Administrative Changes to OC-ALCI 90-115, *Preventive Action System*

OPR: OC-ALC/QAI

References throughout to QAB are now changed to QAI.

References to AFI 21-101_AFMCSUP_OC-ALCSUP and AFMCI 21-127 in Table 1, Preventive Action Matrix has changed to AFSCMAN 21-102

Reference to AFMCI 21-127, *Depot Maintenance Plant Management*, in paragraph 2.4 has changed to AFSCMAN 21-102, *Depot Maintenance Management*, and AFMCI21-102 *Depot Maintenance Manual*

Reference to AFMCI 21-127, Chapter 2, in paragraph 2.4.1 has changed to AFSCMAN 21-102, *Depot Maintenance Management*, and AFMCI21-102 *Depot Maintenance Manual*

Reference to AFMCI 21-127, Section 2, in paragraph 2.4.2 has changed to AFSCMAN 21-102, *Depot Maintenance Management*

Reference to AFMCI 21-127, Section 2, in paragraph 2.4.3 has changed to AFSCMAN 21-102, *Depot Maintenance Management*

Reference to AFMCI 21-127, Section 2, in paragraph 2.4.4 has changed to AFSCMAN 21-102, *Depot Maintenance Management*

References to AFI 21-101, AFI 21-101_AFMCSUP1, and AFI 21-101_OC-ALCSUP1, *Aircraft and Equipment Maintenance Management* in Attachment 1 have be replaced by AFI 21-102, *Depot Maintenance Management*, 18 July 2012, AFI 21-102_AFMCSUP, *Depot Maintenance Management*, 19 December 2014, and AFSCMAN 21-102, *Depot Maintenance Management*, 16 March 2015 respectively.

24 MARCH 2016

***BY ORDER OF THE COMMANDER OKLAHOMA CITY AIR LOGISTICS COMPLEX***

***OKLAHOMA CITY AIR LOGISTICS COMPLEX INSTRUCTION 90-115***

***16 APRIL 2014***

***Special Management***

***PREVENTIVE ACTION SYSTEM***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements the Preventive Action System. This instruction applies to all Oklahoma City Air Logistics Complex (OC-ALC) organizations under AS9110 Certification which excludes 76th Software Maintenance Group (76th SMXG) under its own certification and does not include Air Force Reserve Command (AFRC) or Air National Guard (ANG) units. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the 847, *Recommendation for Change of Publication*; route AF 847s from the field through publications/forms managers. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm**. This publication may be supplemented at any level, but all direct supplements must be routed to the OPR of this publication for coordination prior to certification and approval.

***SUMMARY OF CHANGES***

This instruction contains minor administrative changes.

**1. Preventive Action Procedures.**

1.1. Overview: Preventive Actions (PAs) are actions taken to eliminate a potential non-conformity or other undesirable situation. Actions taken to prevent injury of personnel,

damage to equipment, potential bottle necks in processes, or even missing targets/goals are a few examples of PAs (e.g., installing trailing edge padding, changing oil, buying second piece of equipment, rapid improvement event). This instruction gives guidance how OC-ALC organizations are to eliminate the causes of potential non-conformities in order to prevent their occurrence.

1.1.1. **Potential Nonconformities:** Potential non-conformities are determined through various means, such as; Voluntary Protection Programs (VPP), new product review, work scope and pre-production planning teams, cross tell of findings but in particular through the programs listed in Table 1.1. Preventive Action Matrix. Identification is the initial step in the process. It is important to clearly define the potential non-conformity to aid in evaluating need for action.

1.1.2. **Evaluating Need for Action to include Action Based on Human Factors:** The need to prevent occurrence of potential nonconformities should be evaluated by specifics of the **Table** individual programs listed in Table 1.1. through risk assessment and should consider human factors (e.g., lack of communication, complacency, lack of knowledge, distraction, lack of teamwork, fatigue, lack of resources, pressure, lack of assertiveness, stress, lack of awareness, norms, etc.). A preventive action shall be initiated whenever a condition warrants an investigation of an identified potential nonconformity. In the event a PA finding or classification is disputed, the subject PA shall be referred through management level until resolution is achieved.

**Table 1. Preventive Action Matrix**

| Preventive Action Matrix | | | | | | |
|---|---|---|---|---|---|---|
| Preventive Action | To Prevent | Guidance | Verification of Effectiveness | Records | Methods of Reporting | Program Management |
| AFSO21/ Process Improvement | Possible Disruptions due to Process Changes | AFMCI 90-104, AFSO21 Playbook | Sustainment Tracking | Continuous Process Improvement Management Tool (CPIMT) | VSAs and RIEs Briefed at Project Champion Level | Weapon system program management at various levels (CC, complex, and group) |
| OC-ALC Quality Assurance | Process/ Procedure Failures | AFI 21-101_ AFMCSUP_ OC-ALCSUP | Standard Monthly/ Quarterly Indicators | Local file plans | OC-ALC/QA file plans | OC-ALC Quality Assurance Office (OC-ALC/QA) |
| Operational Risk Management | Prevent and Reduce Risks | AFI 90-802 | Supervise and Review IAW AFMCI 90-803 | Records maintained within each organization | Assessments will be briefed to the first level of management above the risk acceptance level | OC-ALC/SE (Complex Safety Office) |
| Equipment Preventive Maintenance | Equipment Failures | AFMCI 21-127 | Internal Audits, Equipment Profile Data, Number of Manufacturing Hours | FEMWEB | Monthly Equipment Health Briefing | OC-ALC & 76th Maintenance Support Group (76 MXSG) |

1.1.3. **Determination and Implementation of Action:** Determination of what action is needed will be based on analysis of potential nonconformity and what would effectively eliminate the potential nonconformance. The decision to implement action will take into consideration cost of implementation, the severity of the potential nonconformity, and the likelihood it will occur.

1.1.4. **Records of Results of Action Taken:** Records of result of action taken will be IAW specific program guidance and AFMAN 33-363, *Management of Records*. At a minimum the record should include potential nonconformance, action taken to prevent nonconformance, name and organization of who took action and date action was taken.

1.1.5. **Verification of Effectiveness:** Effectiveness of actions taken outside a specific preventive action program shall be verified between 6 to 12 months after action is implemented. Effectiveness of actions to prevent occurrence within an established program shall be IAW the program's guidance.

**2. Programs Compliance to AS9110B Preventive Action Clause 8.5.3.**

2.1. **AFSO21 Compliance with AS9110B Preventive Action Clause 8.5.3.** AFSO21 represents an Air Force model for Continuous Process Improvement (CPI) using various methodologies depending on needs of the situation or problem under review. Methodologies include Lean, Six Sigma, Theory of Constraints, Problem Solving, and Business Process Reengineering. Use of the term "AFSO21 initiatives" within the AFMCI 90-104, *Implementing AFSO21 Initiatives*, encompasses all CPI, problem solving, improvement, and change activities conducted across AFMC. An AFSO21 initiative must first have data to validate the problem and when the problem is validated, the initiative must focus on the identification and elimination of waste, constraints and variation that will result in a positive effect cost savings, reduction of cycle time, required resources and improve performance and/or product quality. Documented AFSO21 procedures providing the means for compliance with the AS9110B clause 8.5.3., a-f are identified below:

2.1.1. **Procedure specified to determine potential nonconformities and their causes (a.):**

2.1.1.1. **Reference AFMCI 90-104, para 6.5.1.** The Air Force Sustainment Center (AFSC) AFSO21 Office serves as focal point for all AFSO21 initiatives conducted across the AFSC and for managing the AFSC portfolio of initiatives. Individual organizations and process owners, however, are responsible for identifying improvement opportunities, developing those opportunities into specific improvement initiatives, executing those initiatives, and following up in a spirit of continuous process improvement.

2.1.1.2. **Reference AFMCI 90-104, para 6.5.2.2.** Identification and elimination of waste, constraints and variation on a daily basis in every task and/or process is the responsibility of each individual in the Complex. Problems essentially equate to improvement opportunities. Secretary of the Air Force Smart Operations (SAF/SO) implemented a proven, systematic problem-solving model which serves as the foundation for all Lean, Six Sigma, Theory of Constraints, or other CPI initiatives within the Air Force. The model is based on a concept known as the OODA (Observe, Orient, Decide, Act) Loop. The OODA Loop Details are provided in AFSO21 Playbook Volume B, Section one:

2.1.1.2.1. Observe: Step 1 – Clarify & Validate the Problem.

2.1.1.2.2. Step 2 – Break Down the Problem / Identify Performance Gaps.

2.1.1.2.3. **O**rient: Step 3 – Set Improvement Targets.

2.1.1.2.4. Step 4 – Determine Root Causes.

2.1.1.2.5. **D**ecide: Step 5 – Develop Countermeasures.

2.1.1.2.6. **A**ct: Step 6 – See Countermeasures Through

2.1.1.2.7. Step 7 – Confirm Results & Process.

2.1.1.2.8. Step 8 – Standardize Successful Processes.

2.1.2. **Procedure specified to evaluate the need for action to prevent occurrence of nonconformities (b. ):** There are lean tools to assist in deciding which problems should be tackled. These tools are defined in detail in the ASFO21 playbook. They are Strategic Alignment and Deployment (SA&D), Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis, Voice of the Customer (VOC), and Value Stream Mapping (VSM)/Voice of the Process (VOP), and Go and See. Regardless of the lean tool used, data must be used and resulting analysis must validate the need to initiate a CPI event.

2.1.3. **Process specified to determine and implement action needed (c. ):**

2.1.3.1. **Reference AFSO21 Playbook Volume B, Section 1. 4: Determine Root Causes** – There are six tools that can assist the airman in determining the "true" root cause. The tools are the 5 Whys, Brain Storming, Pareto Analysis, Affinity Diagrams, Fish Bone Diagrams, and Control Charts.

2.1.3.2. **Reference AFSO21 Playbook Volume B, Section 1. 5: Develop Countermeasures** – Guiding Principles when Developing the Countermeasures: Whenever possible use AFSO21 Standard Action Plan, Time Line, and Report Out templates available in the AFSO21 Playbook. Select the most practical and effective countermeasures – use the "Keep it Simple" principle. Create a clear and detailed action plan; MOST importantly, build consensus with others by involving all stakeholders appropriately. It is imperative that the countermeasure developed is based off the true root cause and not a symptom and that the countermeasure will error proof the process being worked and prevent recurrence in the future.

2.1.3.3. **Reference AFSO21 Playbook Volume B, Section 1. 6: See Countermeasures Through -** There are three key questions the AF leader must answer before taking action:

2.1.3.3.1. Which improvement philosophy best fits my situation? (Lean, Theory of Constraints, Six Sigma, Business Process Reengineering).

2.1.3.3.2. What is the best setting for implementing my solution? (Just Do it, Rapid Improvement Event (RIE), Improvement Project). The largest factor in determining most appropriate setting is scope of effort required.

2.1.3.3.3. What process improvement tools are most appropriate? There are dozens of tools from which an experienced practitioner can choose. Eight of the most universally applicable tools are as follows: sort, straighten, shine,

standardize, sustain, safety (6-S) & visual management; standard work; cell design; variation reduction; error proofing; quick changeover; total productive maintenance (TPM); RIE. Tools should be selected based on how well they address the root cause(s) identified in Step Four, "Determine Root Cause(s)."

2.1.4. **Process specified to documentation of records of results of action taken (d. ): Reference AFMCI 90-104, para 7.1.4** - CPI-MT Content Organization. Projects are organized in CPI-MT under a work tree (a hierarchical structure, much like the Windows file system). The root directory, "AFSO21 Projects," contains two branches: "AF Key Processes" and "AF Organization Type & Location." AFMC is one of the branches under "AF Organization Type & Location" and is further decomposed into branches for each major installation. HQ AFMC/A8T will create branches for additional installations as necessary and, under installations, branches for major organizational elements.

2.1.5. **Process specified to review the effectiveness of the preventive action taken (e. ): Reference AFSO21 Playbook Volume B, Section 1.7: Confirm Results and Process** – Step Seven: Closely mirrors the data collection portion of Step Two "Breakdown the Problem and Identify Performance gaps." Ideally the key process indicators and metrics identified in Step Two of the OODA will be all that is needed here. The project(s) should be monitored for: performance relative to the baseline developed in Steps One and Two; performance relative to B-SMART targets established in Step Three; performance relative to where we thought we would be at this stage of the solution implementation; If we are not meeting targets by deadlines, do we need to return to Step Four determine root cause(s)?

2.1.6. **Process specified to evaluate the need for action based on human factors to prevent occurrence of nonconformities (f. ): Reference AFSO21 Playbook Volume B, Section 1.4: Determine Root Causes** – Inherent in any valid, comprehensive root cause analysis, human factors are appropriately considered. Standard analysis tools such as Failure Mode Effects Analysis (FEMA) and Cause and Effect diagrams (i.e., fishbone or Ishikawa diagrams) provide a systematic means to consider all human factors that may contribute to nonconformity.

2.2. **OC-ALC Quality Assurance (QA) Compliance with AS9110 Clause 8.5.3. (Preventive Action):** The QA organization shall determine action(s) to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems. Documented QA procedures that provide the means for compliance with the AS9110 Clause 8.5.3. items a-f are identified below:

2.2.1. **Procedure specified to determine potential nonconformities and their causes (a):** Maintenance quality and equipment reliability is the responsibility of all maintenance personnel. The combined efforts of QA personnel, maintenance leaders and technicians are necessary to ensure high quality maintenance production and equipment reliability. The OC-ALC Quality Assurance program evaluates the quality of maintenance accomplished and performs necessary functions to manage the Complex/Group's Maintenance Standardization Evaluation Program (MSEP). The MSEP provides an objective sampling of the quality of equipment, the proficiency of maintenance personnel, and the compliance of Lead Command and Unit MSEP focus areas, programs and processes. The evaluation and analysis of deficiencies and problem

areas are key functions of QA that highlight and identify underlying causes of poor quality in the maintenance production effort before impacts to the customer occur. These efforts are validated based on the requirements of the MSEP and shall be recorded using a Lead Command-approved QA database.

2.2.2. **Procedure specified to evaluate the need for action to prevent occurrence of nonconformities (b):** Quarterly MSEP reviews are designed to evaluate the need for actions and ensure adequate numbers of inspections are scheduled to prevent product non-conformities and safety issues from occurring.

2.2.3. **Process specified to determine and implement action needed (c):** Complex Quality Assurance organizations design Quality Assurance Surveillance Plans (QASP) as the instrument to determine and implement the plans outlined in the MSEP.

2.2.4. **Process specified to document (records) results of action taken (d):** Quality assessment data will be documented based on the type of inspection tool utilized.

2.2.4.1. The Corrective Action Tracking System (CATS) collects AS9110 auditing data. Records of non-conformity are recorded on OC-ALC Form IMT 531, *Corrective Action Request*. This data is indexed, filed, and stored in CATS.

2.2.4.2. The Quality Information Management standard System (QIMSS) database collects inspection data from Management, Special and Routine inspections, Quality Verification Inspections and Personal Evaluations, as well as isolated violations occurrences. Records of conformity and non-conformity are recorded on AFMC Form 343, *Quality Assurance Assessment*. This data is indexed, filed, and stored in QIMSS.

2.2.5. **Process specified to review the effectiveness of the preventive action taken (e):** Data analysis will be performed on all findings (OC-ALC Form 531; AFMC Form 343) on a recurring basis (monthly, quarterly, and annually) to evaluate trends and systemic issues across the OC-ALC and ensure preventive actions are effective.

2.2.6. **Process specified to evaluate the need for action based on human factors to prevent occurrence of nonconformities (f):** Employee Bill of Rights. To ensure nonconformities do not occur, OC-ALC personnel shall be empowered to take responsible actions that contribute to safety, quality, and productivity. To make this happen, the following employee rights are guaranteed without threat or fear of reprisal: The RIGHT to challenge business as usual, the RIGHT to be heard, the RIGHT to expect commitment to quality, the RIGHT to place quality before production, and the RIGHT to feel genuine pride in OC-ALC products and services. The RIGHT to notify chain of command of any conditions that compromise the ability to produce a safe and quality built product during the performance of assigned duties.

2.3. **The Organizational Risk Management (ORM) Program Compliance with AS9110B Preventive Action Clause 8.5.3.** Reference AFPAM 90-803, Risk Management (RM) Guidelines and Tools: Risk Management is a decision-making process to systematically evaluate possible courses of action, identify risks and benefits, and determine the best course of action for any given situation. AFPAM 90-803 is the process guide for the USAF RM program. It provides the definitions, guidelines, procedures and tools for the integration and execution of RM. RM enables commanders, functional managers,

supervisors and individuals to maximize operational capabilities while limiting all dimensions of risk by applying a simple, systematic process appropriate for all personnel and functions both on and off-duty. Effective risk management begins at the top with commander support and is the responsibility of every person within the chain of command. RM is not limited to issues of safety and should be applied to all operations and activities. The benefits of ORM include maximizing capabilities while minimizing all associated risks in every area of operations. Documented RM procedures that provide the means for compliance with the AS9110 Clause 8.5.3. items a-f are identified below:

2.3.1. **Procedure specified to determine potential nonconformities and their causes (a): Reference AFPAM 90-803 – Step 1 Identify Hazards** - Hazard identification is the foundation of the entire ORM process. Obviously if a hazard is not identified it cannot be controlled. The effort expended in identifying hazards will have a multiplier effect on the impact of the total ORM process. Hazard identification is a three step process requiring mission/task analysis, identifying hazards associated with each step of the process, and root causes for each. Many tools exist to perform these steps including Preliminary Hazard Analysis, Operations Analysis, Logic Diagram and Change Analysis.

2.3.2. **Procedure specified to evaluate the need for action to prevent occurrence of nonconformities (b): Reference AFPAM 90-803, – Step 2 Assess Risk** - Risk assessment is the process which associates "hazards" with "risks". When we know the various impacts a hazard may have on our mission and an estimate of how likely it is to occur we can now call the hazard a risk. The second aspect of risk assessment is the ranking of risks into a priority order. The number one risk is the one with the greatest potential impact on the command mission. The last risk is the least risky issue that still may deserve some attention and possible risk control action. Risk assessment is accomplished by determining the number of persons/facilities/mission elements exposed to the identified hazard, the severity of the impact to people/property/mission and the probability of a negative event. These factors are combined into a single designating risk assessment in one of the following categories; extremely high, high, medium or low.

2.3.3. **Process specified to determine and implement action needed (c):**

2.3.3.1. **Reference AFPAM 90-803, – Step 3 Analyze Control Measures** – Analyzing the possible control measures is done through a three step process. Starting with the highest risks identified all potential control options are identified for each hazard. Then each control option is evaluated to determine the effect it will have on the hazard. Finally all control options are prioritized to provide direction as to actions to be taken.

2.3.3.2. **Reference AFPAM 90-803, – Step 4 Make Control Decisions** - Making control decisions, involves two major dimensions. The first is the selection of the risk controls to actually use from among those developed in the analyze controls step. The second is the decision whether or not to accept the residual risk present in a mission or project after applying all practical risk controls. The decision maker selects the control options after being briefed on all the possible controls. It is not an ad hoc decision, but rather is a logical, sequenced part of the risk management process. Decisions are made with awareness of hazards and how important hazard control is to mission success or failure (cost versus benefit). Control decisions must

be made at the appropriate level. The decision maker must be in a position to obtain the resources needed to implement the risk controls he or she approves. Usually, the earlier in the life of the process that control is implemented, the cheaper it is. When making control decisions, it is important to keep in mind the law of diminishing returns. There is a point at which it is no longer cost effective to continue applying control measures for the small amount of additional return in terms of reduced risk.

2.3.3.3. **Reference AFPAM 90-803, – Step 5 Implement Risk Controls -** Once the risk control decision is made, assets must be made available to implement the specific controls. Part of implementing control measures is informing the personnel in the system of the risk management process results and subsequent decisions. If there is a disagreement, then the decision makers should provide a rational explanation. Careful documentation of each step in the risk management process facilitates risk communication and the rational processes behind risk management decisions.

2.3.4. **Process specified to document (records) results of action taken (d): Reference AFPAM 90-803, 5:** When a decision is made to assume risk, the factors involved in this decision should be recorded. Documentation of RM assessments includes the hazards identified, the initial risk index associated with each hazard, mitigating measures for each hazard, the residual risk index associated with each hazard, implementation methods for all mitigating measures and measurement methods to ensure mitigating methods are maintained and adequate. All documented assessments shall include appropriate risk assessment level signature.

2.3.5. **Process specified to review the effectiveness of the preventive action taken (e): Reference AFPAM 90-803, – Step 6 Supervise and Review -** Supervising and review involves the determination of the effectiveness of risk controls throughout the operation. This step involves three aspects. The first is monitoring the effectiveness of risk controls. The second is determining the need for further assessment of either all or a portion of the operation due to an unanticipated change as an example. The last is the need to capture lessons-learned, both positive and negative, so that they may be a part of future activities of the same or similar type.

2.3.6. **Process specified to evaluate the need for action based on human factors to prevent occurrence of nonconformities (f): Reference AFPAM 90-803, para 11.3.1** Man is the area of greatest variability and thus the majority of risks of the four basic cause factors (man, media, machine, and management). Below are human factors listed to consider in the AFI 90-201, *Special Management* guidelines.

2.3.6.1. ***Selection*:** Right person psychologically/physically, trained in event proficiency, procedural guidance, and habit pattern.

2.3.6.2. ***Performance*:** Awareness, perceptions, task saturation, distraction, channelized attention, stress, peer pressure, confidence, insight, adaptive skills, pressure/workload and fatigue (physical, motivational, sleep deprivation, circadian rhythm).

2.3.6.3. ***Personal Factors*:** Expectancies, job satisfaction, values, families/friends, command/control, discipline (internal and external), perceived pressure (over tasking) and communication skills.

2.4. **The Preventive Maintenance Program Compliance with AS9110 Preventive Action Clause 8.5.3: Reference AFMCI 21-127, *Depot Maintenance Plant Management.*** Work performed by the 76th Maintenance Support Group (76 MXSG) falls into the following general categories: Repair, Project Work, Direct Product, Preventive and Predictive Maintenance which is the area of focus for preventive action. Preventive and Predictive Maintenance is work planned and performed to protect the capability of equipment by removing the cause of failure and making adjustments for normal wear before failure occurs. This work is performed on a predetermined time schedule. Documented Preventive and Predictive Maintenance procedures providing means for compliance with AS9110B, Clause 8.5.3. items a-f are identified below:

2.4.1. **Procedure specified to determine potential non-conformities and their causes (a): Reference AFMCI 21-127, Chapter 2** - The 76 MXSG, with the aid of the production groups, determines which equipment to be included in the preventive maintenance (PM) and predictive maintenance (PDM) programs managed by industrial services. Equipment such as numerically-controlled machine tools, lathes, milling machines, boring machines, surface grinders, breathing air systems, hoists test stands, etc., must be capable of producing to specific tolerances, normally requires specific PM or PDM, in addition to operator maintenance (OM).

2.4.2. **Procedure specified to evaluate the need for action to prevent occurrence of nonconformities (b): Reference AFMCI 21-127, Section 2. Maintenance Program Criteria.** Criteria is applied to determine if equipment will be included in the maintenance management PM or PDM program (e.g., Equipment creating an unsafe or hazardous environment if failure occurred, due to lack of PM or PDM, will be included; Equipment subject to breakdown repairs that are expensive compared to PM or PDM will be included). Refer to AFMCI 21-127, section 2 for specific guidance.

2.4.3. **Process specified to determine and implement action needed (c): Reference AFMCI 21-127, Section 2.** The 76 MXSG equipment specialists prepare PM instructions. Maintenance technical orders, manufacturer's recommendations, and judgment/historical data are used to determine action and implementation needed. Implementation is initiated through work control documents generated by Facilities and Equipment Maintenance (FEM) system.

2.4.4. **Process specified to document (records) results of action taken (d): Reference AFMCI 21-127, Section 2 and OC-ALCI 21-203, *Equipment Maintenance/Inspection and Documentation,* Chapter 3** - The FEM system is an approved AF Computerized Maintenance Management System (CMMS). The system is used to track Depot Industrial Plant Equipment (DIPE) records and maintenance history accomplished by the 76th Maintenance Support Squadron (76 MXSS) or contractor on DIPE. For non-DIPE and on condition maintenance (OCM), FEM can also be used to document corrective maintenance work orders.

2.4.5. **Process specified to review the effectiveness of the preventive action taken (e): Reference OC-ALCI 21-203, Section 2.** Besides being a PA predictive maintenance work is used as review of effectiveness of PM PAs. PDM work is a diagnostic process of using electrical and mechanical testing and diagnostic devices to predict when a piece of equipment is deviating from its normal operating parameters. It

is also designed to protect equipment capability and investment by removing causes of failure and making adjustment to compensate for normal wear before failure or an unsafe condition occurs. The PDM team will provide necessary trending data and analytical reports to management and initiate a work order in the FEM system. Another measure of effectiveness of the PM actions taken is determined by the availability of equipment through the next scheduled PM. The preventive maintenance schedule is adjusted as required.

2.4.6. **Process specified to evaluate the need for action based on human factors to prevent occurrence of nonconformities (f):** Preventive Maintenance program should evaluate the need for action based on human factors through assessing possible safety hazards, operator capabilities, and evaluate safety features, such as; guard rails, fail safe shut offs, and mistake proofing features.

**3. Records.** Records shall be maintained and must be controlled as required per AFMAN 33-363, *Management of Records* and shall be retained IAW applicable AFRIMS table and rule.

DONALD E. KIRKLAND
Brigadier General, USAF
Commander

## Attachment 1

## GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

***References***

AFI 21-101, *Aircraft and Equipment Maintenance Management,26 July 2010*

AFI 21-101_AFMCSUP 1, *Aircraft and Equipment Maintenance Management,* 26 April 2012

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OC-ALCI 21-203, *Equipment Maintenance/Inspection and Documentation,* 12 Jul 2012

OC-ALCI 90-420, *Corrective Action Tracking System*, 5 May 2013

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AS9110B, *Quality Maintenance Systems-Aerospace-Requirements for Maintenance Organizations*, April 2012

***Prescribed Forms***

None

***Adopted Forms***

AFMC Form 343, *Quality Assurance Assessment*

OC-ALC Form 531, *Corrective Action Request*

***Abbreviations and Acronyms***

**6-S**—Sort, Straighten, Shine, Standardize, Sustain, Safety

**72ABW/SE**—72d Air Base Wing Safety Office

**76 MXSG**—76th Maintenance Support Group

**76 MXSS**—76th Maintenance Support Squadron

**76 SMXG**—76th Software Maintenance Group

**AFMCI**—Air Force Materiel Command Instruction

**AFMAN**—Air Force Manual

**AFPAM**—Air Force Pamphlet

**AFRC**—Air Force Reserve Command

**ANG**—Air National Guard

**AFRIMS**—Air Force Records Information Management System

**AFSC**—Air Force Sustainment Center

**AFSO21**—Air Force Smart Operations

**CATS**—Corrective Action Tracking System

**CMMS**—Computerized Maintenance Management System

**CPI**—Continuous Process Improvement

**DIPE**—Depot Industrial Plant Equipment

**FEM**—Facilities and Equipment Maintenance

**FMEA**—Failure Mode Effects Analysis

**IAW**—In Accordance With

**MSEP**—Maintenance Standardization Evaluation Program

**OC**—ALC – Oklahoma City Air Logistics Complex

**OC**—ALCI – Oklahoma City Air Logistics Complex Instruction

**OODA**—Observe, Orient, Decide, Act

**OM**—Operator Maintenance

**OCM**—On Condition Maintenance

**OPR**—Office of Primary Responsibility

**ORM**—Operational Risk Management

**PA**—Preventive Action

**PDM**—Predictive Maintenance

**PM**—Preventive Maintenance

**QA**—Quality Assurance

**QASP**—Quality Assurance Surveillance Plans

**QIMSS**—Quality Information Management standard System

**RDS**—Records Disposition Schedule

**RIE**—Rapid Improvement Events

**RM**—Risk Management

**SA&D**—Strategic Alignment and Deployment

**SAF/SO**—Secretary of the Air Force Smart Operations

**SWOT**—Strengths, Weaknesses, Opportunities and Threats

**TPM**—Total Production Maintenance

**VOC**—Voice of the Customer

**VOP**—Voice of the Process

**VSM**—Value Stream Mapping

**VPP**—Voluntary Protection Programs

***Terms***

**Adequate Response**— A response to preventive action request will include, as a minimum, a root cause analysis of the potential non-conformity. In addition, if the potential non-conformity is discovered, then a PA plan including milestones and estimated completion dates will be included. Any other type of answer will be considered inadequate.

**B—SMART –** B -Balanced, S-Specific, M-Measured, A-Attainable, R-Relevant, T-Timely

**Human Factors:**—Recognition that personnel performing tasks are affected by physical fitness, physiological characteristics, personality, stress, fatigue, distraction, communication and attitude**.**

**Management Review**— A senior management (wing/directorate and command level) meeting intended to review the overall effectiveness of the quality management system with regard to the stated quality objectives.

**Nonconformity**— Non-fulfillment of a requirement

**Preventive Action**— Action to eliminate the cause of a potential nonconformity or other undesirable potential situation (before they occur).

**Preventive Action Plan**— An established plan of action identified by the audited area and its management to correct potential nonconformity found.

**Preventive Action Analysis**— The analysis of preventive action data, which precludes a preventive action request, conducted to discover potential sources of nonconformance.

**Root Cause**— The basic reason(s) for an undesirable situation or problem that if eliminated or corrected, will prevent nonconformity from reoccurring.