

**BY ORDER OF THE COMMANDER
AIR FORCE TECHNICAL
APPLICATIONS CENTER**

**AIR FORCE TECHNICAL
APPLICATIONS CENTER
INSTRUCTION**



21-302

05 AUGUST 2025

Maintenance

**SPECIALIZED PUBLICATIONS PLANT-
IN-PLACE RECORD PUBLICAITONS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available on the e-Publishing web site at www.e-Publishing.af.mil for downloading or ordering.

RELEASABILITY: There are no releasability restrictions on this publication

OPR: 709 SPTS/MSMD

Certified by: 709 SPTS/CC
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Supersedes: CENI 21-302,
07 December 2009

Pages: 10

This Air Force Technical Application Center Instruction (AFTACI) establishes the Air Force Technical Applications Center (AFTAC) Plant-in-Place Record (PIPR) special publication system. It defines scope, assigns responsibilities, and prescribes policies relative to the PIPR system. Software documentation is excluded from this instruction except as applicable to specific PIPRs. It applies to all AFTAC military and civilian personnel, its detachments, and individual reservists assigned to AFTAC. It does not apply to the Air National Guard. Ensure all records generated as a result of processes prescribed in this publication adhere to AFI 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System (AFRIMS). Refer recommended changes and questions about this publication to the office of primary responsibility (OPR), 709 SPTS/MSMD, using the DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from your directorate through Publications and Forms Manager, AFTAC/A6X.

SUMMARY OF CHANGES

This instruction has been revised to reflect the Technical Documentation organizational move from AFTAC/SD to 709 SPTS/MSMD. Changes also include updated roles and responsibilities

due to the unitization of AFTAC and the resulting reorganization. Section 3, Air Force Technical Order (AFTO) Form 22, *Technical Manual (TM) Change Recommendation and Reply*, updated to reflect AFTAC procedure. AFTO Form 22 no longer referenced in Technical Order (TO) 00-5-1.

1. Scope. The PIPR system is the official channel for documenting the physical site layout housing AFTAC equipment by providing site-unique configurations, local conditions, and physical attributes not contained in system/equipment technical publications. The PIPR information is used for planning equipment installations and system upgrades. The contents of a PIPR will not repeat or replace existing technical publications. Recommendations for improvements in the PIPR system, including proposals for new publications and changes to existing ones, will be submitted in accordance with this AFTACI.

2. Responsibilities.

2.1. PIPR System Director for AFTAC is 709 SPTS/MSMD. The PIPR System Director will:

2.1.1. Perform overall management of the PIPR publication system by establishing and controlling format, numbering systems, and other administrative procedures and systems pertaining to the publication of PIPRs.

2.1.2. Develop and coordinate PIPR System policies and procedures for implementation, management, and execution of the PIPR System.

2.1.3. Act as the Technical Content Manager for AFTACI 21-302, *Specialized Publications System Plant-In-Place Record Publications*.

2.1.4. Continually review the PIPR system to ensure it is commensurate with overall United States Air Force policy.

2.1.5. Approve all changes to the PIPR system.

2.1.6. Implement the PIPR IAW this AFTACI.

2.1.7. Establish and implement procedures to develop, write, stock, distribute, review, rescind, and archive publications within the PIPR system.

2.1.8. Advise and assist acquisition and sustainment organizations and program managers in the development of PIPRs.

2.1.9. Develop and maintain configuration management of PIPRs.

2.1.10. Ensure establishment and maintenance of complete record sets for PIPRs.

2.1.11. Establish account requirements for PIPRs.

2.1.12. Document and review the status of each publication project on an on-going basis.

2.1.13. Interface with contractors on PIPR System issues.

2.1.14. Appoint a point of contact (POC) for PIPR changes and provide updates to customers when requested.

2.1.15. Ensure applicable work centers are notified when an annual currency review is due on their PIPR and incorporate any changes from the review. Follow up with reviews as needed.

2.2. Quality Assurance Office. This function is defined in ACCI 21-1709 and performed by 709 TMXS/MXSQ and 709 SPTS/QA for their respective AFTAC work centers. QA will:

2.2.1. Ensure detachment personnel are familiar with the PIPR system.

2.2.2. Ensure work centers establish and properly maintain site-unique PIPR.

2.2.3. Act as Product Improvement Manager (PIM) for AFTO Forms 22 by reviewing and tracking the suspense of evaluations and implementation of submitted forms.

2.3. Work Centers will:

2.3.1. Perform and document an annual review of local PIPRs to ensure currency and accuracy. Submit a memorandum for record to the 709 SPTS/MSMD.

2.3.2. Maintain current PIPR.

2.3.3. Ensure required changes to PIPRs are submitted for all changes to equipment or facility configurations. The work center is responsible for submission of AFTO Form 22 for changes that affect the PIPR.

2.4. Subsurface Maintenance Flight (709 TMXS/MXG) will:

2.4.1. Perform the duties in **paragraph 2.3.** for host-operated locations. All other locations should be handled by Det personnel, liaison team (CMAR and 06X), or 709 TMXS/MXG.

2.5. Engineering (AFTAC/SDE) will:

2.5.1. Ensure fielded PIPRs remain technically accurate and current.

2.5.2. Shall assign Technical Content Managers (TCMs) to perform TCM functions on PIPRs.

2.5.3. Validate significant PIPR changes and forward approval to 709 SPTS/MSMD.

2.6. Technical Content Managers (TCM) are responsible for the accuracy, adequacy, modification, classification, and review of the engineering data and related technical contents of a PIPR. Engineers, equipment specialists, item managers, or other persons having knowledge of the subject matter covered by the PIPR, may perform TCM functions. TCMs will:

2.6.1. Evaluate AFTO Forms 22 recommending changes to PIPRs.

2.6.2. Submit AFTO Forms 252, *Technical Order Publication Change Request*, or locally designated equivalent for changes to PIPR.

2.6.3. Evaluate publication change requests for changes to PIPRs submitted by originators other than TCM for adherence to approved maintenance concept, impacts on spares, test/support equipment, training, applicability to equipment sites, and safety issues.

2.7. Installation Team Lead responsible for:

2.7.1. Major equipment installations and upgrades performed by outside activities, will ensure PIPR changes are submitted with an AFTO Form 22 to respective QA five duty days after installation team returns.

2.8. Users (at all levels) will:

2.8.1. Be responsible for ensuring the accuracy of site PIPR, as well as initiating required correct action.

3. AFTO Form 22 (Technical Manual (TM) Change Recommendation and Reply).

3.1. AFTO Forms 22 will be used, filled out, and routed IAW this AFTACI.

3.2. Process.

3.2.1. When a discrepancy, omission, or error is identified in a PIPR the person identifying the issue shall fill out an AFTO Form 22. As a minimum, in block 1 add 709 TMXS/MXSQ or 709 SPTS/QA for their respective work centers after organization, then fill in blocks 6 - 8, 10-13, and 15-20 and submit to the maintenance NCOIC.

3.2.2. The maintenance NCOIC will review the AFTO Form 22 to ensure it is filled out correctly and completely, sign block 9, and email to appropriate QA or QA Mailbox.

3.2.3. QA will review the form to ensure all references are valid, there is not another AFTO Form 22 in the system for the same issue and blocks 6-20 are complete.

3.2.4. QA will fill out blocks 1 and 5, sign, and forward to the 709 TMXS Mission System Manager (MSM).

3.2.5. MSM will review form to ensure it is technically accurate and complete, fill out block 3 and return to appropriate QA.

3.2.6. QA will send form to AFTAC/SDE.

3.2.7. Engineering (AFTAC/SDE) will evaluate AFTO Form 22 and if approved, create AFTO Form 252 (or local equivalent) to change PIPR and submit to 709 SPTS/MSMD.

3.2.8. 709 TMXS/MXSQ or 709 SPTS/QA will track progress monthly until evaluation (AFTO Form 22) and implementation (AFTO Form 252) is complete.

4. Policies.

4.1. For systems maintained by contractor personnel only, it is the program manager's responsibility to ensure annual reviews are conducted and updates are provided.

4.2. Each PIPR will be marked at a minimum Controlled Unclassified Information (CUI) and properly protected from public disclosure.

4.3. PIPRs normally will be unclassified but may contain classified information up to and including SECRET, as necessary. Classified PIPRs will be marked and controlled appropriately.

4.4. Any special publication requirements, i.e., sanitizing, will be handled on a case-by-case basis.

5. PIPR Conventions.

5.1. Site Drawings.

5.1.1. Include a north reference on all top view drawings.

5.1.2. Show the location and usage of all buildings and fixed structures (remote operating facility, solar arrays, poles, towers, borehole(s), roads, fences, etc). Depict major topographical features including roads, rivers, and lakes.

5.2. Floor Plans.

5.2.1. Include a top view drawing of the floor plan that depicts each room and its dimensions. Note the locations of all walls, doorways, and windows.

5.2.2. Include a front view of each wall, with dimensions, for rooms that contain mission and support equipment. Detail the placement of all equipment, permanently installed fixtures and depth/width of cable troughs. Include the height of any raised flooring if applicable.

5.3. Power Information.

5.3.1. Document how power is controlled and distributed from the power source(s) to the mission equipment. Indicate the location and specifications of generators, transformers, circuit breaker panels, service panels, transfer panels, uninterruptible power supplies, and load banks. Note the type of power by voltage, frequency, and phase.

5.3.2. For standby power generators, note the manufacturer, model number, load capacity in kilowatts, age or installation date, and input power. Also, note the output power by voltage, frequency, number of phases, and load capacity in kilovolt amperes.

5.4. Grounding Information.

5.4.1. Detail the earth electrode system; include the lightning protection subsystem.

5.4.2. Show the location and routing of each ground plane and the physical elements used to construct the ground plane (rods, plates, copper cable size, type of bond [exothermic weld or mechanical]). Identify the exit points to the outside ground plane. Describe the soil type (clay, sand, etc.) where the ground plane is installed.

5.5. Security Measures.

5.5.1. Describe any security measures i.e., locks, gates, cameras, etc.

5.6. Instrument and Borehole Information.

5.6.1. Provide a table for each array showing the following information: site number, borehole depth and installed depth for instrument, borehole casing inside/outside diameters, instrument type, distance/travel time from station, global coordinates, and elevation above sea level.

5.6.2. Include any nonstandard information concerning boreholes, i.e., couplers, welds, water in borehole, etc.

6. PIPR Layout/Format.

6.1. The following paragraphs list the minimum required information that should be contained in a PIPR. **Note:** Use the PIPR template to ensure proper layout/format. Contact 709 SPTS/MSMD for template.

6.2. Local Information.

6.2.1. Station Overview. Describe the station in general terms, i.e., where the station is located, power source, number of instruments for each array. Provide the global coordinates and elevation above sea level of the station facility.

6.3. Local Details.

6.3.1. Points of contact information including telephone numbers, fax number, organizational email addresses, physical address, and mailing address. Also include, if

available, contact information for local support agencies (satellite communications, embassy, etc.).

6.3.2. Supply and transportation information that includes the preferred methods for shipping equipment to and from the location, shipping addresses, and import and export customs requirements.

6.3.3. Travel information helpful in making visit arrangements to the station such as methods and routes of travel, visa and passport requirements, health and immunizations information, lodging and dining information, currency information, and any other information deemed appropriate.

6.3.4. Area Maps. Provide maps of the continent or ocean, country or state, city showing station location, boreholes, and repeaters.

6.3.5. Driving Directions. Provide driving directions for each equipment location. Include any special purpose equipment/vehicle requirements.

6.3.6. Safety Concerns. Provide information on any local safety concerns such as weather conditions, terrain, hospital or clinic contact and location information, immunization requirements, etc.

6.3.7. Other. Provide any pertinent information regarding local customs and courtesies, holidays, or environmental issues.

6.4. Station Information.

6.4.1. Provide a top view drawing of the station compound.

6.4.2. Provide a floor plan of the station building.

6.4.3. Provide floor plans for all rooms containing mission equipment.

6.4.4. Provide station power information.

6.4.5. Provide station grounding information.

6.4.6. Configuration Information. Provide equipment configuration parameters for all mission equipment, including internet protocol addresses. Document AFTAC provided equipment at host National Data Centers (NDC) to include Data Collection Center (DCC) and Seatools machines.

6.4.7. Station Equipment. Provide a block diagram of equipment interfaces. Provide drawings or photographs of equipment racks and workstations. Also document AFTAC provided equipment at host NDCs to include DCC and Seatool machines. Show interfaces from station to host NDC with firewall devices and depict ownership of each piece of equipment.

6.5. Array Information.

6.5.1. Array Overview. Provide a brief description of the instrument array(s) to include number and type of instruments and any repeaters used.

6.5.2. Array Maps. Group the information by site type (short period or long period). Include any broadband sites with their respective arrays.

6.5.3. Instrument Site Layouts and Floor Plans. Include compound layouts, enclosure layouts and remote operating facility floor plans of each instrument site. Provide a compound layout for each repeater site.

6.5.4. Instrument Site Power Information. Include commercial alternating current power, direct current power sources to include solar array information, alternating current/direct current (AC/DC) converters, and storage batteries, etc.

6.5.5. Instrument Site Grounding Information. Locations of cathodes, wire, plates, access covers, etc.

6.5.6. Security Measures. Describe all security measures to include locks, fences, barbed wire, etc.

6.5.7. Instrument Site Configuration. Provide timing, instrument and borehole, digitizer and authenticator information and configurations.

6.6. Intrasite and Intersite Communications Information.

6.6.1. Communications Overview. Describe the communications data flow.

6.6.2. Configuration Information. Provide characteristics and configuration information for radio data link, satellite, and microwave communication systems. Include a communications diagram; network equipment such as routers, switches, firewalls, and other equipment provided by AFTAC.

CREIGHTON M. MULLINS, Colonel, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 33-322, *Records management and Information Governance Program*, 28 July 2021
TO 00-5-1, *Air Force Technical Order System*, 11 Sep 2023

Prescribed Forms

None

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*
AFTO Form 22, *TM Change Recommendation and Reply*
AFTO Form 252, *Technical Order Publication Change Request*

Abbreviations and Acronyms

AC—Alternating Current

AF—Air Force

AFRC—Air Force Reserve Command

AFRIMS—Air Force Records Information Management System

AFTAC—Air Force Technical Applications Center

AFTACI—Air Force Technical Applications Center Instruction

AFTO—Air Force Technical Order

C-E—Communications-Electronics

DC—Direct Current

DCC—Data Collection Center

MSM—Mission Systems Manager

NCOIC—Non-Commissioned Officer In Charge

NDC—National Data Center

OPR—Office of Primary Responsibility

PIM—Product Improvement Manager

PIPR—Plant-In-Place Record

POC—Point of Contact

TCM—Technical Content Manager

TM—Technical Manual

TO—Technical Order

Office Symbols

709 SPTG—Support Group

709 SPTS/MSMD—Technical Documentation Branch

709 SPTS/QA—Quality Assurance Office

709 TMXS—Technical Maintenance Squadron

709 TMXS/MXSQ—Quality Assurance Office

709 TMXS/MXG—Subsurface Maintenance Flight

A6X—AFTAC Publications and Forms Management Office

AFRC—Air Force Reserve Command

SD—Systems Development Directorate

SDE—Systems Development Directorate Engineering

Terms

Maintenance—Maintenance is defined as any action which requires the removal of an equipment cover or panel to conduct an alignment, adjustment, modification, removal, and replacement of a line replaceable unit, reset action, etc. to restore a system to operational status; to perform preventive maintenance routines; or to install or remove communications-electronics (C-E) systems, equipment, or circuit.

Work Centers—The production elements under the MSM are responsible for accomplishing all maintenance. These functional elements may be defined according to size, location, mission, and span of control; and may be combined, added, or deleted as considered necessary by the COM.

Product Improvement Manager—The individual or office at an activity responsible for the quality and continuous improvement of the activity operations and maintenance of assigned equipment (part of Quality Assurance activity).

Technical Content Manager—The individual or office responsible for the accuracy, adequacy, modification, classification, and review of PIPR procedures, engineering data and the related technical contents of a PIPR. TCMs are not generally responsible for style and format or other non-technical aspects of manuals.