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NASA recalls Apollo

Blueprint for trips to moon unveiled

By Peter Pae

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LOS ANGELES—NASA has unveiled an ambitious blueprint for sending humans back to the moon, an Apollo-like task that is expected to take 13 years and cost \$104 billion.

In a much anticipated announcement yesterday, NASA said it plans to ground the space shuttle in 2010 and begin replacing it two years later with a reusable spacecraft resembling the Apollo capsule that first took U.S. astronauts to the moon in 1969.

"Think of it as Apollo on steroids," NASA Administrator Michael D. Griffin said during a news conference at the agency headquarters in Washington.

Although it will resemble the Apollo capsule that took astronauts to the moon, the new crew exploration vehicle will be three times as big and will be able to carry as many as six astronauts, NASA officials said. It would also be able to touch down on land, perhaps at Edwards Air Force Base in Kern County, compared with splashing down in the ocean as the Apollo spacecraft did. The new craft would be capable of being reused 10 times.

"Much of it looks the same," Griffin said, but he added, "It's a significant advancement over Apollo."

Despite Katrina recovery costs expected to exceed \$200 billion and military operations in Iraq draining the federal coffers, Griffin said the space effort will require "no new money."

Measured in constant dollars, the \$104 billion price tag, spread over 13 years, represents only 55 percent of what the eight-year-long Apollo program cost, Griffin said. The objective, he said, was to "pay as you go and what you can afford."

The blueprint unveiled yesterday is part of a broader initiative launched by President Bush 18 months ago in which he called for returning humans to the moon as a steppingstone to a manned mission to Mars, perhaps as early as 2020. Griffin set no timetable for the Mars mission, saying that would be left to future planners.

The return mission to the moon will also differ from Apollo in several ways.

Unlike the Apollo program, which relied on massive Saturn V rockets to loft the capsule and the lunar lander, NASA plans to send up two rockets, one carrying the crew capsule and the other the lunar lander. They would rendezvous in space before making the journey to the moon. The lunar lander would be able to carry four astronauts to the moon's surface, compared with two for Apollo.

Compared with the few hours that the Apollo astronauts spent on the moon, NASA said, the blueprint calls for astronauts to eventually stay on the moon for up to 30 days. The

extended stay would allow scientists and engineers to develop technologies and techniques for the mission to Mars.

The rockets to launch the spacecraft would be modified solid-rocket boosters now used to loft the space shuttle and would be fitted with the engines used on the orbiters.

NASA officials said using Apollo concepts and shuttle technology with the latest advances in materials, propulsion and avionics would allow the agency to meet the president's goals more efficiently and cheaply.

"We believe this venture is safer and more affordable than any other space flight ventures that the U.S. has had," Griffin said.

Lockheed Martin Corp. and a team from Northrop Grumman Corp. and Boeing Co. are competing to build the vehicle.

Peter Pae writes for the Los Angeles Times.