17.

1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following., List exceptions in the request.
1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
 - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 2. Advise the Government of pending insurance changeover requirements.
 3. ~~Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.~~
 5. Obtain and submit releases enabling the Government unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
 6. Deliver tools, spare parts, extra stock, and similar items.
 7. Make final changeover of permanent locks and transmit keys to the Government. Advise the Government's personnel of changeover in security provisions.
 8. Complete startup testing of systems and instruction of the Government's operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.
 9. Complete final cleanup requirements, including touchup painting.
 10. Touch up and otherwise repair and restore marred, exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, the COR shall either proceed with inspection or advise the Contractor of unfilled requirements. The COR shall

prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate shall be issued

1. The COR shall repeat inspection when requested and assured that the work is substantially complete.

2. Results of the completed inspection shall form the basis of requirements for final acceptance

1.3 FINAL ACCEPTANCE

A. preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the Government's final inspection list of items to be completed or corrected, endorsed and dated by the Government. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Government

4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the Government took possession of and assumed responsibility for corresponding elements of the Work.

5. Submit consent of surety to final payment.

6. Submit a final liquidated damages settlement statement

7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: The Government shall re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Government.

1. Upon completion of re-inspection, the Government shall prepare a certificate of final acceptance. If the Work is incomplete, the Government shall advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, re-inspection shall be repeated.

1.4 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the COR's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
2. Mark new information that is important to the Government but was not shown on Contract Drawings or Shop Drawings.
3. Note related change-order numbers where applicable. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual 1-copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.

1. Mark these document to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned, later by direct observation.
3. Note related record drawing information and Product Data.
4. Upon completion of the Work, submit record Specifications to the COR for the Government's records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.

1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
3. Upon completion of markup, submit complete set of record Product Data to the COR for the Government's records.

E. Record Sample Submitted: Immediately prior to Substantial Completion, the Contractor shall meet with Government's personnel at the Project Site to determine which Samples are to be transmitted to the Government for record purposes. Comply with the Government's instructions regarding delivery to, the Owner's Sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify

miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the COR for the Government's records.

G. **Maintenance Manuals:** Organize operation and maintenance data into suitable sets of manageable size. Band properly indexed data in individual, heavy-duty, 2-inch (51-ram), 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions.
2. Spare parts list.
3. Copies of warranties.
4. Wiring diagrams.
5. Recommended "turn-around" cycles.
6. Inspection procedures.
7. Shop Drawings and Product Data.
8. Fixture lamping schedule

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 CLOSE-OUT PROCEDURES

A. **Operation and Maintenance Instructions:** Arrange for each Installer of equipment that requires regular maintenance to, meet with Government's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts, and materials: ,,,
4. Tools.
5. Lubricants,,
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements sand similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Startup.
2. Shutdown.
3. Emergency, operations.
4. Noise and vibration adjustments.
5. Safety procedures.

- 6. Economy and efficiency adjustments.
- 7 Effective energy utilization.

3.2 FINAL CLEANING

- A. General: The General Conditions requires general cleaning during construction. Also, refer to Section 01710 "Cleaning". ..
 - B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal., commercial building, cleaning and maintenance program. Comply with manufacturer's instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial! Completion.
 - a. Remove labels that are not permanent labels.
 - b. Clean transparent materials;, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass anti other damaged transparent materials.
 - c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 - d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 - e. Clean the site, including a landscape development areas; of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stairs, spills, and other foreign deposits. Rake grounds that are: neither paved nor planted to a smooth, even-textured surface.
 - C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests.
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- D. Removal: of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
 - E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Government's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.
 - 1. Where extra materials of value remain after completion of associated Work, they become the Government property. Dispose of these :materials as directed by the Government.

END OF SECTION 01700

SECTION 01710 .. CLEANING

PART 1 - GENERAL

1.1 SUMMARY

A. Just prior to occupancy of the building by the Government, and prior to Contract Acceptance Inspection (CAI), perform a thorough cleaning of the site, buildings, and other structures.

B. Related Section:

1. Section 0.1510, "Temporary Facilities."

1.2 SUBMITTALS

A. Submit in accordance with Section 01300, "Submittals," and include the following:

1. Record of Finishes
2. Maintenance Instructions

B. Provide a typewritten description of finish materials along with a list of the cleaning products recommended by the manufacturer. Place forms in the appropriate Section of the O & M Manual. Refer to Section 01700, "Contract Closeout." Describe maintenance needed, including daily, weekly, and monthly maintenance instructions. Complete a Maintenance: Instruction Form for the following:

1. Vinyl Composition Tile
2. Acoustical Tile
3. Paint

PART 2 - PRODUCTS

2.1 MATERIALS

A. Furnish materials and equipment needed for cleaning and waxing purposes. Use cleaners and waxes recommended by the manufacturer for the individual material.

PART 3 - EXECUTION

3.1 SITE CLEANING

A. Maintain site in clean condition at all times. At the end of each workday, gather all loose trash and debris from around site and place in trash containers or remove from site. Do not stack trash or other construction debris on the ground or in the open. Place trash in closed containers. Do not allow trash or debris to become airborne; blow around or blow off site.

3.2 ROUTINE CLEANING

- A. Routinely clean buildings to remove all construction debris, packing crates, wrappings, packing materials, or other trash. Each trade is responsible to remove trash and debris resulting from his operations.
- B. Maintain entire space of buildings in a clean condition at all times. Once partitions have been installed, maintain spaces in a "broom-clean" condition. Prior to installation of finishes and paint, thoroughly clean spaces of trash and debris, sweep floors clean and mop to remove dust.

3.3 FINAL CLEANING

- A. Thoroughly clean the entire building; and make ready for occupancy. Remove construction debris, boxes and trash. Clean entire site, removing all trash from the site. Remove construction storage sheds and field, offices and restore grade to match surrounding conditions. Remove excess dirt and complete sitework.
 - B. Clean floor and inspect for damage. Replace damaged flooring. Remove paint drippings and other spillage. Sweep floors clean, then mop repeatedly until thoroughly clean, including equipment rooms. Clean resilient flooring with an approved cleaner and give one coat application of liquid floor polish as recommended by the flooring manufacturer. Polish floors to buffed appearance with powered floor buffer. Remove oil, grease and other contaminants from concrete floors, then mop repeatedly until thoroughly clean.
 - C. Clean and polish inside and outside surfaces of glass. After washing with window cleaner and water, apply a coat of high quality glass polish and wipe clean. Clean and polish mirrors to a clear luster, free of smears or dried polish. Do not scratch or otherwise mar glass surfaces.
 - D. Clean wall surfaces to remove dirt or scuff marks. Remove excess adhesive along top edges of wall base.
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- E. Inspect acoustical tile. Align tile to fit properly in grid. Replace cracked or damaged tile. Remove smear marks and other dirt from tile. Clean surface and grid system.
 - F. Inspect painted surfaces. Spot paint nicks and other damage. If spot painting does not blend into the existing color and texture of the surrounding surfaces, repaint wall from inside copier to inside corner.
 - G. Clean plumbing fixtures, faucets, aerators, valves and trim. Remove labels and adhesive from fixtures. Polish strainers. Polish exposed chrome or brass.
 - H. Clean mechanical rooms. Remove shipping labels, tape, tape residue, dirt and dust from equipment and apparatus with vacuum or compressed air. Remove oil, grease and other contaminants from floors and equipment. Remove and clean screens at strainers in piping systems. Clean insects, debris, and dust from louver screens.

END OF SECTION 01710

**PART - III SECTION J
ATTACHMENT J.4**

CONTRACTOR ACCEPTANCE INSPECTION REPORT COVER SHEET					Location (City/State)								
Cost Center Code		Location Ident.		Facility Alpha Code		Facility Ident. Code		S	C	F	T	M	Runway No.
Delivery Order No.		Contract No.		Designated Lead Project Yes _____ No _____				Dates of Final CAI					
Engineering Plan/Project:							Dates of Commissioning/Restoration						
Brief Description of Project:													
Type of CAI PLANTS _____ FINAL _____ ELECTRONICS _____ PARTIAL NO. _____							Previous Partial CAI's (Nos./Date)						
Number of Exceptions: Major: _____ Minor: _____			No. of CAI Reports Exception List and Clearances Record Sheets Attached: _____					Number of Design Deficiencies or Improvements Identified or Recommended: _____					
Documents/Records Applicable to CAI:													
_____ FAA 6030-16 TRDR Cover/Transmittal Sheet				_____ FAA Form 3900-1, Occupational Safety and Health Inspection Report									
_____ FAA 6030-17 TRDR's; FAA 6030-15 Fac. Gen. Ref. Data Record				_____ Radiation Health Hazard Survey									
_____ Flight Inspection Reports/Results				_____ FAA Form 6980-4, Standby Power Survey									
_____ Obstn. Survey and/or Hrnz Profile(new Fac.)				_____ Plant Equipment Performance Test Data									
Contractor Acceptance Inspection Participants (Name/Office)													

Contractor Acceptance Inspection Participants (Name/Office)													
<p>We have reviewed the finding of this CAI Report and have determined that the facility/equipment or work described in this report is (<input type="checkbox"/> acceptable <input type="checkbox"/> not acceptable) for (<input type="checkbox"/> transfer of custodialship <input type="checkbox"/> maintenance <input type="checkbox"/> maintenance and operation on a commissioned bases) with (<input type="checkbox"/> no exceptions <input type="checkbox"/> exceptions) Listed on the CAI Exception List and Clearance Record.</p>													
_____ AFS Representative (Chairperson)				_____ AFD F&E Representative				_____ Representative					
_____ AT Facility Representative				_____ AFD Maint Br Representative				_____ Representative					
Acceptance by Airway Facilities Sector/Sector Field Office:													
<p>The facility/system/equipment or work described in this JAI Report was accepted for:</p> <p>_____ custodialship _____ maintenance _____ maintenance and operation on: _____</p>													
_____ AFS/SFO Manager													
I have reviewed this CAI Report, and (<input type="checkbox"/> concur <input type="checkbox"/> nonconcur) with the Contractor Acceptance Inspection findings. (If Applicable: <input type="checkbox"/> A letter is attached explaining nonconcurrency.)													
_____ AF Manager						_____ Date							

CONTRACTOR ACCEPTANCE INSPECTION REPORT CHECKLIST					Sheet 1 of 5	
Ident. & Fac. Alpha Code		Delivery Order No.	Date of CAI	Type of CAI:		
				Plants	Final	
				Electronics	Partial no.	
Item No.	REQUIREMENT	REQUIREMENTS		Exception Category		
		N/A	MEETS	Major	Minor	
		YES	NO			
	Section A. Facility Construction and Installation Requirements					
1	Construction Standards and Specifications.					
2	Construction Appearance.					
3	Roads and Grounds:					
	a. Surface Condition.					
	b. Erosion Control.					
	c. Drainage.					
	d. Fences/Gates/Cattleguards.					
	e. Signs.					
4	Structures (Towers/Poles):					
	a. Tower/Pole Construction.					
	b. Ladders, Steps.					
	c. Guys/Anchors.					
	d. Lightning Protection					
5	Buildings:					
	a. Roof.					
	b. Exterior Walls.					
	c. Foundation.					
	d. Floors.					
	e. Interior Walls.					
	f. Ceiling/Lights.					
	g. Openings.					
	h. Plumbing, Water and Sewage Systems.					
6	Site/Facility Cleanup.					

CONTRACTOR ACCEPTANCE INSPECTION REPORT CHECKLIST						Sheet 2 of 5	
Ident. & Fac. Alpha Code		Job Order No.	Date of CAI	Type of CAI:			
				Plants	Final		
				Electronics	Partial no.		
Item No.	REQUIREMENT	REQUIREMENTS			Exception Category		
		N/A	MEETS		Major	Minor	
		YES	NO				
	Section A. Facility Construction and Installation Requirements						
7	Lessor's Inspection and Letter of Release.						
8	Commercial Power Service.						
9	Power Transformers.						
10	Facility Electrical Wiring and Lighting.						
11	Facility/Structure Grounding.						
12	Lightning and Surge Protection.						
13	Distribution, Demarcation, and Terminal Panels, Boxes, and Cabinets.						
14	Construction Inspection of Power, Control, Signal, and Coaxial Cables.						
15	Underground Cables.						
16	Cable Load and Voltage Drop.						
17	Standby Engine Generator.						
18	UPS/PCS/Battery Backup Systems.						
19	Environmental Systems (HVAC).						
20	Equipment Installation (Standards and Specifications).						
21	Equipment Appearance.						
22	Equipment Grounding, Bonding, and Shielding.						
23	Equipment Ventilation.						
24	Antennas and Antenna Systems.						
25	Coaxial Cable Tests and Documentation.						
26	Ground Check/Reference Markers.						
27	Equip. Mods., CCD's, Manufacturer's Field and Factory Changes.						
28	FAA/Telco Ground Rules.						
29	Telco Equipment Operation.						
30	Leased Telecommunications Service.						
31	Occupational Safety. Battery and electrical safety equipment.						

CONTRACTOR ACCEPTANCE INSPECTION REPORT CHECKLIST

Sheet 3 of 5

Ident. & Fac. Alpha Code		Job Order No.	Date of CAI	Type of CAI:			
				Plants	Final		
				Electronics	Partial no.		
Item No.	REQUIREMENTS	REQUIREMENTS			Exception Category		
		N/A	MEETS YES	NO	Major	Minor	
	Section A. Facility Construction and Installation Requirements						
32	Radiation Health Hazard Survey.						
33	Fire Protection.						
34	Security.						
35	Frequency Authorizations.						
36	ERMS P1 and P5 panel installation. Interface connection to equipment and communications medium.						
37	UPS remote status panel installed and connected to UPS.						
	Section B. Facility/System/Equipment Performance Requirements.						
1	Systems/Equipment Adjustments and Tuneup.						
2	Systems/Equipment Operation.						
3	Standards and Tolerances.						
4	Deviation From National Standards.						
5	Special Component Selection.						
6	Capability.						
7	Compatibility.						
8	Reliability.						
9	Maintainability.						
10	Electromagnetic Interference.						
11	RMM software loaded on ERMS P1 and P5 CPUs. Communication to the OCC via the MPS. Test alarms and status reports.						
12	UPS remote status panel operational.						

CONTRACTOR ACCEPTANCE INSPECTION REPORT CHECKLIST

Sheet 4 of 5

Ident. & Fac. Alpha Code		Job Order No.	Date of CAI	Type of CAI: Plants _____ Final Electronics _____ Partial no.		
Item No.	REQUIREMENTS	REQUIREMENTS			Exception Category	
		N/A	YES	NO	Major	Minor
	Section C. Commissioning Flight Inspection Requirements.					
1	Facility/System Certification.					
2	Issuance of Restrictive NOTAMS.					
	Section D. Facility Technical Performance Documentation and Maintenance Reference data Requirements.					
1	Facility Reference Data File (FRDF)					
2	Facility Technical Reference Data:					
	a. FAA Form 6030-15, Facility General Reference Data Record.					
	b. FAA Form 6030-16, Tech. Ref. Data Record Cover/Transmittal Sheets.					
	c. FAA Form 6030-17, Technical Reference Data Records.					
	d. Initial FAA Form (6000 Series), Performance Records.					
3	Plant Equipment Performance Test Data.					
4	Engine Generator Installation:					
	a. Performance Test Data.					
	b. FAA Form 6980-4, Standby Power System.					
5	Facility Drawings.					
6	Facility Instruction Books.					
7	Facility Maintenance Technical Data.					
8	Facility Modification Records.					
9	Facility/System/Equipment, NCP's and CCD's					

CONTRACTOR ACCEPTANCE INSPECTION REPORT CHECKLIST

Sheet 5 of 5

Ident. & Fac. Alpha Code	Job Order No.	Date of CAI	Type of CAI:			
			Plants	Final		
			Electronics	Partial no.		

Item No.	REQUIREMENTS	REQUIREMENTS			Exception Category	
		N/A	MEETS		Major	Minor
			YES	NO		

	Section F. Final Acceptance and Commissioning Requirements.					
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	Initial Operating Capability (IOC). 1 (Includes operations, diagnostics, and support software).					
	2 Final Preparation For Facility / System / Equipment Operations.					
	3 Operational Readiness Date (ORD).					
	4 Airway Facilities Staffing.					
	5 Preventative Maintenance (PM).					
	6 Facility / System / Equipment Certification and Commissioning Statements.					
	7 Establishment and Scheduling of Instrument Approach Procedures (IAP's).					
	8 Issuance of Commissioning NOTAM.					
	9 Facilities Master File (FMF) Change.					

CONTRACTOR ACCEPTANCE INSPECTION REPORT EXCEPTIONS LIST AND CLEARANCE RECORD Sheet _____ of _____

AFS/SFO CC and Location	Fac. ID & Alpha Code	Job Order No.	Dates of CAI	Type of CAI: _____ Plants _____ Final _____ Electronics _____ Partial no. _____
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Exception Category: _____ Major _____ Minor _____

Number of Sheets: _____ Major _____ Minor _____

Total Number of Exceptions: _____ Major _____ Minor _____

Sec/ Item No.	Exceptions and Actions Required	Action Office	Estimated Completion Date	Clearance Action Taken	Date Cleared

REMARKS:

FEDERAL AVIATION ADMINISTRATION

1/11/99

SUBJ: FAA PRE-CONSTRUCTION AND MAINTENANCE PROJECT**SAFETY AND HEALTH CHECKLIST**

1. **PURPOSE.** This order provides information on construction and maintenance project safety and health requirements. Appendix 1, FAA Pre-Construction and Maintenance Project Safety and Health Checklist, Form FAA 3900-8, will be used during construction and maintenance activities.

2. **DISTRIBUTION.** This order is distributed to the division level in Airway Facilities and Air Traffic in Washington, to the branch level in regional Airway Facilities and Air Traffic Divisions, and a limited distribution to all Airway Facilities and Air Traffic field offices and facilities.

3. BACKGROUND.

a. During 1997, an unusually high number of incidents occurred in asbestos abatement, construction, and maintenance-related projects. These incidents showed that improvements are needed relative to planning and communication, minimizing and eliminating project risks, following established procedures, and ensuring appropriate oversight of contract work by Federal Aviation Administration (FAA) personnel. As a result, significant concerns have been raised by the unions, airline industry, flying public, and Congress.

b. The National Airspace System Transition and Integration (ANS) organization reviewed the FAA project construction process to determine methods to reduce or eliminate project-related incidents at FAA facilities. This review determined that project-related incidents can be reduced or eliminated by initiating a requirement for the completion of the checklist prior to starting construction or maintenance activities and as on site work progresses.

c. On March 9, 1998, FAA Notice 3900.60, FAA Pre-Construction and Maintenance Project Safety and Health Checklist, was published to require the use of the FAA Pre-Construction and Maintenance Project Safety and Health Checklist as a tool by each individual who oversees construction and maintenance activities that potentially have occupational safety, health, and environmental related impacts, on Air Traffic and Airway Facilities operations. Notice 3900.60 requested FAA facilities to assess the effectiveness and usefulness of the checklist and provide feedback to the Environmental, Energy, and Safety Division, ANS-500. No feedback was received. Available information regarding project-related incidents at FAA facilities indicates that incidents have been reduced at those FAA facilities where the checklist is used for construction and maintenance activities.

d. Due to the urgency to continue to reduce or eliminate project-related incidents at FAA facilities, without interruption, this order is being issued without further coordination of the checklist.

4. **CANCELLATION.** FAA Notice 3900.60, FAA Pre-Construction and Maintenance Project Safety and Health Checklist, dated March 9, 1998, is canceled.

ACTION.

a. Effective immediately, Appendix 1, FAA Pre-Construction and Maintenance Project Safety and Health Checklist, Form FAA 3900-8, shall be used as a tool by each resident engineer (RE), contracting officer's technical

PART III – SECTION J, ATTACHMENT J.5

representative (COTR), designated facility point of contact, and System Manager, System Office (SMO) and System Support Center (SSC) manager who oversees construction and maintenance activities that potentially have occupational safety and health, and environmental related impacts on Air Traffic and Airway Facilities operations. This checklist shall be used, as appropriate, during critical phases of construction and maintenance activities; e.g. the pre-construction meeting, 30-60 days prior to commencement of work, daily/weekly construction meetings, etc. Emphasis should be placed on using the checklist as a tool to assess, as well as reassess, hazards as projects progress. The checklist contains detailed instructions regarding its use.

b. As appropriate, each RE, COTR, and SMO and SSC manager or designated facility point of contact is responsible for ensuring completion and distribution of the checklist. Occupational safety and health, and environmental (OSH/E) professionals who receive copies of the checklist, shall maintain copies a minimum of 3 years. Upon request, OSH/E professionals shall provide copies to the Regional Program Managers for Environment and Safety and Regional Occupational Safety and Health Managers, or the Washington headquarters program office for review.

6. **FEEDBACK.** When using the checklist, all organizations are encouraged to assess its effectiveness and usefulness. Organizations should provide feedback regarding the effectiveness and usefulness of the checklist to the Environmental, Energy, and Safety Division, ANS-500, through memorandum or electronic mail. FAA Form 1320-19, Directive Feedback Information, may also be used.

7. **ISSUANCE OF CONSTRUCTION AND MAINTENANCE ORDER.** The Environmental, Energy, and Safety Division, ANS-500, has issued this order to replace FAA Notice 3900.60. Since the Notice expires on March 9, 1999, the order is published as a permanent directive to ensure the adherence to the policies and practices set forth in this document. This order will establish minimum requirements for construction and maintenance safety and health programs. The checklist has been converted into an agency form and is available through the FAA distribution system. Revisions to the order are planned in the near future to incorporate further clarification of responsibilities and to refine the checklist. All suggestions and recommendations received to improve the order will be considered in developing revisions.

Stanley Rivers

Director of Airway Facilities

PART III – SECTION J, ATTACHMENT J.5
Form 3900-8, FAA E-CONSTRUCTION AND MAINTENANCE PROJECT
SAFETY AND HEALTH CHECKLIST

Purpose

This checklist is intended to be used as a tool by RE/COTRs, designated facility POCs, or SSC managers who oversee construction and maintenance activities that potentially have Occupational Safety, Health, and Environmental (OSH/E) related impacts on AT/AF operations. This tool shall be used, as appropriate, during critical phases of construction and maintenance activities (e.g. the pre-construction meeting, 30-60 days prior to commencement of work, weekly/daily construction meetings, etc.). Emphasis should be placed on using this checklist as a tool to assess as well as reassess hazards as the project progresses. Specifically, this checklist is intended to:

- Promote sensitivity to potential OSH/E hazards associated with projects and stress the importance of not disrupting NAS operations
- Assist in identifying and validating potential project hazards and associated risks
- Assist in preventing safety and health incidents/accidents and facility shutdowns
- Ensure appropriate contractor measures and controls are in place to address potential project hazards
- Facilitate discussion with the contractor regarding plans to prevent/minimize potential incidents/accidents
- Enhance coordination between OSH/E professionals, project personnel and contractors
- Facilitate review of critical FAA OSH/E procedures with contractors
- Raise OSH/E awareness

- This checklist relies on the training and professional judgment of the user. OSH/E personnel should be consulted as needed.
 - A facility POC with a thorough understanding of facility procedures and equipment considerations should participate in the site walk-through.

NOTE: For small procurements (e.g. credit card purchases) and internal FAA projects (e.g. field maintenance party projects), without specifications, immediately contact the designated OSH/E professional for assistance in completing this checklist.

1 Project Summary Information

Fill in the requested site specific information.

Project Name and Description: _____

SMO: _____ **Facility ID:** _____

Project Designer: _____ **Transmittal #:** _____

Env & Safety Review By: _____ **Date:** _____

Project/Activity/Task: _____

Planned Start: _____

Expected Completion Date: _____

Contractor Contact: Name: _____ **Phone:** _____

OSH/E Contact: Name: _____ **Phone:** _____

Facility POC: Name: _____ **Phone:** _____

2 Facility Procedures

Review site specific FAA procedures and considerations with the contractor. For example, discuss when or how during the project, emergency plans will be used/required. After the procedures have been reviewed, perform a site walk-through with the contractor.

Facility Procedures	Reviewed			Notes
	Yes	N/A	No	
Asbestos Contingency Plan				
Critical Power Systems Awareness				
Lock Out/Tag Out				
Work Permits (e.g. Asbestos, Lead)				
Emergency Plans (e.g. Occupant Emergency Plan)				
Impacts to Fire Alarm and Suppression Systems				
Site Walk-Through (With Facility POC & Contractor(s))				
Hazard Communications (e.g. MSDSs)				
Other (e.g. Access/Security/Communications Equip.)				

3 Project Hazard/Risk Analysis

Think about your project and its potential hazards and risks. Consider sensitive NAS operations and all facility personnel that may be impacted by your projects. As an example: Construction activities with potential for impacting asbestos materials in or near sensitive operations could result in incidents which disrupt NAS operations. For each potential project hazard indicate (with a checkmark) a level of potential risk for exposure/release/incident.

Potential Project Hazards	Level of Potential Risk For Exposure/Release/Incident			Notes
	High	Low	N/A	
Consider Sensitive AT/AF Operations:				
Hazardous Substances and Environmental Controls				
Asbestos (e.g. Tiles & Insulation)				
Chemical, Gas, Fumes, Dust, Radiation				
Indoor Air				
Ventilation System				
Lead-based Paint				
Electrical Power Systems				
Pressurized Equipment and Systems				
Work at Heights (>6 feet)				
Other (e.g. Confined Space)				

PART III - SECTION J, ATTACHMENT J.5

4 Site Safety and Health

After reviewing the potential hazards and risks in block 3, ensure that the contractor has identified measures and controls to address applicable site safety and health risks (e.g. through discussions, available site safety plans, or other applicable documents). In your judgment, if the contractor has appropriate measures to address the potential project hazards (see block 3), check the appropriate YES boxes below. If a potential project hazard has been identified in block 3 and no associated measures or controls are evident, then check the appropriate NO boxes below. If a NO box is checked, check the close-out date box to indicate when appropriate measures or controls have been incorporated into the contractor's site safety and health plan.

Program Elements	Yes	N/A	No	If No, Indicate Close-out Date	Notes
Hazardous Substances & Environmental Controls					
Asbestos					
Chemicals (e.g. Introduced to site)(Provide MSDS)					
Gas					
Fumes					
Lead Paint/Other Coatings					
Radiation and Electric Fields					
Ventilation and Exhaust Systems					
Electrical Power Systems					
Procedures for Critical Power Systems Coordination					
Provisions for GFCI					
Control of Hazardous Energy (Lockout/Tagout) (e.g. Electrical, Mechanical, Hydraulic, Thermal, Radiation)					
Pressurized Equipment and Systems					
Work at Heights (>6 feet)					
Safe Access and Fall Protection					
Work Platforms					
Floor and Wall Holes and Openings					
Personal Protective and Safety Equipment					
Fire Prevention					
Accident Prevention					
Excavations (New Construction or Tie In)					
Welding and Cutting					
Demolition of Existing Facility in Whole or Part					
Medical and First Aid Requirements					
Hand and Power Tools					
Material Handling, Storage, and Disposal					
Machinery and Mechanized Equipment (e.g. Equipment & Operator Certifications)					
Sanitation					
Lighting					
Concrete & Masonry Construction & Steel Erection					
Hazardous, Toxic, Radioactive Waste Activities					
Other (e.g. Noise)					

5 Review Information

The appropriate FAA point of contact and the contractor shall sign below to document discussion of the items on this form.

Reviewed By: _____	Date: _____
FAA POC: _____	
Contractor: _____	
Incident Prevention and Hazard Control Methods Discussed? Yes <input type="checkbox"/> No <input type="checkbox"/>	

This block indicates routing of this checklist for project coordination.

This form has been forwarded to:	Name	Date
SECM, OSH/E Contact:		
AF Facility Manager:		
AT Facility Manager:		
Other:		

Notes (e.g. Provide further explanation of potential hazards, locations, etc. below and attach additional sheets if necessary.)

PART II SECTION J, ATTACHMENT J.5

6 Specific Safety & Environmental Issues

Complete checklist below during site survey and design.

Issue		Yes	No	Action <i>If YES, always coordinate with OSH / E Contact.</i>
ASBESTOS	Impact presumed or known asbestos containing materials? NOTES: <i>(Identify if an Asbestos Survey was done, when, and where asbestos materials are located in the work area. Include Asbestos Work Permit requirements.)</i>			1. Check Index of Asbestos and Lead Paint Surveys to see if the facility has been surveyed for asbestos. Index available from the SECMs, AGL-473, ANI-400C, and ANI-451.25. 2. If no survey available, then all impacted suspect materials must be sampled & tested. 3. Review Order 1050.20, SMO Asbestos Control Program (ACP), bargaining union agreements, and 29 CFR 1926.1101. If yes: 4. Include in specifications applicable regulatory and union agreement requirements along with safe work practices.
PCBs, MERCURY, RADIOACTIVES, etc.	Relocate or dispose PCBs and/or PCB containing equipment? (Fluorescent fixture ballast's, electric transformers and equipment) Dispose of Mercury Switches, Radioactive tubes, or other hazardous waste? NOTES:			1. Check the PCB Inventory available from each SECM. If yes: 2. Review Order 1050.14A & 17, 40 CFR 761 Subpart D, 40 CFR 260-270, 10 CFR 30, and State regulations. 3. Comply with applicable regulatory requirements for storage and disposal.
CFCs	Is CFC containing equipment being replaced and/or disposed? NOTES:			If yes: 1. Review Order 1050.17 & 18 and 40 CFR 82. 2. Replace with non-CFC equipment. 3. Recover & recycle existing CFCs.
FUEL STORAGE TANKS	Install, remove and/or replace an underground or aboveground storage tank or piping? If the project is new construction, is an existing UST and/or piping near the project site being impacted? NOTES:			1. Check Fuel Storage Tank Inventory available from the Regional FST Manager or the SECM. If yes: 2. Review Order 1050.15 & 17, 40 CFR 280, and State regs. 3. Use State-specific plans & specifications for removal and installation available from the Regional FST Manager. 4. Prepare Spill Prevention Control and Countermeasure Plans (SPCC) for tanks per 40 CFR 112.
NEPA (National Environmental Policy Act)	Significantly impact the environment with respect to noise, water quality, air quality, wetlands, historic and archeological sites, endangered species & other protected areas? NOTES:			1. Review Order 1050.1D & 17. If yes: 2. Is activity classified as a Categorical Exclusion (Cat X)? 3. If no Cat X, prepare Environmental Assessment (EA). 4. Prepare Finding Of No Significant Impact (FONSI) or Environmental Impact Statement (EIS) as appropriate.
EDDA (Environmental Due Diligence Audit)	Acquire, lease and/or dispose of property? NOTES:			If yes: 1. Review Order 1050.17 & 19. 2. Coordinate with AGL-74, Real Estate. 3. Conduct EDDA.
LEAD PAINT &	Disturb or dispose/recycle lead paint or lead acid batteries?			1. Check Index of Asbestos and Lead Paint Surveys to see if sampling has been conducted.

PART " SECTION J, ATTACHMENT J.5

<p>LEAD-ACID BATTERIES</p>	<p>NOTES:</p>		<p>2. If no paint sampling results available, then all impacted materials must be sampled & tested.</p> <p><i>If yes:</i></p> <p>3. Comply with applicable OSHA regulatory requirements for worker protection and EPA requirements for removal & disposal. Initiate recycling efforts for scrap metal or batteries when feasible.</p> <p>4. Follow MSDS guidelines for battery handling.</p>
<p>AIR EMISSIONS (Clean Air Act)</p>	<p>Replace and/or install new emission sources such as boilers, incinerators, storage tanks, engine generators, painting booths, space heaters, equipment using CFCs or Halon, and others?</p> <p>NOTES:</p>		<p>1. Review Order 1050.17 & 18 and State CAA regulations.</p> <p><i>If yes:</i></p> <p>2. Prepare and submit CAA Construction and Operating Permit if required.</p>
<p>CHEMICALS Pesticides & Herbicides (FIFRA)</p>	<p>Apply pesticides and/or herbicides? Use other hazardous chemicals?</p> <p>NOTES:</p>		<p>1. Review Order 1050.17 and State regs.</p> <p><i>If yes:</i></p> <p>2. Specify the use of State-certified applicators for pesticides/herbicides.</p> <p>3. Specify copy of pesticide/herbicide application records be provided to SECM/Environmental Protection Specialist.</p> <p>4. Obtain Material Safety Data Sheets for chemicals to be brought into work area.</p>
<p>WATER (Clean Water Act)</p>	<p>Clear, grade, and excavate over 5 acres; impact navigable waters; utilize equipment which can discharge to stormwater or wastewater systems (cooling tower discharges or boiler blowdowns)?</p> <p>NOTES:</p>		<p>1. Review Order 1050.17, 40 CFR 120-143, and State regs.</p> <p><i>If yes:</i></p> <p>2. Prepare and submit CWA Permits (i.e. NPDES, sanitary sewer discharge, etc.) as required.</p> <p>3. Prepare Spill Plan (SPCC) for fuel tanks as required by 40 CFR 112.</p>
<p>SAFETY</p>	<p>Safety issues? i.e. Clear aisle space, electrical equipment clearances, toe boards, hand rails, stair clearances, safety cages, confined spaces, fall protection, etc.</p> <p>NOTES:</p>		<p>1. Review Orders 1050.17 & 3900.19A, and 29 CFR 1910 & 1926.</p> <p><i>If yes:</i></p> <p>2. Comply with applicable regulatory requirements.</p>
<p>FLUORESCENT LAMPS</p>	<p>Dispose/recycle fluorescent lamps?</p> <p>NOTES:</p>		<p><i>If yes:</i></p> <p>1. Comply with applicable regulatory requirements. Initiate recycling efforts if feasible.</p>
<p>ENERGY</p>	<p>Install new lighting, HVAC, or environmental controls?</p> <p>NOTES:</p>		<p>1. Review Energy Policy Act of 1992 and Executive Order 12902 which require energy reduction in all Federal buildings by 2005: 30% at Administrative facilities and 20% at Industrial facilities.</p> <p><i>If yes:</i></p> <p>2. <i>Lighting:</i> Use energy efficient system w/electronic ballast</p> <p>3. <i>HVAC:</i> Use energy efficient equipment</p> <p>4. <i>Controls:</i> Contact AGL-473, Energy Manager</p> <p>5. <i>Building/Structure:</i> Contact AGL-473, Energy Manager</p>

PART " SECTION J, ATTACHMENT J.5

7 FAA OSH / E CONTACTS

XX REGION

PHONE

FAX

470 RPMES

ANI-XXX

**Env & Safety
Env & Safety**

XXX SMO

**SECM
Safety Manager**

PART II, SECTION-J, ATTACHMENT
EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL

3.0 Execution

3.1 EXISTING STRUCTURES AND UTILITIES

No excavation shall be performed until site utilities have been field located. Contracting Officer's Technical Representative (COTR)/Resident Engineer (RE) shall mark all utilities in excavation area. The Contractor shall take the necessary precautions to ensure no damage occurs to existing structures and utilities. Utilities encountered that were not previously shown or otherwise located shall not be disturbed without approval from the Resident Engineer.

3.2 CLEARING

Clearing shall be performed to the limits shown on the drawings or as directed by the Resident Engineer.

3.3 CONTAMINATED MATERIAL REMOVAL

3.3.1 Excavation

Areas of potential contamination shall be excavated to the depth and extent shown on the drawings or as directed by the Resident Engineer. Excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. An excavation log describing visible signs of contamination encountered shall be maintained for each area of excavation.

3.3.2 Shoring

If workers must enter the excavation, it shall be evaluated, shored, sloped or braced as required by 29 CFR 1926 section 650.

3.3.3 Dewatering

Surface water shall be diverted to prevent entry into the excavation. Dewatering shall be limited to that necessary to assure adequate access, a safe excavation, prevent the spread of contamination, and to ensure that compaction requirements can be met.

3.4 CONFIRMATION SAMPLING AND ANALYSIS

The Resident Engineer shall be present to inspect the removal of contaminated material from each site. After all material suspected of being contaminated has been removed, the excavation shall be examined for evidence of contamination. Field analysis shall be used to determine the presence of contamination. Excavation of additional material shall be as directed by the Resident Engineer. After all suspected contaminated material is removed, confirmation samples shall be collected and analyzed in accordance with regulatory and permit requirements. A minimum of one sample shall be collected from the bottom of the excavation. Based on test results, the Contractor shall propose any additional excavation that may be required to remove material which is contaminated above action levels. Additional excavation shall be subject to approval by the Resident Engineer. Locations of samples shall be marked in the field and documented on the as-built drawings or provided in a separate report.

3.5 CONTAMINATED MATERIAL STORAGE

Material shall be placed in temporary storage immediately after excavation. The following paragraphs describe acceptable methods of material storage. Storage units shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. If multiple storage units are required, each unit shall be clearly labeled with an identification number and a written log shall be kept to track the source of contaminated material in each temporary storage unit.

PART II, SECTION-J, ATTACHMENT J
EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL

3.5.1 Stockpiles

Stockpiles shall be constructed to isolate stored contaminated material from the environment. The maximum stockpile size shall be 200 cubic yards. Stockpiles shall be constructed to include:

- A chemically resistant liner free of holes and other damage. The ground surface on which the liner is to be placed shall be free of rocks greater than 0.5 inches in diameter and any other object which could damage the membrane.
- Cover free of holes or other damage to prevent precipitation from entering the stockpile. The cover material shall be extended over the berms and anchored or ballasted to prevent it from being removed or damaged by wind.
- Berms surrounding the stockpile, a minimum of 8 inches in height. Vehicle access points shall also be bermed.
- The liner system shall be sloped to allow collection of leachate. Storage and removal of liquid that collects in the stockpile, shall be in accordance with paragraph Liquid Storage.

3.5.2 Roll-Off Units

Roll-off units used to temporarily store contaminated material shall be water tight. A cover shall be placed over the units to prevent precipitation from contacting the stored material. Liquid that collects inside the units shall be removed and stored in accordance with paragraph Liquid Storage.

3.5.3 Liquid Storage

Liquid collected from excavations and stockpiles shall be temporarily stored in 500-gallon polyethylene tanks provided by the contractor. Liquid storage containers shall be water-tight and shall be located near the stockpile areas.

3.6 SAMPLING

3.6.1 Sampling of Solid Material

Samples of stored material shall be collected at a frequency sufficient to meet the requirements of approved disposal facilities. Samples shall be tested in accordance with regulatory and disposal facility permit requirements.

Stored material with contaminant levels that exceed action levels shall be treated or disposed offsite. Analyses for contaminated material to be taken to an offsite treatment facility shall conform to local, state, and federal criteria as well as to the requirements of the treatment facility. Documentation of all analyses performed shall be furnished to the Resident Engineer. Additional sampling and analyses to the extent required by the approved offsite treatment, storage, or disposal (TSD) facility shall be approved by the Resident Engineer.

3.6.2 Sampling Liquid

Liquid collected from excavations and stockpile leachates shall be sampled at a frequency of once for every 500 gallons of liquid collected. Samples shall be tested in accordance with regulatory and permit requirements.

Liquid with contaminant levels that exceed action levels shall be treated or disposed offsite. Analyses for contaminated liquid to be taken to an offsite treatment facility shall conform to local, state, and federal criteria as well as to the requirements of the treatment facility. Documentation of all analyses performed shall be furnished to the Resident Engineer. Additional sampling and analysis to the extent required by the approved offsite TSD facility receiving the material shall be the responsibility of the Contractor and shall be subject to approval by the Resident Engineer.

3.7 SPILLS

PART II, SECTION-J, ATTACHMENT J
EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL

In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), pollutant, contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), the Contractor shall notify the Resident Engineer immediately. If the spill exceeds the reporting threshold set by the State and/or EPA, the Contractor shall follow the pre-established procedures as described in the Facility Contingency Plan for immediate reporting and containment. Immediate containment actions shall be taken to minimize the effect of any spill or leak. Cleanup shall be in accordance with applicable federal, state, and local regulations. As directed by the Resident Engineer, additional sampling and testing shall be performed to verify spills have been cleaned up

3.8 BACKFILLING

3.8.1 Confirmation Test Results

Excavations shall be backfilled immediately after all contaminated materials have been removed and confirmation test results have been approved. Backfill shall be placed and compacted to the lines and grades shown on the drawings.

3.8.2 Compaction

Approved backfill shall be placed in lifts with a maximum loose thickness of 12 inches. Soil shall be compacted to 90 percent of maximum dry density.

3.9 CLOSURE REPORT

Three copies of a Closure Report shall be prepared and submitted within 30 calendar days of completing work at the site. The report shall be labeled with the contract number, project name, location, date, and the name of general contractor. The Closure Report shall include the following information as a minimum:

- A cover letter signed by a responsible company official certifying that all services involved have been performed in accordance with the terms and conditions of the contract documents and regulatory requirements.
- A narrative report including, but not limited to, the following:
 - site conditions;
 - excavation logs;
 - field screening readings;
 - quantity of materials removed from each area of contamination;
 - quantity of water/product removed during dewatering;
 - waste disposal manifests
 - sampling locations and sampling methods;
 - sample collection data such as time of collection and method of preservation;
 - sample chain-of-custody forms; and
 - source of backfill.

Include the following:

- Copies of all chemical and physical test results.
- Copies of all manifests and land disposal restriction notifications.
- Copies of all certifications of final disposal signed by the responsible disposal facility official.
- Field drawings showing limits of each excavation, limits of contamination, known underground utilities within 20 feet of excavation, sample locations, and sample identification numbers. On-site stockpile, storage, treatment, loading, and disposal areas shall also be shown on the drawings.

PART II SECTION J, ATTACHMENT J.7

DEPARTMENT OF TRANSPORTATION PRECONSTRUCTION CONFERENCE AGENDA AND CHECKLIST		CONTRACT NO.
CONTRACTOR	III. CONFERENCE HELD AT	IV. DATE
V. CONTRACT DESCRIPTION AND LOCATION	VI. (1) CONTRACTING OFFICER, (2) CONTRACT ADMINISTRATOR, (3) CONTRACTING OFFICER'S REPRESENTATIVE <u>NAME</u> <u>TELEPHONE NO.</u> (1) (2) (3)	
VII. Place "X" in appropriate box if item is discussed with contractor.		
1. GOVERNMENT REPRESENTATIVES	A. CONTRACTING OFFICER (Name and title) B. AUTHORIZED REPRESENTATIVE (Name and title)	<input type="checkbox"/> <input type="checkbox"/>
2. STATUS	A. COMMENCEMENT, PROGRESS, AND COMPLETION OF WORK	<input type="checkbox"/>
3. PROGRESS SCHEDULE	A. SUBMISSION FOR APPROVAL B. ITEMS TO BE INCLUDED C. COMPLIANCE WITH PROGRESS SCHEDULE AND ACTION BY CONTRACTING OFFICER IF CONTRACTOR FAILS TO MAINTAIN PROGRESS D. LIQUIDATED DAMAGES	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4. CHANGES	A. AUTHORITY	<input type="checkbox"/>
5. CORRESPONDENCE	A. NORMALLY, ALL CORRESPONDENCE WILL BE ADDRESSED TO THE CONTRACTING OFFICER WITH A COPY TO HIS REPRESENTATIVE	<input type="checkbox"/>
SUPERINTENDENCE BY CONTRACTOR	A. NAME AND TELEPHONE NUMBER OF REPRESENTATIVE NAME: _____ TELEPHONE NO: _____	<input type="checkbox"/>
7. OTHER CONTRACTS	A. COOPERATION WITH CONTRACTORS AND OTHER GOVERNMENT EMPLOYEES B. USE OF ROADS AND UTILITIES C. COORDINATION BETWEEN CONTRACTORS	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8. SUBCONTRACTORS	A. PERCENTAGE ITEMS OF WORK PERFORMED BY PRIME CONTRACTORS OWN FORCES B. STATEMENT AND ACKNOWLEDGMENT, FAA Template 21, FOR EACH SUBCONTRACT. 3.6.2-22 "SUBCONTRACTS" C. CONTRACTUAL RELATIONS BETWEEN SUBCONTRACTORS AND GOVERNMENT	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9. PAYMENT TO CONTRACTOR	A. RETAINED PERCENTAGE B. PAYMENT FOR MATERIAL AND EQUIPMENT ON SITE C. STORAGE AND PROTECTION	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10. SHOP DRAWINGS	A. SUBMITTAL OF SHOP DRAWINGS B. SUBMITTAL OF EQUIPMENT LAYOUT C. RESPONSIBILITY OF CONTRACTOR TO ALERT GOVERNMENT IF ITEMS ARE NOT FULFILLING CONTRACT REQUIREMENTS	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11. INSPECTION	A. RIGHT TO REJECT DEFECTIVE MATERIAL OR WORKMANSHIP B. NO REPRESENTATIVE IS AUTHORIZED TO CHANGE ANY PROVISION OF THE CONTRACT C. PRESENCE OR ABSENCE OF INSPECTOR SHALL NOT RELIEVE CONTRACTOR FROM REQUIREMENT OF CONTRACT D. ACCEPTANCE OF WORK E. SPECIFICATIONS GOVERN WHEN DIFFERENCES EXIST BETWEEN DRAWINGS AND SPECIFICATIONS	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12. OPERATIONS AND STORAGE	A. STORAGE AREAS TO BE AUTHORIZED OR APPROVED B. DISPOSAL AREAS	<input type="checkbox"/> <input type="checkbox"/>
13. LAYOUT OF WORK	A. GOVERNMENT ESTABLISHED BASE LINE AND BENCH MARK B. CONTRACTOR RESPONSIBILITY FOR LINE AND GRADES	<input type="checkbox"/> <input type="checkbox"/>

PART II SECTION J, ATTACHMENT 17

VII. Place "X" in appropriate box if item is discussed with contractor		"X"
14. COORDINATION OF TRADES	A. CONTRACTOR TO COORDINATE VARIOUS TRADES	<input type="checkbox"/>
	B. CONTRACTOR TO COORDINATE SHOP DRAWING AND LAYOUT OF VARIOUS TRADES	<input type="checkbox"/>
15. GOVERNMENT-FURN. PROPERTY AND SALVAGED MATERIAL	A. DELIVERY, INVENTORY, AND ACCEPTANCE	<input type="checkbox"/>
	B. STORAGE AND PROTECTION	<input type="checkbox"/>
16. PROTECTION OF MATERIAL AND WORK	C. SALVAGE MATERIAL - SERVICEABLE OR UNSERVICEABLE	<input type="checkbox"/>
	A. PROTECTION OF EXISTING STRUCTURES, UTILITIES, WORK AND VEGETATION	<input type="checkbox"/>
17. LABOR	B. PERSONNEL SECURITY CLEARANCE AND IDENTIFICATION (IF APPLICABLE)	<input type="checkbox"/>
	A. EQUAL OPPORTUNITY	<input type="checkbox"/>
	B. DAVIS-BACON ACT (Including Labor Department wage determination)	<input type="checkbox"/>
	C. CONTRACT WORK HOURS STANDARDS ACT - OVERTIME COMP.	<input type="checkbox"/>
	D. APPRENTICES	<input type="checkbox"/>
	E. PAYROLL RECORDS AND PAYROLLS	<input type="checkbox"/>
	F. COPELAND ("And-Kickback") ACT	<input type="checkbox"/>
	G. WITHHOLDING OF FUNDS TO ASSURE WAGE PAYMENT	<input type="checkbox"/>
	H. SUBCONTRACTING - TERMINATION	<input type="checkbox"/>
18. NOTICE OF DELAYS	A. NOTICE TO CONTRACTING OFFER OF ACTUAL AND POTENTIAL LABOR DISPUTES	<input type="checkbox"/>
	B. OTHER ACTUAL AND POTENTIAL DELAYS	<input type="checkbox"/>
19. SMALL BUSINESS SUBCONTRACTING PROGRAM COMPLIANCE	A. CONTRACTOR DESIGNATES LIAISON OFFICER	<input type="checkbox"/>
	B. MAINTAINS RECORDS AVAILABLE FOR REVIEW	<input type="checkbox"/>
	C. NOTIFIES CONTRACTING OFFICER IF SMALL BUSINESS IS NOT SOLICITED FOR SUBCONTRACTS	<input type="checkbox"/>
21. SAFETY	A. COMPLIANCE WITH LOCAL RULES AND REGULATIONS	<input type="checkbox"/>
	A. ACCIDENT PREVENTION	<input type="checkbox"/>
22. NOTICE TO PROCEED	B. CLEANING-UP	<input type="checkbox"/>
	A. DATE	<input type="checkbox"/>
23. DATE OF CONTRACT COMPLETION	A. DATE	<input type="checkbox"/>
24. OTHER ITEMS		<input type="checkbox"/>
	<i>(Add as necessary)</i>	<input type="checkbox"/>
	<i>(Key to previous items, if applicable)</i>	<input type="checkbox"/>
		<input type="checkbox"/>
CERTIFICATION: The preceding items marked by "X" have been discussed.		
SIGNATURE FOR THE CONTRACTOR		SIGNATURE FOR THE GOVERNMENT
REMARKS (Continue on attached sheet(s), if necessary)		

ORDER

1050.10C

**PREVENTION, CONTROL, AND ABATEMENT OF FAA
ENVIRONMENTAL POLLUTION**



September 13, 2004

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

Distribution: A-WXYZ-1; A-FoF-0 (LTD)

Initiated by: AEE-200

ATTACHMENT 5.8...
PAGE NO. 1 OF 17

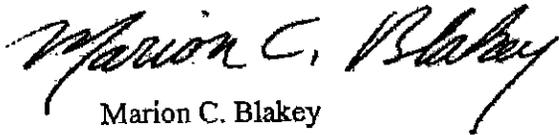
FOREWORD

Consistent with the Federal Aviation Administration's mission to be the national and international leader in aviation environmental issues, while fostering a safe, secure, and efficient aviation system, is the need for an effective process to prevent, control and abate FAA environmental pollution. This order responds to the need for an updated policy and procedures to comply with recent changes in pollution prevention environmental requirements and to reflect agency requirements in the "Greening the Government" Executive Orders.

Specifically, this Order establishes agency-wide policy, roles, and responsibilities pertaining to the prevention, control, and abatement of environmental pollution at, or from, Federal Aviation Administration (FAA) -owned, -leased, -licensed, or -operated facilities. This order also discusses the liability of employees with regard to pollution control statutes.

Each office may supplement this broad coverage with guidelines, instructions, or protocol specific to its needs in a manner that is consistent with this Order.

As pollution prevention requirements are evolving and dynamic, this Order cannot remain static. Recognizing that program improvement is a vital element in the program's effectiveness and responsiveness to FAA personnel, users have the opportunity to offer suggestions to update and improve this directive through the use of FAA Form 1320-19, Directives Feedback Information.



Marion C. Blakey
Administrator

1. **PURPOSE.** This order establishes agency wide policy, roles, and responsibilities pertaining to the prevention, control, and abatement of environmental pollution at, or from, Federal Aviation Administration (FAA) -owned, -leased, -licensed, or -operated facilities. This order also discusses the liability of employees with regard to pollution control statutes and establishes policy to implement DOT M 5640.1D, Environmental and Natural Resources Program Manual.
2. **SCOPE.** This order covers activities generating environmental pollution. The order establishes the policies and defines the roles and responsibilities about preventing, controlling, and abating FAA environmental pollution. (See Appendix A for a list of directives, FAA orders, policy and guidance.)
3. **DISTRIBUTION.** This order is distributed to all heads of offices and services, regions and centers with limited distribution to all field offices and facility employees.
4. **CANCELLATION.** This order cancels Order 1050.10B, Prevention, Control, Abatement of Environmental Pollution at FAA Facilities, dated September 16, 1991.
5. **BACKGROUND.** In 1978, the President signed the first of many Executive Orders (E.O.) directing Federal agencies to comply with all applicable pollution control standards. This order is issued under the environmental pollution and reporting requirements authority set forth in those Executive Orders (see list in Appendix B) and DOT M 5640.1D.
6. **EXPLANATION OF CHANGES.** This revision:
 - a. Clarifies the roles and responsibilities of headquarters environmental policy and oversight and headquarters implementation organizations to reflect current organizational operations.
 - ~~b. Clarifies and identifies FAA LOBs at the headquarters and Region/Center levels subject to this order.~~
 - c. Updates environmental requirements and responsibilities of FAA employees.
7. **RELATED DOCUMENTS.**
Documents referenced or related to this order are listed in the Appendices.
8. **DEFINITIONS.**
 - a. **Activities** are actions of FAA employees with regard to their duties at FAA-owned, -leased, -licensed, or -operated facilities. As defined in this order, 'activities' do not include routing, rerouting, or any related movement of air traffic.

b. **Applicable Pollution Control Statutes** are the same substantive, procedural, and other requirements, unless specifically exempted, that would apply to any person or entities also subject to those requirements. See Appendix C for a list.

c. **Employees**, as defined by this order, include FAA personnel. Similarly, contractors working on behalf of FAA must comply with applicable pollution control statutes.

d. **Environmental Auditing** is a systematic, documented, periodic, and objective review of facility operations and practices to identify existing or potential environmental pollution problems.

e. **Environmental Pollution Incident** means an incident or set of circumstances during or as a consequence of which there is, has been or is likely to be a leak, spill, emission or other escape of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which waste has been placed or disposed of on premises unlawfully, but it does not include an incident or set of circumstances involving only the emission of any noise.

f. **Facility** means equipment, buildings, installations, structures, land, public works, aircraft, vessels, and other vehicles and property owned, constructed, leased, or operated by or for the FAA, including FAA aircraft.

g. **Indian Tribe** means any Indian Tribe, band, nation, or community recognized by the Secretary of the Interior and exercising substantial governmental duties and powers. "Tribe" refers to the recognized tribal government and tribal members (as determined by each tribe) of any tribe, band, nation, Pueblo, or other organized group or community, including any Alaska Native Village (as defined in, or established under the Alaska Native Claims Settlement Act [42 U.S.C. Section 1601 et seq.]). Under the Federally Recognized Indian Tribe List Act (P.L. 103-454, 25 U.S.C. Section 479a-1), the Department of the Interior annually publishes a list of federally recognized tribes in the *Federal Register*. The term "tribe" may also refer to State recognized tribes under specific authorities for certain DOT programs, especially related to surface transportation that may be associated with a particular FAA project.

h. **National Response Center (NRC)** is the operational and communications center for the 14 member agencies of the National Response Team. The NRC provides the initial step in the Federal response. The NRC operates a national 24-hour hotline for emergency and potential emergencies, whether natural or human-induced. The hotline number is 1-800-424-8802.

i. **Person** means an individual, association, partnership, corporation, municipality, State, Tribal State, or Federal agency, or an agent, contractor or employee of one of those entities.

j. **Pollution** is the presence of man-made or man-induced matter or energy whose nature, location, or quantity produces, or could produce, undesired effects on the earth or its inhabitants, including the air, water, soil, plant life, animal life, or human life.

k. Recycling is separating and processing waste for reuse, new use or function into useful materials.

l. Resources are funding, material, and human factors (including training).

m. State, Interstate, and Local Agencies are agencies designated by the Governor of a State; established by two or more States; authorized by a city, county, or local government; or established by two or more counties or municipalities located in the same State or in different States. These agencies have responsibilities, powers, or duties to develop and enforce laws or ordinances pertaining to the prevention, control, and abatement of environmental pollution and which can supersede Federal laws.

9. POLICY.

a. Protection of the environment and the public are responsibilities of paramount concern and importance to FAA. All our activities must recognize and reflect this concern and public trust. We must comply with all Federal, State, Tribal State, interstate, and local environmental regulations and pollution control statutes, unless specifically exempted, in the same manner and to the same degree as any other person or entity also subject to those requirements. All FAA operations, field organizations, and programs must consistently work to meet environmental obligations. Fines can be levied for non-compliance with federal and state requirements.

b. The FAA is committed to sound environmental management in all of its programs and at all of its facilities. Sound environmental management will help identify and correct present and past environmental problems and prevent future ones.

c. Under Federal, State, Tribal State, and local guidelines and regulations, source reduction of wastes and recycling must be implemented in FAA facilities.

d. ~~As new environmental requirements emerge, specialized orders or Acquisition~~ Management System policy or guidance changes will be written with regard to specific, relevant environmental pollution control statutes or regulations. Sustainable design principles and other environmental factors will be a significant consideration in siting, designing and constructing facilities. This will include life-cycle analysis and costs and environmental impacts of the program.

e. When the FAA is officially notified that we are in violation of an applicable pollution control statute or regulations, we must promptly consult with the regulatory entity and initiate developing a plan to bring the facility into compliance as soon as possible.

f. Associate and Assistant Administrators will work with regions and centers to institute environmental auditing programs for facilities. These auditing programs will ensure facilities are adequately monitoring, achieving, and maintaining environmental compliance.

g. The FAA will incorporate the use of energy efficient techniques and technology, and the use of recycled content and biobased products to eliminate, reduce or limit the impact of FAA operations on the environment.

10. REPORTING REQUIREMENTS. All offices identified by their Associate/Assistant Administrator as having environmental responsibilities will provide appropriate environmental information to AEE to meet Congressional Inquiries, and FAA, Department of Transportation (DOT), Environmental Protection Agency (EPA), and other statutory pollution control reporting requirements. The Assistant Administrator for Aviation Policy, Planning and Environment (AEP)/Office of Environment and Energy (AEE) will issue a call for data specifying the information required and the schedule for submitting it. This includes, but is not limited to:

a. *Annual Facilities Environmental Program Activities Report, as required by DOT M 5640.1D.* The FAA should submit this report to DOT by March 31 of each year. The report should contain information from the previous calendar year, including:

- (1) A brief summary of major environmental accomplishments.
 - (2) A copy of environmental directives and manuals issued by headquarters to the field organizations.
 - (3) A copy of results of surveys and/or environmental audits performed by headquarters.
 - (4) A regional facilities environmental program organization--a list of the headquarters and regional environmental personnel showing position titles and employees' names.
 - (5) A brief description of Regional/Center or headquarters planned training, workshops, seminars, environmental audits, and/or surveys.
-
- (6) Department of Interior reporting requirements on the expenditures for the conservation of endangered and threatened species as required by the Endangered Species Act of 1973. Also, the Report to Congress on Federal archeological activities as required by the Archeological and Historic Preservation Act of 1974 and Archeological Resources Protection Act of 1979.

b. *Environmental Management Report, as required by E.O. 13148.* It will be developed to help evaluate FAA's progress towards implementing E.O. 13148. The report should contain information from the previous calendar year, including progress in:

- (1) Phasing out ozone depleting substances (ODS).
- (2) Implementing Environmental Management Systems.
- (3) Demonstrating toxic chemical release reduction, toxic chemical use reduction, and emergency planning and reporting responsibilities.

(4) Implementing environmentally beneficial landscaping practices.

(5) Implementing the other Greening the Government Executive Orders: 13101, 13123, and 13149.

c. Environmental Training Requirements, as required by E.O.13148 and DOT M 5640.1D. To assess progress in this area, each region and center will provide AEE with a fiscal year summary of their Environmental Training Plan. The summary should include the following:

(1) Training goals for past, current, and following fiscal years.

(2) Achievements for the past and current fiscal years.

(3) Categorized listing of training needs for the current and following fiscal years, including numbers of personnel to be trained in each category.

(4) Explanation of any shortcoming and its associated corrective action.

11. POLLUTION CONTROL STATUTES.

a. All FAA facilities will be designed, constructed, managed, operated, maintained and decommissioned to conform with applicable pollution control statutes. In addition to the Clean Air Act and Clean Water Act, there are a number of other statutes, including, but not limited to, those listed in Appendix C.

b. Some of these pollution control statutes permit the EPA to delegate implementation responsibility and regulatory authority to a State or Tribal Government if the State or Tribal regulations are equal to or more stringent than the Federal regulations. As a result, there are a number of local regulations which Federal facility employees must have knowledge of to ensure compliance.

12. RESPONSIBILITIES.

a. All FAA Personnel will:

(1) Notify supervisors of environmental pollution incidents or situations, which they believe to be in noncompliance. The person in charge of the facility or his or her designated representative must notify the National Response Center or other appropriate authority immediately when a noncompliance situation, including reportable releases, warrants it.

(2) Request of their supervisors, as appropriate, the necessary resources to comply with applicable pollution control requirements.

(3) Document compliance efforts appropriately.

b. Associate and Assistant Administrators will:

- (1) Notify their organizations under direct line authority of the environmental requirements with which they must comply.
- (2) Ensure sufficient funds and resources for compliance with applicable pollution control statutes are requested in the agency budget.
- (3) Direct funds appropriated and apportioned for the prevention, control, and abatement of environmental pollution and ensure funds are not used for any other purpose.
- (4) Ensure their offices prevent, control, and abate environmental pollution at, or from, FAA-owned, -leased, -licensed, or -operated facilities.
- (5) Manage the construction or operation of facilities outside the United States in order to comply with the more stringent environmental pollution control requirements of general applicability of either the U.S. or the host country of jurisdiction.
- (6) Advise, oversee, and, as appropriate, assist their field counterparts to maintain compliance with this order.
- (7) Establish and implement environmental compliance training specific to the services and offices under their direction so that all personnel involved in environmental compliance activities receive appropriate training.

c. Regional Administrators will:

- (1) Designate an official contact on request for selected environmental matters, for example, regional recycling coordinators.
- (2) Cooperate with the EPA, State, Tribal State, interstate, and local agencies in preventing, controlling and abating environmental pollution, as required.

d. Center Directors and Regional Airways Facilities Division Managers will:

- (1) Designate an official contact (Center or Regional Environmental Coordinator) for matters relating to facility environmental pollution control.
- (2) Interact with the EPA, State, Tribal State, interstate, and local agencies in preventing, controlling and abating environmental pollution, as required.
- (3) Ensure that all facilities under their jurisdiction are covered by a program that ensures compliance with Executive Orders including "Greening the Government" Executive Orders. ("Greening" is the commitment of the Federal Government to protect the environment

through energy efficiency, recycling, pollution prevention, and affirmative procurement.) This program should include environmental audits and/or surveys of facilities to identify existing or potential pollution problems; plans for correcting problems, including budgeting for the necessary resources; and appropriate training of employees.

(4) Provide AEE with information on each notice of violation, associated compliance agreement, administrative order, consent order, or equivalent document (regarding environmental pollution at, or from, an FAA facility) issued by a Federal, State, Tribal State, or interstate agency within 30 days of receiving the document.

e. The Office of Budget (ABA) will:

(1) Set forth, in the annual budget submission, estimates of funds necessary to comply with this order.

(2) Serve as the central liaison point in the agency for annual budgetary estimates or programmatic matters requiring coordination with or submission to the Office of the Secretary of Transportation (OST), OMB, or Congressional Committees and for integrating environmental funding requirements with other requirements of the agency.

f. The Office of the Chief Counsel (AGC) will:

(1) Provide legal advice to the Administrator and agency employees on pollution prevention, control, and abatement. The Environmental Law Branch (AGC-620) is responsible for providing counsel and assistance to AEE and other headquarters staff. The Regional and Center Counsel are responsible for providing counsel and assistance to regional and center employees.

(2) Advise agency employees in negotiating compliance agreements, when appropriate.

g. Air Traffic Services (ATO-W), Airport Planning and Programming (APP), Commercial Space Transportation (AST), Acquisition (ASU), Terminal Business Service (ATB), NAS Operations Program (AOP), NAS Operational Support (AOS) and Communications, Navigation and Surveillance Systems (AND) will, as indicated:

(1) Implement the pollution prevention environmental program in accordance with this order. (All)

(2) Obtain and allocate funds required for effective implementation and management of the pollution prevention environmental program and the directives that are produced. (All)

(3) Budget for all FAA required pollution prevention environmental program funding. (All)

- (4) Develop operational plans and directives as required to implement the FAA facility environmental program. (ATO-W)
- (5) Prioritize and implement facility environmental training requirements. (ATO-W)
- (6) Ensure environmental considerations are included in the Life Cycle Management Process including real property (Acquisition Management System). (ASU)
- (7) Ensure appropriate environmental guidance is included in all technical and maintenance requirements, orders, plans, and programs. (All)
- (8) Consult on facility environmental implementation matters as needed with all headquarters, regional and center personnel. (ATO-W)
- (9) Provide to headquarters management, as needed, reports of progress, potential problems, and trends in facility environmental programs. (ATO-W)
- (10) Provide to AEE, upon request, data and reports that demonstrate compliance with environmental statutes, regulations and orders. (All)

h. The Office of Environment and Energy (AEE) will:

- (1) Develop policies, programs, procedures, and standards on agency-wide environmental compliance within the framework of applicable environmental laws, regulations, E.O.s and standards. Notify the LOBs of those agency-wide requirements.
 - (2) Evaluate the effectiveness of FAA environmental policies and the directives produced by other organizations to implement the policies, and provide findings in written reports to the Office of the Administrator.
-
- (3) Serve as the focal point within FAA for guidance relating to FAA environmental management systems, environmental compliance policies, and environmental risk management issues.
 - (4) Interpret applicable environmental standards and regulations, and develop (or participate in developing) new or revised FAA orders and AMS language, when appropriate.
 - (5) Conduct programmatic oversight evaluations of the facility environmental program throughout the agency.
 - (6) Evaluate the effectiveness of facility environmental training program(s).
 - (7) Serve as liaison between the FAA and DOT, the EPA, Office of the Federal Environmental Executive, Tribal States, the States and other regulatory or advisory agencies on national environmental program matters and policies.

- (8) Serve as chair of the headquarters Environmental Network.

13. PERSONAL LIABILITY WITH REGARD TO POLLUTION PREVENTION LAWS.

a. Under current laws, evidence that an employee had knowledge of a violation and took no corrective action may warrant a criminal prosecution of the employee. Statutes which authorize criminal fines and imprisonment for "knowing" violations include the Clean Air Act, the Clean Water Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Resource Conservation and Recovery Act, the Toxic Substances Control Act, and the Safe Drinking Water Act. In addition, some environmental statutes authorize criminal sanctions for "negligent" violations, including the Clean Air Act and the Clean Water Act. (Note: FAA and the U.S. Department of Justice may not provide employees legal advice or representation when employees are sued in their individual capacity in criminal actions).

b. Under current laws, managers may similarly face criminal sanctions if the manager knowingly acquiesces in a violation by a lower level employee and fails to take steps to correct a situation or to make sure that it is not repeated. In addition, managers may also face criminal sanctions for negligent violations of environmental statutes such as the Clean Air Act or the Clean Water Act.

c. The Regional and Center Counsels are the consultative source for regional and center employees and the Assistant Chief Counsel for the Airports & Environmental Law Division is the consultative source for headquarters employees seeking to understand Federal, State, Tribal, and local environmental laws and regulations.

d. Employees should request the necessary resources to comply with the law. E.O. 12088 and E.O. 13148 direct Federal agencies to ensure that sufficient funds for compliance with applicable pollution control standards are requested in the agency budget.

e. An employee's liability may be reduced if the employee promptly reports noncompliance to a supervisor and/or to the appropriate EPA, State, or Tribal State officials. An employee should document his or her efforts at compliance.

14. REVIEW OF FAA DIRECTIVES. All FAA directives that may have national or headquarters environmental consequences will be reviewed by AEE before they are implemented.

APPENDIX A. APPLICABLE DIRECTIVES

The following directives, or their successors, apply:

Manual DOT 5640.1D, Environmental and Natural Resources Program Manual, dated September 12, 1996.

DOT Strategic Plan to Implement E.O. 13101, dated June, 2000.

FAA Order 1050.1D, Policies and Procedures for Considering Environmental Impacts, dated December 5, 1986. As amended.

FAA Order 1050.12, Application of Nonrestricted and Restricted-Use Pesticides, dated April 28, 1978.

FAA Order 1050.14A, Polychlorinated Biphenyls (PCB) in the National Airspace System, dated June 20, 1991.

FAA Order 1050.15A, Fuel Storage Tanks at FAA Facilities, dated April 30, 1997.

FAA Order 1050.16, Implementation Guidelines for Compliance with Underground Storage Tanks (UST) Regulations, dated March 16, 1989.

FAA Order 1050.17, Airway Facilities Environmental and Safety Compliance Program dated, January 5, 1994

FAA Order 1050.18 Chlorofluorocarbons and Halon Use at FAA Facilities, dated April 25, 1994.

FAA Order 1050.19 Environmental Due Diligence Audits in the Conduct of FAA Real Property Transactions, dated August 8, 1994.

FAA Order 1050.20A Airway Facilities Asbestos Control Program, dated October 12, 2001.

FAA Order 1054.1 Environmental Network

FAA Order 5050.4A Airport Environmental Handbook, dated October 8, 1985.

FAA Order 5100.38A, Change 1, Airport Improvement Program (AIP), dated December 1, 2001.

FAA Administrator's Policy Statement on Pollution Prevention, dated June, 2000

FAA Acquisition Management System

APPENDIX B. EXECUTIVE ORDERS

Citation	Title
E.O. 11472	Establishing the Environmental Quality Council and the Citizens' Advisory Committee on Environmental Quality
E.O. 11514	Protection and Enhancement of Environmental Quality
E.O. 11991 (Amended 11514)	
E.O. 11593	Protection and Enhancement of the Cultural Environment
E.O. 11644 E.O. 12608 (Amended 11644)	Use of Off-Road Vehicles on the Public Lands (Source: DENIX)
E.O. 11738	Providing for Administration of CAA and the Federal Water Pollution Control Act with Respect to Federal Grants or Loans
E.O. 11742	Delegating to the Secretary of State Certain Functions Under the Federal Water Pollution Control Act with Respect to Negotiation of International Agreements
E.O. 11988 E.O. 12148 (Amended 11988)	Floodplain Management
E.O. 11990 E.O. 12608 (Amended 11990)	Protection of Wetlands
E.O. 12088	Federal Compliance with Pollution Control Standards
E.O. 12580 (Amended 12088) E.O. 12777 (Amended 12580) E.O. 13016 (Amended 12088) E.O. 13148 (Revoked in part 12088)	Superfund Implementation Implementation of Section 311 of the Federal Water Pollution Control Act of 10/18/72, as amended, and the Oil Pollution Act of 1990
E.O. 12114	Environmental Effects Abroad of Major Federal Actions
E.O. 12146	Management of Federal Legal Resources
E.O. 12148	Federal Emergency Management
E.O. 12196	OSHA for Federal Employees

Citation	Title
E.O. 12372 E.O. 12416 (Amended 12372)	Intergovernmental Review of Federal Programs
E.O. 12844 E.O. 12974 (Revoked in part 12844)	Federal Use of Alternative Fueled Vehicles Federal Alternative Fueled Vehicle Leadership
E.O. 12852	President's Council on Sustainable Development
E.O. 12866	Regulatory Planning and Review
E.O. 12898	Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
E.O. 12906	Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure
E.O. 12915	Federal Implementation of the North American Agreement on Environmental Cooperation
E.O. 12916	Implementation of the Border Environment Cooperation Commission and the North American Development Bank (Source: DENIX)
E.O. 12962	Recreational Fisheries
E.O. 12996	National Wildlife Refuge System
E.O. 13006	Locating Federal Facilities on Historic Properties in our Nation's Central Cities
E.O. 13007	Indian Sacred Sites/Native American Related Practices
E.O. 13010 E.O. 13041 (Amends 13010) E.O. 13138 (Revoked in part 13010)	Critical Infrastructure Protection
E.O. 13011	Federal Information Technology
E.O. 13021	Tribal Colleges and Universities

Citation	Title
E.O. 13045	Protection of Children From Environmental Health Risks and Safety Risks
E.O. 13061	Federal Support of Community Efforts Along American Heritage Rivers
E.O. 13080	American Heritage Rivers Initiative Advisory Committee
E.O. 13084	Consultation and Coordination with Indian Tribal Governments
E.O. 13101	Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition
E.O. 13123	Greening the Government Through Efficient Energy Management
E.O. 13132	Federalism
E.O. 13138	Continuance of Certain Federal Advisory Committees
E.O. 13148	Greening the Government Through Leadership in Environmental Management
E.O. 13149	Greening the Government Through Federal Fleet and Transportation Efficiency

APPENDIX C. POLLUTION CONTROL STATUTES.

All FAA facilities will be designed, constructed, managed, operated, and maintained so as to conform with the applicable pollution control statutes, including, but not limited to, the following. (Refer to <http://www.epa.gov/epahome/laws.htm> for updates.)

1. AEA Atomic Energy Act
42 U.S.C. Sections 2014, 2021, 2022, 2111, 2113, 2114
 2. CAA Clean Air Act
42 U.S.C. Section 7401 *et seq.*
 3. CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
42 U.S.C. Section 9601 *et seq.*
 4. CWA Clean Water Act
(See the Federal Water Pollution Control Act)
 5. EPCRA Emergency Planning Community Right-To-Know Act
42 U.S.C. Section 11001 *et seq.*
 6. ESA Endangered Species Act
16 U.S.C. Section 1531 *et seq.*
 7. FIFRA Federal Insecticide, Fungicide & Rodenticide Act
7 U.S.C. Section 136 *et seq.*
 8. FLPMA Federal Land Policy and Management Act
43 U.S.C. Section 1701 *et seq.*
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9. FWPCA Federal Water Pollution Control Act
33 U.S.C. Section 1251 *et seq.*
 10. HMTA Hazardous Materials Transportation Act
49 U.S.C. Section 1801 *et seq.*
 11. LBPORA Lead-Based Paint Exposure Reduction Act
42 U.S.C. Section 2681 *et seq.*
 12. NCA Noise Control Act
42 U.S.C. Section 4901 *et seq.*
 13. NEPA National Environmental Policy Act
42 U.S.C. Section 4321 *et seq.*

14. NHPA National Historic Preservation Act
16 U.S.C. Section 470 *et seq.*
15. ARPA Archaeological Resources Protection Act
16 U.S.C. Section 470
16. NWPA Nuclear Waste Policy Act
42 U.S.C. Section 10101 *et seq.*
17. RCRA Resource Conservation and Recovery Act
(See the Solid Waste Disposal Act)
18. SWDA Solid Waste Disposal Act
42 U.S.C. Section 6901 *et seq.*
19. TSCA Toxic Substances Control Act
15 U.S.C. Section 2601 *et seq.* (Pollution Control Act)
20. FWCA Fish and Wildlife Coordination Act
16 U.S.C. Section 661 *et seq.*
21. CZM Coastal Zone Management Act
16 U.S.C. 1455 *et seq.*
22. EPACT Energy Policy Act
42 U.S.C. 13211-13219 *et seq.*
-

CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

6950.27, CHG 1

1/23/03

SUBJ: SHORT CIRCUIT ANALYSIS AND PROTECTIVE DEVICE COORDINATION STUDY

1. PURPOSE. This change transmittal incorporates and clarifies in Appendix 1, Recommended Statement Of Work (SOW) Power System Study, the requirement for selective coordination of the facility power distribution system.

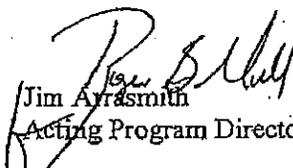
2. DISTRIBUTION. This order is distributed to the division level in Airway Facilities and the Office of Communication, Navigation, and Surveillance System in Washington; to the Logistics Center and the Academy at the Aeronautical Center; to branch level at ATC Engineering and Test Division, CNS Engineering and Test Division; NAS System Engineering and Analysis Division; and Facility Services and Engineering Division at the Technical Center; to all regional Airway Facilities divisions and NAS Implementation Offices; and to all Airway Facilities field offices with a standard distribution.

3. EXPLANATION OF CHANGES. The goal of a short circuit and coordination study is to have selective coordination. This is an unclear mandate in this directive. This change clearly delineates the requirement for protective device coordination (PDC) in a distribution system. Appendix 1, Page 3 addresses PDC considerations as applied to FAA electrical system classification; i.e., essential, nonessential, and critical. Appendix 2, Coordination Guidelines, was added to provide general principles to assist in the coordination process.

DISPOSITION OF TRANSMITTAL. This transmittal sheet should be retained until a new directive cancels the basic directive.

PAGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated
Appendix 1 3 and 4	10/3/94	Appendix 1 3 thru 5	23/01/03
		Appendix 2	


Jim Ayrasmith
Acting Program Director for Operational Support

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ATTACHMENT 5.9
PAGE NO. 1 OF 11

ORDER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

6950.27, CHG 1

23/01/03

**SUBJ: SHORT CIRCUIT ANALYSIS AND PROTECTIVE DEVICE COORDINATION
STUDY**

1. PURPOSE. This order directs the accomplishment of short circuit analysis and protective device coordination studies for facility power systems. These power engineering studies are necessary to minimize unscheduled facility outages caused by unanticipated operation of protective devices. Failure of improperly applied power protective devices are a safety hazard to installation and maintenance personnel. Application of uncoordinated protective devices also degrades the reliability and availability of facility power systems.

2. DISTRIBUTION. This order is distributed to division level within the Program Manager for Advanced Automation, Program Directors for Automation, Communication and Aircraft Acquisition, Navigation and Landing, Surveillance, Weather and Flight Service Systems, NAS Operations, Operational Support, Requirements and Life-Cycle Management, NAS Transition and Implementation, and Facility System Engineering Service; to office level at the Aeronautical Center; to the division level in Engineering, Test, and Evaluation Service at the FAA Technical Center; to the division level in the regional Airway Facilities divisions; and to all Airway Facilities field offices with standard distribution.

3. BACKGROUND. The National Electrical Code, 240-12, Fine Print Note (FPN) states in part: "Coordination is defined as properly localizing a fault condition to restrict outages to equipment affected, accomplished by choice of selective fault protective devices." The lack of a proper short circuit and coordination study can place a facility in serious risk of a major shutdown. This has been illustrated by a major facility/service interruption that occurred at a level V airport traffic control tower/terminal radar approach control facility (ATCT/TRACON). This interruption occurred during the installation of electronic equipment connected to the critical electrical power distribution system. The equipment involved had a factory wiring error. When energized, it caused a series of events resulting in the tripping of several circuit breakers, including the main protection of the critical power system. If these devices had been properly coordinated, only the equipment's branch circuit protective device would have opened. This outage had a major impact on the air traffic control system due to the loss of the entire terminal control area.

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4. IMPLEMENTATION.

a. A short circuit analysis and protective device coordination study of the facility power distribution system shall be accomplished in accordance with the National Electrical Code and FAA standard, FAA-STD-032, Design Standards for National Airspace System Physical Facilities, prior to construction of new facilities or major equipment additions or modifications to existing facilities. This shall be accomplished:

(1) As part of the initial design package

(2) Whenever existing facilities are undergoing major modifications to the facility power system (i.e., installation of uninterruptible power supply (UPS), installation or replacement of engine-generator, refurbishment of facility power distribution system, replacement of service transformer, etc.)

(3) Whenever major electronic/electrical equipment installations are accomplished.

b. These studies should be accomplished on existing facilities not meeting the criterion above as resources permit. The goal is to have a power distribution system serving National Airspace System (NAS) facilities that is properly rated and will provide selective fault isolation.

5. RESPONSIBILITIES.

a. All Project Implementation Plans (PIPs) shall incorporate the requirement to perform a short circuit and coordination study. Accomplishment of this requirement will be joint responsibility of the regional facilities and equipment (F&E) staffs and appropriate program offices. The Engineering and Environmental Safety Division, AFZ-800, will have oversight responsibility on this effort.

b. Only qualified engineers shall do a short circuit and coordination study of the power distribution system they design as part of their service. The study shall be used as the basis for specifying the rating and selecting the type of protective devices. To ensure that this requirement is met, the statement of work (SOW) shall include a power system study. A recommended SOW for this purpose is included in Appendix 1, Recommended Statement of Work for Power System Study.

c. Deficiencies identified as a result of the study on existing facilities will be corrected under the project being designed. If they are of such magnitude that implementation of necessary corrective measures can not be funded, they will become the basis of future facility upgrades under CIP 46-07, Power Systems Sustained Support.

6. DELIVERABLES. The study shall be a part of the design data summary handbook in accordance with FAA-STD-032. A copy of the study will be provided to the

installation contractor. If changes or deviations from the approved design are made, the installation contractor shall revise affected portions of the study to reflect those changes or deviations. Installation contract specifications shall require the contractor to prepare and submit those revised portions of the study. Additionally, the contract specifications shall require the contractor to submit, as a minimum, one hard copy and one computer diskette (soft copy) in the current FAA-approved format.

7. SUBSYSTEMS AND EQUIPMENT. Protective devices within the equipment or subsystems and the interface to the facility power distribution system shall also be coordinated. This requirement is incorporated in the last edition of Specification FAA- G-2100, General Specification for Ground Based Electronic Equipment. This requirement shall be accomplished by appropriate program offices and coordinated with regional engineers.

8. BASELINED DOCUMENTATION. The study shall become a part of Section IV of the Facility Reference Data File (FRDF). If the power distribution system is changed in any way the base lined study shall be updated. This includes any branch or feeder breaker replacement.

Jim Arrasmith
Acting Program Director, Operational Support

APPENDIX 1. RECOMMENDED STATEMENT OF WORK (SOW) POWER SYSTEM STUDY

GENERAL:

The performance and reliability of an electrical power system can change significantly as electrical loads increase, as the characteristics of loads change, or as the power supplier's system changes. These changes may result in components being applied beyond their ratings and/or no longer providing protection to equipment and the system. The goal is to have a power distribution system serving NAS facilities that is properly rated and will provide selective fault isolation.

This SOW is designed to obtain engineering studies that identify these problems and recommends solutions.

The design of the electrical power distribution shall include a complete power system study in accordance with FAA-STD-032, Design Standards for National Airspace System Physical Facilities. The study shall include short circuit analysis, protective device coordination, voltage drop analysis, and sizing of stand-by diesel engine-generator and utility service.

SHORT CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDY:

1. GENERAL REQUIREMENTS:

1.1 The purpose and intent of this study are to:

- a. Determine if protective equipment and components are applied within their nameplate ratings.
- b. Determine settings needed on adjustable protective devices to protect system components and maximize system availability.
- c. Identify changes that are necessary for proper application and protection.

1.2 Whether the study is by contract or consultant it shall be conducted by an engineer with 3 or more years experience on this type of study. Electrical engineering design experience in large hospitals, life safety systems, and/or large computer and telecommunications facilities are preferred. The engineer shall be available to share opinions related to significant recommendations. The engineer shall have proven computer programs for making single-phase and three-phase fault duty calculations. A listing of previous study jobs completed and resume of the engineer shall be available for review. A previous report shall be available for review to illustrate the type of report that will be supplied.

APPENDIX 1. RECOMMENDED STATEMENT OF WORK (SOW) POWER SYSTEM STUDY (CONTINUED)

1.3 The study work shall be conducted under the applicable standards of the American National Standards Institute (ANSI), Institute of Electrical and Electronic Engineers (IEEE), and the National Electrical Code (NEC). Specifically the following standards shall apply:

- a. IEEE C37.010-1979, IEEE Standard Application Guide for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis (includes Supplement C37.010d) (ANSI).
- b. IEEE C37.13-1981, IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures (ANSI).
- c. IEEE C37.5-1979, IEEE Guide for Calculation of Fault Currents for Application of AC High-Voltage Circuit Breakers Rated on a total Current Basis (ANSI).
- d. IEEE Std 141-1986, IEEE Recommended Practice for Electrical Power Distribution for Industrial Plants (ANSI).
- e. IEEE Std 242-1886, IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (ANSI).

1.4 The basic scope of the study is the facility power system from the power supplier's primary service through the main secondary distribution system up to the branch circuit protective devices.

1.5 For existing facilities, the engineer shall visit the site to become familiar with and obtain data of all components, devices, and equipment in the system

WORK ELEMENTS:

2. SINGLE-LINE DIAGRAMS

2.1 The engineer shall prepare a single-line diagram of the power system. This diagram shall identify all components considered in the study and the ratings of all power devices. This includes, but not limited to, transformers, circuit breakers, relays, fuses, busses, and cables. Reference numbers shall be used on the diagram related to key items in the report. ANSI device function numbers shall be used on protective relays.

3. SHORT CIRCUIT STUDY

3.1 A short circuit study shall be performed which shows the momentary and interrupting fault duties on each bus shown on the single-line diagram. A computer shall be used to perform calculations on all three-phase faults. In addition, an impedance listing shall be prepared showing bus-to-bus impedance values reduced to a common MVA base referenced to a single-line diagram for ease in reviewing data.

**APPENDIX 1. RECOMMENDED STATEMENT OF WORK (SOW) POWER
SYSTEM STUDY (CONTINUED)**

3.2 Study each over-current device related to the calculated duty and recommend changes when appropriate.

4. COORDINATION STUDY.

4.1 For each new or modified power distribution system design, a comprehensive protective device coordination study covering all devices and power sources identified on the single-line diagram shall be completed. Settings for all adjustable protective devices shall be documented on the single-line diagram provided to the FAA. Where consultant engineers are providing the design, ensure that the contract document clearly requires coordination as stated in this order. The coordination study is required for: 1) The initial design of a new power system, 2) When a change to a design baseline is made during the engineering change process (ECP), which may result in configuration management changes, 3) When an National Change Proposal (NCP) is requested which directly effects the power system, and 4) During major power system modifications are made to existing facilities. The goal is to have a power distribution system serving NAS facilities that is properly rated and will provide selective fault and overload isolation.

a. Table 1 is provided as a reference for engineering consideration when applying selective coordination.

b. Appendix 2, Coordination Guidelines, provides general principles to assist in the coordination process.

**Table 1
Selective Coordination Matrix**

	Critical (EG&UPS)	Essential	Non Essential
New Design	Mandatory	Mandatory	Not Required (See note 2)
Major Modification to Existing Facility (Note 3)	Recommended (See Note 1)	Recommended (See Note 1)	Not Required (See Note 2)

NOTE:

1. In instances where the coordination study reveals that full coordination is not feasible and sufficient funds are not available, identify the deficiencies to the Funds Administrator in the form of the short circuit protective device coordination study and written correspondence for future funding consideration.
2. Overloads of long duration shall coordinate for these systems. In no case shall faults on these circuits be allowed to effect over-current protective devices that feed essential and critical systems.
3. Major Modification is defined as the replacement or addition of an engine generator or UPS system and or the addition of Power Distribution Units (PDU's).

**APPENDIX 1. RECOMMENDED STATEMENT OF WORK (SOW) POWER
SYSTEM STUDY (CONTINUED)**

4.2 Study the application of devices versus system needs and recommend new or additional devices that are needed for adequate protection.

4.3 Prepare time/current coordination curves to illustrate the protection and coordination achieved with the recommended settings of protective devices. These curves shall reflect the following (where applicable):

- a. Appropriate National Electric Code protection points.
- b. Appropriate ANSI protection points.
- c. Magnetizing inrush points of transformers.
- d. One-line diagram of the system identifying the device plotted.
- e. Short circuit current levels used for coordination.
- f. Through-fault protection curves for liquid immersed transformers.

5.0 REPORTING.

5.1 The engineer shall submit three bound copies of the coordination study. The study shall contain the following information:

- a. An executive summary, which identifies all significant design shortfalls and recommended solutions.
- b. A tabulation of all protective devices identified within the design as identified on the one-line diagram, with their ratings compared to their respective fault duty as calculated in the study.
- c. A tabulation of the settings recommended on all adjustable protective devices with ~~references to the single-line diagram and coordination curves.~~
- d. Copies of all time/current coordination curves developed in the study.
- e. An analysis of design shortfalls that lead to specific recommendations included in the executive summary.
- f. The single-line diagram of the system studied, including description of all ratings and identifications described therein.
- g. Copies of all results in electronic format, referenced to the single-line diagram and the impedance listing.

**APPENDIX 1. RECOMMENDED STATEMENT OF WORK (SOW) POWER
SYSTEM STUDY (CONTINUED)**

5.2. The coordination study shall be completed and submitted to FAA within a mutually agreed time. A copy of the approved report shall be included as part of the Design Data Handbook in accordance with FAA-STD-032.