

JSC celebrates 40 years of human space flight

By Bill Jeffs

By the early beginnings of NASA's and America's human space program some 40 years ago, the Langley Research Center in Virginia had a long and rich history. By the time the National Aeronautics and Space Administration was created in 1958, Langley had been a part of the National Advisory Committee for Aeronautics for close to 50 years, working on the nation's aeronautics program. It was the first home of the Space Task Group (STG), which was formed with NACA/NASA engineers to conduct the Mercury Project. This core group began the early design of Mercury.

Then, on May 25, 1961, just three weeks after Alan Shepard became the first American in space, President John F. Kennedy set a goal for the United States that would surpass any previous engineering and scientific feat: Humans would land on the moon and return safely to Earth before the end of the decade.

"Now it is time to take longer strides – time for a great new American enterprise – time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on Earth," said the president, speaking before Congress. "I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish."

A staggering job beyond the scope of Mercury had been dumped in NASA's lap. "Now how the hell are we going to do that?" one NASA engineer asked a colleague as they sat contemplating the speech in a quiet office at Langley.

Though physically located at Langley until the completion of Project Mercury, the STG was initially part of NASA's Goddard Space Flight Center in Beltsville, Md. It had been decided to incorporate the STG under the mantle of the GSFC because the STG was a highly technical organization whose personnel had little time for administration. Thirty-five STG members were on the roster when the STG was officially born on Nov. 5, 1958. Most were engineers; a few were administrative. Another 15 engineers were on temporary assignment from Lewis Laboratory in Cleveland, Ohio.

With the daunting task ahead, the STG needed new quarters with test facilities and research laboratories suitable to mount an expedition to the moon – not to mention the need for aircraft hangars, huge warehouses and office buildings. Long before it was built, the NASA-center-to-be was designated the Manned Spacecraft Center (MSC) and, from its inception, it was to be the lead center for all space missions involving astronauts.

But where to build it? On July 7, 1961, NASA Administrator James E. Webb directed the establishment of preliminary site criteria and a site selection team. Essential criteria for the new site included the availability of water transport and a first-class, all-weather airport, proximity to a major telecommunications network, a

well established pool of industrial and contractor support, a readily available supply of water, a mild climate permitting year-round outdoor work and a culturally attractive community. By August, some 23 sites had been selected as possibilities. Houston was initially included by virtue of the San Jacinto Ordinance Depot, since military rather than commercial facilities were judged best for helping handle NASA's large retinue of jets and specialized equipment, and because of its recognized, prominent universities – Rice and Texas A&M.

"We were using criteria such as the city location," said Charles F. Bingman, who served as the Manned Spacecraft Center's chief of the Management Analysis Division. "It had to be a city, an urban area that was substantial and could support a major new high-technology institution. It had to be near the kind of airport that could serve as a service organization primarily for handling of spacecraft and conducting certain kinds of flight tests. It had to be on the water, because at that stage they thought they were going to transport spacecraft by barge, which they ultimately never did. It had to be at the site of at least one substantial, high-quality university, and it had to have what looked like an appropriate kind of workforce to staff a number of the positions in the center."

It isn't surprising that when members of the site selection team visited Houston in September 1961 to check out property owned by Rice University and located close to Ellington Air Force Base, they were less than enthusiastic.

What they saw was a flat cow pasture scoured by brisk winds off Galveston Bay. Along Farm Road 146 and 528 leading to what would soon be the main entrance to the MSC, boats had been hurled into the highway, pieces of houses and buildings lay in the field, trees were flattened, and fields and pastures were still flooded or sodden with heavy rains from Hurricane Carla. Ellington, which would provide temporary quarters for many of the STG, offered dreary wartime military housing with peeling paint and a sense of high disrepair.

Much effort would be required to turn it into the new flagship facility of a new age of exploration. But the challenge of turning the site into NASA's new flagship for human space exploration paled in comparison with sending an astronaut to the moon within the next nine years.

On Sept. 19, 1961, NASA announced that the \$60 million manned space flight laboratory would be located in Houston on 1,000 acres of land to be made available to the government by Rice University. The land was owned by Humble Oil Co. and given to Rice to give to the government. In addition to acquiring title to this donation from Rice, the federal government subsequently purchased an additional 600 acres needed to give the site frontage on the highway. A 20-acre reserve-drilling site fell within NASA's total 1,620-acre site.

The STG would be relocated to Houston and it would be redesignated the Manned Spacecraft Center. Just the day before, Houston's population had topped the one million mark. About a month later, on

Oct. 24, the MSC was formally established by NASA.

While the new NASA center was under construction, MSC personnel opened temporary offices in the Gulfgate Shopping Center in Houston in about 3,000 square feet of floor space donated for the purpose by the Gulfgate management. MSC had a continuing operation there until additional office, engineering and laboratory space could be leased and made ready for occupation. The major operations conducted at the Gulfgate offices were largely concerned with procurement, personnel and public affairs. The STG personnel were located in eight other offsite locations scattered along the Gulf Freeway.

In December 1961, Project Gemini was initiated to provide experience in flight endurance, rendezvous and extravehicular activity until Apollo became operational. For several years before being finally relocated at the Clear Lake site in June 1964, the work of the space center included construction of the MSC, the recruitment and training of employees and astronauts, the operation of Project Mercury, design and contracting for projects Gemini and Apollo, design and testing of both Gemini and Apollo hardware, and initial flights of both Gemini and Apollo.

The MSC had been planned as a unique, aesthetically pleasing workplace of laboratories, development and test areas, and administrative offices grouped around a landscaped quadrangle with artificial ponds. A number of state and national contractors and suppliers participated in construction. Contracts for the first 11 buildings were awarded in December 1962.

Now came the task of building the new facility. The Corps of Engineers opened a project office in Houston. Design work was under way in January 1962 and construction on the underground utility systems and roadways began in March. Robert Gilruth, the first director of the MSC, transferred his headquarters to Houston effective March 1.

By January 1964, 2,100 employees were readying for the move to the site with 600 more to be on site by July. The final move from all leased facilities in Houston by MSC employees and contractors occurred in late June 1964, as more than 700 people vacated sites which were the last vestiges of the scattered center while the Clear Lake location was under construction.

Moving first to the center were employees in the Flight Operations Directorate and the Information Systems Division, as well as about 200 contractor employees, six Department of Defense liaisons and other NASA center representatives. Most of these people were located in Bldg. 30, the Mission Control Center-Houston.

The April 1964 launch of the first unmanned Gemini spacecraft coincided nicely with the final relocation of MSC personnel to their permanent site in Clear Lake. Gilruth declared an "Open House" for the weekend of June 6 and 7 and welcomed the public to the new NASA/MSC. Some 52,000 people toured the center and viewed displays depicting the past, present and future hardware of the space program.

By the end of June 1967, everyone in leased offices and warehouses in the Houston area had moved to permanent quarters at the MSC on what had been FM 528. The highway had become NASA

Road 1 in 1965. About 1,500 employees remained at Ellington.

The people of the Houston area welcomed MSC personnel with open arms and offered complete cooperation in all facets of the operation. The city was ecstatic. Space fever promptly swept the town. The baseball team was named

the Astros, and the basketball team was called the Rockets. The Astrodome, Astroworld and countless businesses with "space city" somewhere in the title blossomed over the years.

Engineering the Future

Building the new center was the easy part. But major questions still remained. How does one do these human space missions? How does one design the necessary spacecraft? How does one manage the contractors and garner the best ideas and results from industry?

A seminal strength of JSC has been and continues to be its engineering-based nucleus. From Mercury and Apollo to today's space station, the Engineering Directorate and myriad U.S. contractor teams have played a major role in the design and development of spacecraft – a role that continues to this day.

This engineering effort – the design and development of spacecraft – came before the selection of astronauts and the development of the Mission Control Center.

"We came to Houston," said Maxime Faget, chief engineer, MSC. "We had to build a center. All of the engineering facilities, they all had to be specified, worked out, negotiated and an organization had to be built up. It was a pretty yeasty time. We went from essentially a one-man project (Mercury), a one-program project, to really trying to do three things at the same time, three programs at once plus build up the center."

In addition to the Engineering Directorate, the program office played a major role in managing contracts and implementing contractors. These major entities – the Engineering Directorate, the program office and, soon, the flight controllers and operators – did not operate in a vacuum; the integrated strength of all of these organizations was crucial in achieving NASA's and the nation's grand human space flight objectives. This process was true for the MSC in the early days of human space flight; it still holds true today.

Home of the Nation's Astronaut Corps

They were the Original Seven, the chosen, the first of a new breed of explorers, and in the early 1960s there were few celebrities on the planet who could compare with them. When they made their first trip to Houston on July 4, 1962, all the stops were pulled out. They were given a motorcade along a route lined with cheering admirers. Speeches were made, the welcoming ceremony was pure Texan and a vast barbeque was thrown in their honor at the Houston Coliseum.

Now, four decades later, about 160 astronauts are at JSC including some from overseas. They and the people on the ground supporting them have some of the most advanced training facilities available anywhere to prepare them for the exacting tasks and dangers they will face on actual missions.

The Weightless Environment Training Facility at the center was once



NASA JSC S78-34519



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