

CHRONOLOGY OF TRANSPORTATION AND PACKAGING SAFETY PROGRAM

Packaging Safety Analysis Report (SAR) Review Program

- 1975: Hazardous Materials Transportation Act assigned responsibilities to Department of Transportation (DOT) in 1975.
- - DOT established hazardous materials packaging and transportation regulations in Title 49, Code of Federal Regulations, Parts 100-199.
- Prior to 1986: DOE delegated its authority for packaging Safety Analysis Report (SAR) reviews to the field offices.
 - Field offices had inadequate staff.
 - Inconsistencies in packaging SAR reviews.
 - Lack of uniform guidance and procedures from Headquarters.
 - Lack of uniform procedures among field offices.
 - SAR review was driven by programmatic scheduling rather than technical competence in packaging SAR preparation and review.
 - Lack of coordination among field offices on approvals issued.
 - Approvals were issued for indefinite periods and were not reviewed for regulatory compliance when regulations changed.
 - No training program for packaging SAR reviewers and writers.
 - Insufficient oversight and appraisals by Headquarters.
- 1980: DOT removed DOE's authority to evaluate/approve radioactive material packaging designs due to inadequate procedures and methods.
- 1982: DOT reinstated DOE's authority to approve radioactive material packagings on DOE's promise to establish procedures for uniformity.
- 1983: Packaging SAR review function transferred to the Assistant Secretary for Defense Programs (ASDP). ASDP drafted uniform procedures (never approved).
- 1985: MH-1A approved by the DOE Albuquerque Field Office. Packaging SAR sent to Nuclear Regulatory Commission (NRC) for NRC certificate. NRC rejected the packaging SAR because it did not prove structural integrity of the cask.
- 1985: DOT again questioned the DOE packaging SAR review process and stated that DOE should establish a process equivalent to NRC.

- 1985: Thirteen other DOE packagings questioned by Congressmen since DOE approved the packagings and failed to respond to questions on structural integrity raised by NRC.
- 1985: Many DOE-approved packagings are suspected of failing to meet regulatory requirements due to inadequate packaging SARs.
- Late 1985: Packaging SAR review authority removed from field offices; independent centralized packaging SAR review office established at Headquarters.
- January 1986: DOE Packaging SAR Review Staff (DP-4.1) formally begins operation.
 - Specialized technical staff assembled.
 - Training program established.
 - Continuing technical review assistance offered to field offices and other DOE elements.
 - Packaging Review Guide developed.
 - Questionable packagings removed from service.
 - Good working relationship and credibility established with NRC and DOT.
- 1988: Two outside audits of Packaging SAR Review Staff conducted with favorable findings.
 - DOE Management and Administration, 1988
 - "It is imperative that the Department retain [its delegated authority from DOT to approve packagings] in order to meet DOE national security and other key programmatic objectives."
 - "The 'loophole' [in DOE Order 1540.2] which enables Operations Offices and their contractors to bypass DP-4 should be eliminated."
 - "DP-4.1 should continue to serve as the DOE focal point for packaging certification matters."
 - General Accounting Office, 1988
 - Secretary should "consolidate certification responsibilities for [nuclear weapons] packages with the centralized package certification program at DOE headquarters."
- 1990: Packaging SAR review function transferred from Defense Programs to Environment, Safety and Health.

- August 1991: Transportation and Packaging Safety Division is created. Packaging SAR Review Program moved to this Division.

Packaging and Transportation Safety Program

- 1985: The Department of Energy (DOE) established the Office of Assistant Secretary for Environment, Safety and Health (EH) the office reporting directly to the Under Secretary. This newly created office was to have oversight responsibility for DOE's environmental, safety and health activities (ES&H). To strengthen its ES&H programs, DOE announced a number of initiatives and revised several of its Orders that governed the conduct of ES&H activities.
- To establish requirements for the safety of packaging and transportation of hazardous materials, hazardous substances, and hazardous wastes, DOE issued DOE 5480.3.
- March 1988: DOE N5480.3 was issued to provide interim direction and resolve inconsistencies with DOE Order 1540.2. DOE has been in the process of rewriting DOE Order 5480.3 since 1988. Drafts were issued for review in 1992, and a new version may be released in 1993.
- August 1991: Transportation and Packaging Safety Division is created. Packaging and Transportation Safety Program moved into this Division.

Aviation Safety Program

- At the time of the formation of the Atomic Energy Commission (AEC) most aviation support was provided by the military.
- 1947: The AEC contracted a commercial aviation company named CARCO to fly classified materials and passengers between Los Alamos and Albuquerque, New Mexico.
- 1948: CARCO operations were expanded to multiple destinations within the AEC military-industrial complex.
- 1948: President Truman issued an order restricting the airspace above the Hanford Works at Richland, Washington. Hanford acquired a fleet of four single-engine, light airplanes and one multiengine airplane to enforce this order. This is the first instance of aircraft being used by the AEC for security purposes.
- 1954: The Lawrence Livermore National Laboratory initiated aviation operations between the Livermore, CA, airport and the Nevada Test Site (NTS). The aircraft was DOE-owned and contractor operated.
- 1963: The first NTS aircraft was acquired; the aircraft was used in connection with NTS weapons testing program. The aircraft was owned by DOE but was operated by EG&G. EG&G remains the NTS aviation services contractor.

- 1968: ROSS Aviation Incorporated took over the CARCO contract. ROSS remains the prime aviation contractor at the Albuquerque Operations Office.
- 1970: AEC Commissioner Theos J. Thompson and two other AEC employees were killed in a small airplane crash in Lake Meade near NTS. As a result of the crash, AEC headquarters initiated an extensive review of the aviation program in 1971. The review revealed multiple serious concerns regarding the safety and management of the AEC aviation program.
- 1972: An Albuquerque Operations Office aircraft carrying nine senior DOE scientists crashed. All the occupants and the pilot were killed.
- 1973: The AEC drafted the first Aviation Safety Order based on the lessons learned from the 1972 accident and associated safety reviews. The draft order was circulated to all AEC contractors; however, it was considered controversial and was never adopted.
- 1977: With the creation of the Department of Energy, Western Area Power Administration (Western) and Bonneville Power Administration (BPA) were added to the Departmental aircraft fleet. Western and BPA operated helicopters used for powerline patrol and airplanes used for passenger transport. The Alaska Power Administration and the Southwest Power Administration also joined the Department at this time; both organizations regularly utilize charter aircraft.
- 1979: DOE appointed a former NASA Safety Director as the Office of Environment, Safety and Health (EH) Safety Engineering and Analysis Division (SEAD) Director. The SEAD Director took an active interest in the DOE aviation program and, in 1980, he was authorized to hire the first full-time headquarters Aviation Safety Specialist.
- 1981: The first DOE Aviation Safety Order (DOE 5480.13) was published.
- 1985: As a result of security concerns; helicopter security operations were initiated at the Richland, Idaho, Savannah River and Nevada Operations Offices. Two DOE-owned helicopters were acquired at each location; the pilots and mechanics associated with the aircraft were employees of the contractor organization responsible for security at the corresponding site.
- 1981 -- 1989: Two additional full-time Aviation Safety Specialists were hired, and sporadic assessments of DOE aviation operations were conducted. However, management support for the headquarters aviation safety program decreased and, by 1989, two of the three Aviation Safety Specialists had left DOE for the Federal Aviation Administration (FAA); the third took an Aviation Safety Manager position at the Albuquerque Operations Office. For approximately 1 year between 1990 and 1991, the EH aviation safety program ceased to exist.

Current Aviation Safety Program

- **January/June 1991:** The two current Aviation Safety Officers were hired. An appraisal program was initiated that included annual assessments of all DOE aviation organizations with active aviation programs.
- **July 24, 1991:** A DOE-owned helicopter hit a powerline and crashed at NTS resulting in the deaths of the five contractor employees on board. As a result of the preliminary findings of the accident investigation board, the Secretary of Energy directed the Assistant Secretary, EH, to convene and chair a task group with the Program Secretarial Officers to define the roles and responsibilities of DOE's aviation program and to make recommendations regarding its future.
- **August 1991:** The aviation safety function was combined with other transportation-related functional areas to create the current Transportation and Packaging Safety Division.
- **January 1992:** As a result of the July 1991 NTS helicopter accident, an assessment of all DOE helicopter operations was initiated. The assessments resulted in temporarily stopping operations at some Operations Offices; all assessments were completed in February 1992.
- **February 1992:** The Secretary's aviation task group recommended establishment of the Office of Aviation Operations Policy and creation of an Aviation Management Board.
- **June 1992:** An airplane chartered by the Richland Operations Office crashed during a wildlife survey. The pilot and the two Pacific Northwest Laboratory employees were killed.
- **July 1992:** The Secretary directed that the Office of Aviation Operations Policy be created and organizationally placed within EH. The new office would be responsible for the creation of policy in all areas except safety and security and would perform the aviation property management functions.
- **August 1992:** A Western helicopter contractor backed into a powerline support tower during construction operations. The aircraft went out of control and crashed, resulting in one fatality.
- **December 1992:** A Western Cessna Citation crashed while on approach to the airport in Billings, Montana, resulting in 8 fatalities.
- **January 1993:** Security helicopter operations were terminated at the Richland Operations Office. It was determined that the helicopters were no longer required as a result of the consolidation of the special nuclear material and a reevaluation of the security threat.
- **February 1993:** The extensively revised DOE 5480.13A "Aviation Safety," was published. The revised Order required that "DOE and DOE contractor aviation operations maintain an operating standard at least equivalent to that maintained by United States air carriers operating under Title 14 Code of Federal Regulations (CFR) Part 135 or Part 121." 14 CFR 135

is the Federal Aviation Regulation that applies to small commercial aircraft, and 14 CFR 121 is the regulation that applies to large commercial aircraft.

- **May 1994:** The Oakland Operations Office terminated aviation operations between the Livermore Airport and NTS.