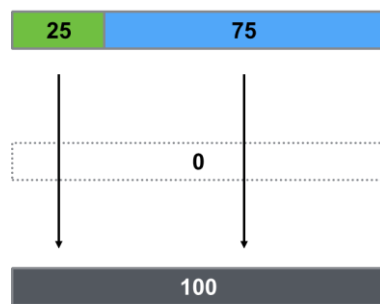


The capable and reliable family of Minuteman (MM) Intercontinental Ballistic Missile (ICBM) weapon systems (MM I, MM II, and today's MM III) have always been and continue to be protected against unauthorized or accidental use by a robust nuclear use control system that provides equal measures of positive control (i.e. ability to launch when directed by the President) and nuclear surety (i.e. protection against unauthorized or accidental use). **The MM system has never used Permissive Action Links (PALs). PALs are strictly a nuclear aircraft crew device. Additionally, a code consisting of eight zeroes has never been used to enable or launch a MM ICBM, as claimed by Dr. Bruce Blair.**

Upon direction by the President, two separate and distinct processes are required to launch an ICBM. First, the missile must be enabled, or "unlocked." Second, the missile must be commanded to launch from two distinct Launch Control Centers (LCC). The entire set of codes necessary for these processes is not and has never been stored in the LCC. All enable and launch codes are of a "split-knowledge" design, such that no single individual can have access to, or the ability to transmit, the entire code. To enhance nuclear surety, enable and launch codes are changed annually in a time— and labor—intensive process to load the new launch and enable codes into each missile.

In the unlikely event the enable code became compromised, a more rapid process to regain and maintain nuclear surety was needed. "Translate codes" are the mechanism which allows a new enable code to be implemented without physically changing the original code in each missile. These pre-computed and split-knowledge translate codes are contained in sealed documents stored within the LCC in a safe protected by two individually controlled combination locks.

### Normal

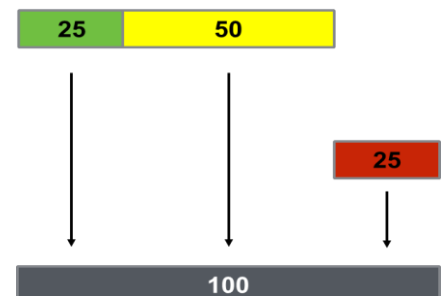


\*\*\* All values are notional for illustration purposes only

During normal operations, a portion of the enable code is stored inside a mechanical code unit (MCU) located in the LCC (green). When directed by the President, the remaining portion of the enable code is provided to the LCC via encrypted message (blue). During the 1970s, 1980s and 1990s this second portion of the enable code was dialed into analog six digit thumbwheel switches located on the front of the Launch Enable Control Group (LECG), see attached image, and is combined with the MCU portion to produce the complete enable code for transmission to the missile (grey). If the transmitted values equaled the stored values at the missile, then the missile would report back that it was enabled.

A second series of six digit thumbwheel switches, located on top of the LECG but not visible or accessible day-to-day, was used to insert the translate code when needed. **This code is not the enable code or the launch code.** During normal operations the values on all thumbwheel switches were set to null values ("P7") since they were not required in the normal enable process—they were only used if the original enable code was compromised. A daily check of the visible thumbwheel switches on the front of the LECG ensured that they were set to a standardized setting of "P7." This provided a standardized "starting point" to help speed the process of flipping the switches in the event an enable code needed to be entered during time-critical missile launch

### Contingency



\*\*\* All values are notional for illustration purposes only

procedures. When directed, the MCC would open the translate code documents and insert the translate values (red) into the system through the thumbwheels located on top of the LECG. Procedures were in place to ensure each crewmember had control of only their portion of the translate code. In the mid-1990s, the thumbwheel functionality was incorporated into today's Rapid Execution and Combat Targeting (REACT) system.

The launch code stored in the missile is also split-handled: one portion is stored inside the missile computer, while another is a separate component attached to the missile computer. This ensures no maintenance team will ever have access to the components containing the entire enable or launch codes. In order to initiate launch, the MCC must concurrently actuate a launch key and three physically separated cooperative launch switches, a process that requires both crewmembers to act in concert.

