

ONE GIANT LEAP TO PROTECT ALL MANKIND: AN OVERVIEW OF THE LUNAR RECEIVING LABORATORY

Judith Hayes¹ and Jackson Dooling²

¹ NASA Johnson Space Center and ² Rice University, Houston, Texas

MOTIVATION. In 1961, President John F. Kennedy charged the nation “to land a man on the moon and return him safely to Earth”. Eight years later, the Apollo 11 astronauts splashed down in the Pacific Ocean after this first 8-day journey to the moon. As humans had never ventured to another extraterrestrial body, the U.S. government noted the great uncertainty associated with the unknown exposures related to this historic mission. **OVERVIEW.** With this uncertainty in mind, a newly formed Interagency Committee on Back Contamination (ICBC) was established to review the potential for lunar contaminants and establish the prevention of their escape into the biosphere during crew and sample recovery operations from the floating command module to the mobile quarantine facility on the recovery ship and return to the Johnson Space Center. **SIGNIFICANCE.** As a result of the ICBC recommendations, in 1966 NASA planned and built the Lunar Receiving Laboratory (LRL) at the Johnson Space Center in Houston, Texas. The LRL served a great role in service of human space exploration to quarantine Apollo crewmembers, their space vehicles, and the lunar samples collected. Almost an afterthought in the space race to the Moon, the 83,000 ft² LRL was designed and completed in 1967 for \$7.8 million. The core purpose of the LRL was “to protect the public’s health, agriculture, and other living resources; to provide lunar sample distribution to approved scientific investigators; and to preserve the scientific integrity of the lunar samples at all times”. Its layout was comprised of three major zones: a quarantined Crew Area, a separate but also quarantined Sample Operations Area, and a Support and Administration Area outside the controlled biological barrier. This facility required trained personnel to live and perform within it for several weeks postflight, to include astronaut crewmembers, flight surgeons, scientists, and vehicle recovery engineers. The LRL holds memories of these historic events but has since been repurposed for NASA’s medical and environmental sciences activities, in what is now known as Building 37. As we approach its 50th anniversary, the LRL story will end in demolition as NASA advances its facilities for the next steps in human exploration of space.

Learning Objectives:

1. To capture the historical relevance of the NASA Lunar Receiving Laboratory
2. To understand the requirements of receiving crew and samples from the moon for the first time
3. To describe the facility capabilities in protection of public health