

## **EXECUTIVE SUMMARY**

### **UNITED STATES AIR FORCE GROUND ACCIDENT INVESTIGATION BOARD REPORT MCKINLEY CLIMATIC LABORATORY FIRE EGLIN AIR FORCE BASE, FLORIDA 5 JULY 2017**

On 5 July 2017, at about 9:55 a.m. local, a fire occurred in Air Makeup Unit 1 (AMU1) on the south end of the Arnold Engineering Development Complex McKinley Climatic Laboratory (MCL) on Eglin Air Force Base (EAFB), Florida. When the fire started, a sub-contracted welder from Universal Fabricators, Inc. (Universal) was on the east side of AMU1 using an oxy-acetylene torch to remove a corroded structural I-beam, which was within two and a half inches of coils containing R-30 refrigerant. Although stable at room temperature and pressures, R-30 can rupture or explode if exposed to heat. In addition, AMU1 contained flammable insulation adhesives, sealants, and coatings within 5 to 10 feet of the welding operations.

The fire caused extensive damage to AMU1 and adjacent Air Handling Unit (AHU), with an estimated government loss of approximately \$30 million. There were approximately 4,000 gallons of R-30 refrigerant in AMU1, most of which was consumed by the fire. Although at least 51 first responders or individuals on EAFB were exposed to smoke, only one individual required overnight observation and was discharged the next day without limitations.

The MCL is the world's largest environmental testing chamber and conducts testing for government and private industry by simulating weather environments in its testing chambers. AMU1 is one of MCL's two AMUs used to create temperature changes. AMU1 uses steam boilers, coils filled with calcium chloride (basically salt water, used as a dehumidifier), and coils filled with methylene chloride (commonly known as R-30, used as a refrigerant) to create desired air temperatures for testing.

Reliance Test & Technology (RT&T) performs operations and maintenance for MCL as a prime contractor with the United States Air Force. RT&T had subcontracted with Universal to repair portions of the AMU1 structure severely corroded by calcium chloride (salt water).