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Safety

**SAFETY RULES FOR THE AIRBORNE
LAUNCH CONTROL SYSTEM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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(Lt Col Ronald E. Morin)
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(MGen Francis C. Gideon, Jr.)

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This instruction implements AFD 91-1, *Nuclear Weapons and Systems Surety*. It applies to all operations involving the Airborne Launch Control System (ALCS). It assigns responsibilities and gives the nuclear weapon system safety rules. The safety rules in this instruction may only be changed using procedures in AFI 91-102, *Nuclear Weapon System Safety Studies, Operational Safety Reviews, and Safety Rules*.

SUMMARY OF CHANGES

Added references to Navy and USSTRATCOM regulations and directives where appropriate. Clarified definition of missile combat crew. Clarified control and access to aircraft when operational KIK-45 devices are aboard. Clarified when the operational cryptovariable, not electrically loaded, may be flown aboard the aircraft. Requires a certified Missile Combat Crew-Airborne (MCC-A) to successfully complete a series of weapon system safety rules tests. A | indicates revisions from the previous edition.

Section A—Authority, Limitations, and Responsibilities

1. Joint Chiefs of Staff (JCS) Direction. The JCS direct the Commander in Chief, US Strategic Command, Chief of Staff, US Air Force, and Chief of Naval Operations to implement the safety rules.

2. Temporary Limitations. The Air Force may impose restrictions on application of safety rules.

3. Functional Responsibilities:

3.1. Commander, Air Force Safety Agency:

3.1.1. Ensures that the safety rules provide maximum safety consistent with operational requirements.

3.1.2. Ensures that units follow the safety rules.

3.2. Using Commands:

3.2.1. Ensure that their units follow the safety rules.

3.2.2. Ensure that all safety standards and procedures agree with the approved safety rules.

Inspect for compliance.

3.3. Air Force Materiel Command (AFMC). AFMC ensures that its manuals, checklists, and technical orders do not conflict with the safety rules.

Section B—Safety Rules

4. General Guidance:

4.1. Safety rules always apply, even during war.

4.2. A commander may deviate from a specific rule in an emergency but may not expend a nuclear weapon until authorized by an emergency war order. DoD Directive 3150.2, *DoD Nuclear Weapon Systems Safety Program, December 23, 1996*, defines an emergency as "an unexpected occurrence or set of circumstances in which personnel or equipment unavailability due to accident, natural event, or combat may demand immediate action that may require extraordinary measures to protect, handle, service, transport, jettison, or employ a nuclear weapon."

4.3. These safety rules, weapon system features, operational and administrative controls, and technical procedures ensure that the ALCS meets the Nuclear Weapon System Safety Standards in AFI 91-101, *Air Force Nuclear Weapons Surety Program*, and DoD Directive 3150.2.

5. Security Criteria:

5.1. AFI 31-101, Volumes 1 & 2, *Air Force Physical Security Program*, and DoD C-5210.41-M, *Nuclear Weapon Security Manual (U)*, April 1994, apply.

5.2. When any operational KIK-45 Volatile Keying Assemblies (VKA) is aboard, control access to the aircraft and deny entry to any personnel unless the Missile Combat Crew-Airborne (MCC-A), consisting of a certified Missile Combat Crew Commander-Airborne (MCCC-A) and a certified Deputy MCCC-A, assigned to the aircraft are present. **EXCEPTION:** Any Two-Person Concept team assigned to the aircraft may enter if all VKAs are properly controlled by a code handling team, properly installed and secured in the code processor equipment (CPE), or secured in the crew mission folder (CMF) container with two approved locks.

6. Tamper Control and Detection. The Two-Person Concept, as defined in AFI 91-104, *Nuclear Surety Tamper Control and Detection Programs*, applies.

7. Handling and Storage of Critical Components and Certified Software. AFI 91-105, *Critical Components*, applies.

8. Personnel Reliability. DoDD 5210.42, *Nuclear Weapons Personal Reliability Program*, 25 May 1993, and, as appropriate, AFI 36-2104, *Nuclear Weapons Personnel Reliability Program*, SECNAVINST 5510.35, *Nuclear Weapon Personnel Reliability Program (PRP)*, or US STRATCOM Directive 227-2, *Nuclear Weapons Personnel Reliability Program*, apply.

9. Equipment, Procedures, Checklists, and Modifications:

9.1. Use only equipment, procedures, and checklists that are consistent with publications approved by the US Air Force/US Navy, as appropriate, for any operation directly associated with nuclear weapons, nuclear weapon systems, or the ALCS.

9.2. All publications and equipment modifications must be approved by the US Air Force/US Navy, as appropriate, and must conform to the safety rules in this instruction and the DoD Nuclear Weapon System Safety Standards.

10. Operational Code Control:

10.1. Before loading either the operational cryptovvariable or the operational S-data, a certified MCC-A (as defined in paragraph 5.2) must successfully complete the following test sequences:

Airborne Operational Program Load 1 Crypto Sumcheck (CSC)

Fail CSC

Fail CPE

CPE Test

Decrypt Test Sequences

10.2. Reinitiate the preceding tests if any of the following equipment is changed:

Airborne Launch Control System Controller (ALCSC) processor chassis

ALCSC expansion chassis

Portable storage unit

CPE

10.3. After electronically loading the cryptovvariable data into the CPE, secure the access doors on the CPE with two approved locks to secure the VKA-A and VKA-B and prevent use of the Classified Command Control switch. A single person must not know both combinations or control the keys to both locks.

10.4. Do not allow a person certified to perform MCC-A duties to be a USCAS-401 custodian or a member of a USCAS-401 handling team.

10.5. When transferring components between aircraft in a single Priority A alert aircraft parking area, lock the VKA-A and VKA-B in the CPE with two approved locks. A single person must not know both combinations or control the keys to both locks.

10.6. Only one half of an operational cryptovvariable (VKAs-A or VKAs-B) may be flown aboard the aircraft when not electrically loaded in the CPE.

10.7. When removing an aircraft from alert, erase the cryptovvariable data stored in the CPE by cycling the CPE power switch. The MCC-A must witness the lighting of the CPE's AC and BC lights.

10.8. Do not remove VKA covers, except for emergency VKA destruction.

10.9. If you cannot erase the VKA memory, continue to control as an operational VKA until the cryptovvariable data stored in memory have been superseded.

10.10. When non-alert aircraft are uploaded with complete operational cryptovvariable data, the aircraft will not take off with operational Positive Control Material aboard.

10.11. Do not grant unescorted entry to the ALCC aircraft to anyone who had access to the Offutt Air Force Base Wing Code Processing System when current operational ALCS cryptovvariable data was prepared or has knowledge of any portion of the current SIOP unlock values.

11. Aircraft Configuration:

11.1. If an operationally coded VKA-A or VKA-B is installed or if operational cryptovvariable data are electronically loaded in the CPE, follow these procedures until MCC-A authenticates an execution order:

11.1.1. Keep the ALCC switch in the OFF position.

11.1.2. Do not activate the Multifunction Selector ALARM OVERRIDE switch, except when:

11.1.2.1. Electronically loading the operational cryptovvariable data.

11.1.2.2. Conducting unload operations after removing the operationally coded VKA-A and VKA-B and erasing the electronically loaded operational cryptovvariable data.

11.1.3. Do not move the Classified Command Control switch inside the CPE to ENABLE.

11.2. Install the operationally coded VKA-A and VKA-B in the CPE and verify the capability of the VKA erase circuits before an ALCS-configured aircraft takes off. Do not preclude aircraft takeoff directed by an emergency war order if the erase circuits fail to verify.

11.3. Keep the operationally coded VKA-A and VKA-B in the CPE and the selector switches in the ARM position during takeoff, flight, and landing, except when required for airborne equipment checkout and loading procedures, in-flight electronic loading of the cryptovvariable data, and/or fault analysis while airborne.

11.3.1. If the selector switches need to be placed to the SAFE position while airborne, the aircraft must be in level flight, at cruise altitude, and free of malfunctions that could be dangerous to flight.

11.3.2. The selector switches need not be returned to the ARM position after the MCC-A has authenticated an execution order.

11.3.3. If the VKAs must be removed while airborne, the MCC-A will maintain proximity to the CPE to facilitate immediate reinstallation and arming of the VKAs if safety-of-flight status changes.

12. Simulated Electronic Launch Test Procedures. For applicable missile system safety rules, consult AFI 91-114, *Safety Rules for Intercontinental Ballistic Missile Weapon Systems*.

FRANCIS C. GIDEON, JR, Maj General, USAF
Chief of Safety