

WOOMERA, AUSTRALIA

The favored Australian site lay on the southern edge of the great inland desert region at a place called Woomera, about 350 kilometers north of the city of Adelaide, capital of the state of South Australia. Approximately 110 degrees west of the longitude of Goldstone, Woomera was already a missile and long-range rocket test center operated by WRE. The local language was English, and the nearby rocket and missile test activities would provide a pool of technical expertise and facilities. Furthermore, in the same area, the Australians had already installed, and were operating, a U.S. Navy minitrack station and a Smithsonian Baker-Nunn tracking camera as part of its participation in the IGY.

The signing of a “construction and operation” contract for the antenna around early April 1960 allowed both JPL and WRE to begin making major moves toward construction of a NASA deep space tracking station at Woomera. WRE initiated the road, buildings, power generation, and foundation work. JPL began shipping antenna components and the electronics for the station.

The antenna was finally built at a site known locally as “Island Lagoon,” so named for the nearby dry lake which appeared to have an island at the center. Working under a JPL contract with supervisor Floyd W. Stoller, Blaw-Knox began assembling and erecting the antenna in May 1960. By August, the antenna was complete and an electronics team began installing the radio and tracking equipment, most of which had been supplied by Collins Radio Company. When NASA built the second and third 26-m antennas in Woomera, Australia, and Johannesburg, South Africa, the task of integrating the new antennas with their electronics equipment and bringing the two new stations into operation fell to Richard “Dick” Mallis.

Richard Mallis was an outgoing individual, easy to work with, sociable, and much respected by his colleagues. He was an excellent manager with good communications and technical skills and an appreciation for the different institutional environments at all three antenna locations. When he went to JPL in 1955 to work on radio guidance systems for the Army’s Sergeant missile program, native Californian Richard K. Mallis took with him a degree in mechanical engineering from the University of Southern California and a Navy background. Caught up in the changes that swept JPL into the space program in 1958, he assisted with the construction of the first 26-m antenna at Goldstone, and later implemented the down-range tracking station in Puerto Rico to cover the launches of the Army’s two Pioneer lunar probes.

Genesis: 1957–1961

Together with Goldstone, the three stations of the Deep Space Instrumentation Facility finally formed a worldwide network. With these completed in time to support JPL's first Ranger lunar missions, Mallis returned to JPL to take up a staff position in Renzetti's new Communications Engineering and Operations Section. He was responsible for Operations, regulating the way the Network carried out its day-to-day tracking functions. In this role, he set-up a Network-wide logistics and repair program, a frequency and timing standards program, a documentation system, and a training program for operations and maintenance personnel. This essential infrastructure remained the basis for all operations, maintenance, quality control, and configuration management processes as the worldwide Network expanded in size and capability through the years. He integrated the first commercial contractor, Bendix Field Engineering Corporation, into the DSIF as the operations and maintenance service provider for the Goldstone facility. In later years, as his responsibilities expanded to include the Space Flight Operations Facility at JPL in addition to the DSN, he became Manager of the Operations Division. Eventually he transferred elsewhere in JPL to further his professional career. However, because of his unique experience with service contract management, he was frequently called upon to assist the DSN in evaluating new contract proposals when existing service contracts expired. He retired in 1993 after 37 years of service at JPL and later took up residence in Australia.

In a final spectacular exercise on 3 November 1960, the Woomera station demonstrated its operational status by receiving voice and teletype messages transmitted from Goldstone via reflection from the Moon. The JPL onsite manager, Richard K. Mallis, departed Woomera four days later, after turning the new facility over to WRE for its future management and operation. The Australian engineers soon demonstrated their ability to handle the technical complexities of the new "space age" facility for which they had accepted operational responsibility. In a repeat of the "Moon bounce" experiment on 10 February 1961, during the official opening formalities, the station passed a congratulatory message from NASA Deputy Administrator Hugh Dryden in Washington to Australian Minister of Supply Alan Hume at Woomera over a "Moon bounce" communications link.

The photograph of the completed Woomera Tracking Station in Figure 1-6 shows the 26-meter-diameter antenna, the electronics equipment building, and service and facility structures. Island Lagoon is visible at the horizon to the left of the antenna structure.

The first overseas station of the Deep Space Instrumentation Facility (DSIF) was ready to enter operational service. Designated DSIF 41, Woomera, it would see eleven years of valuable service before being superseded by new stations at Tidbinbilla, near Canberra,



Figure 1-6. The 26-meter antenna and tracking station (DSIF 41), Woomera, Australia, 1961.

in southeast Australia. The Woomera station ceased operations on 22 December 1972, as part of a NASA program to consolidate overseas station facilities. Initial proposals to move the antenna to a new, more accessible location where it could be used for Australian radio astronomy purposes were not successful because the Department of Supply determined that the cost of transporting the antenna was excessive. Eventually, it was dismantled and sold for scrap despite the vigorous protests of several prominent members of the Australian scientific community.