CHALLENGER TRAGEDY 30 YEARS LATER

Legacy of disaster evolves as time clouds memories

Lessons from tragedy unclear for new era of space exploration

By MARCO SANTANA AND KEVIN SPEAR Staff writers

A little more than a minute after launch and high above Kennedy Space Center, shuttle Challenger was ripped apart after failure of a rubber seal allowed a spurt of rocket flame to ignite the spacecraft's giant fuel tank.

The roiling plume of Challenger's disintegration would sear an image in the nation's psyche that spoke of a particular sorrow; among seven astronauts killed 30 years ago Thursday was teacher Christa McAuliffe.

"We will never forget them," said President Ronald Reagan in a broadcast hours later evoking tri-



umph from tragedy. "The Challenger crew was pulling us into the future, and we'll continue to follow them." But if Challeng-

meaning er's seemed clear then, today nearly half the nation is too young to remember the loss or hadn't been born when it happened. Time has taken a toll on the emotional impetus from America's first loss of



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The crew of the space shuttle Challenger, from top left: Ellison Onizuka, Christa McAuliffe, Gregory Jarvis and Judith Resnick. Bottom left are Michael J. Smith, Francis R. (Dick) Scobee, and Ronald E. McNair.



An honor guard escorts the caskets of the seven astronauts killed in the space shuttle Challenger disaster as they leave Kennedy Space Center in Cape Canaveral.

astronauts in flight. Challenger's legacy also

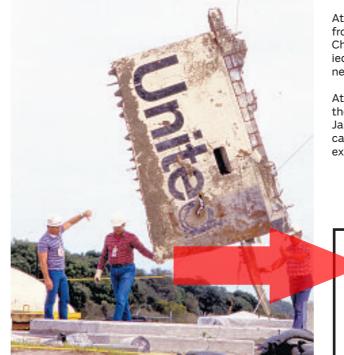
may have lost relevancy in a nation struggling now to figure out the future of human spaceflight. Howard Lieb, a New

York dentist who lives part time in The Villages in Central Florida, remembers Challenger's fate vividly and, as a father, has not forgotten the faces of McAuliffe's parents in news photos.

At the time of the disaster, he said, there was national will to try again and do better, to embrace Reagan's inspiration that "nothing ends here; our hopes and our journeys continue."

But the country changed as the shuttle program played out its 30 years, he said.

Today, "there is no re-



At left, debris recovered from the space shuttle Challenger disaster is buried in a missile silo at Kennedy Space Center in 2011.

At right, the front page of the Orlando Sentinel on Jan. 29, 1986 examines the causes of the shuttle's explosion.



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demption to the tragedy, Lieb said. "We've begun to look at such risks as unacceptable."

How Challenger lessons will serve the nation's next era in space remains unclear. NASA has neither funding nor a spacecraft to deliver astronauts to Mars any time soon.

More immediately pressing for the nation's space endeavors is the rise of the commercial rocket business. Cape Canaveral saw 17 rockets launched last year, marking a 12-year high. The launch count is expected increase this year.

Private, billionaire-led companies like Elon Musk's SpaceX and Jeff Bezos's Blue Origin have helped restore excitement around space exploration, which waned when the shuttle program ended in 2011.

But at the Challenger Center for Space Science Education, the tragedy is far from forgotten. The center, founded in 1986 by the families of the astronauts who died, has expanded to more than 40 schools, universities and museums.

"When you enter a Challenger Center all of them have pictures of the crew on the walls," said Lance Bush, the nonprofit organization's president. "When children come in to get their briefings, they are told about these heroic individuals.'

Families of the sevenmember crew in the shuttle Columbia accident in 2003 have added their support to Challenger Center, which has had more than 4.4 million students.

"It's important to have programs like this that inspire adventure and discovery," said Laura Husband, 25, daughter of Rick Husband, commander during Columbia's ill-fated flight.

Speaking to the lessons of Challenger, Roger Launius, associate director of the Smithsonian's National Air and Space Museum in Washington, D.C., said NASA's aura of invincibility collapsed with the disaster.

"Hubris is always a problem and every Greek tragedy is built around that," Launius said. "It was valid 2,000 years ago and it's still valid today."

After Challenger exploded, NASA pledged to redesign the shuttle's flawed rockets and remake the agency's approach to safety.

But after Columbia disintegrated during re-entry 17 years later, the investigator of that disaster said NASA's safety discipline was "perfect" on paper only.

"When you bore down a little bit deeper, you don't find any there, there," retired Adm. Harold Gehman said then. "There's no people, money, engineering, expertise, analysis."

Bob Crippen, a Florida resident who was a pilot during the first shuttle flight in 1981 and flew three more times as commander, said important lessons of Challenger and Columbia remain valid today.

NASA struggled to communicate internally on critical concerns and did not respond adequately to information arising from damage to rocket parts during spaceflight, lapses that may be even harder to thwart with commercial launches, he said.

"NASA doesn't have the same degree of control and isn't able to observe contractors as closely as previously," Crippen said.

Crippen noted that SpaceX and Orbital Science Corp. suffered disasters with unmanned rockets during the past two years, which should provide a valuable learning experience.

Alex Roland, professor

STAFF

emeritus of history at Duke University and former NASA historian, said NASA's vulnerability at the time of the accidents was huge bureaucracy and intense political pressures, causing the agency's guard to slip.

He said that leaner, private companies presumably would not be as vulnerable to the failures behind Challenger and Columbia.

"But I'm not so sure," Roland said. "I think they experience a lot of the same pressures because they are trying to get renewals and increases in their NASA contracts."

SpaceX spokesman John Tavlor declined to comment and Blue Origins did not respond to several requests for comment.

A new effort at Kennedy Space Center could ensure that private companies learn from past catastrophes.

Last week, the center kicked off "Apollo, Challenger, Columbia Lessons Learned," a program that targets the emerging space industry with education related to the disasters.

At KSC's Visitor Complex, artifacts manager Mike Ciannilli said he often hears stories from visitors who remember exactly where they were: a fourthgrade classroom; at home watching television with family; and outside, neck craned to see Challenger rising.

The memories remind Ciannilli that the moment does not belong only to NASA.

Instead, the explosion created a marker in the lives of many who witnessed it, he said.

"It's such a pivotal event in their lives, much like the Kennedy assassination." Ciannilli said. CAM 16-0249 Exhibit 1 Page 1 of 1

(30 Day Public Comment Period)

The City of Fort Lauderdale is considering amending Annual Action Plans within the 2010-2015 Consolidated Plan for the Community Development Block Grant (CDBG) Program and the Housing Opportunities for Persons with HIV/AIDS (HOPWA) Program. In accordance with the Substantial Change Policy of the City's HUD approved Consolidated Plan, any change in HOPWA assisted activity as a result of the addition or cancellation of a program or a change in the purpose, scope, location or beneficiary of an activity, requires a program amendment to the Annual Action Plan of the Consolidated Plan. The City of Fort Lauderdale's program amendment and substantial change policy requires Commission Approval and public input at a public hearing after proper notice has been published for a 30-day public comment period.

The proposed amendment would allow the following:

- CDBG funds in the amount of \$50,000 to be provided to the Northwest Federated Women's Club, to replace the roof on their building.
- HOPWA funds to allow Mount Olive Development Corp (MODCO) to finish expending the unspent rehabilitation funds in the amount of \$87,212.94 that were allocated to them in FY 2014-2015.

These are federal funds and have no impact on the general fund budget. This amendment is in accordance with HUD regulations and will allow the projects to proceed to completion.

In accordance with federal regulations, the City is hereby establishing a 30-day public comment period to receive input on the proposed amendment to its Annual Action Plans of the Consolidated Plan. Comments on the proposed change(s) may be submitted to the City of Fort Lauderdale, Housing & Community Development Division, 700 NW 19th Ave., Fort Lauderdale, Florida 33311. Public comments on these items will be accepted during the 30-day public comment period from January 28, 2016 to February 28, 2016. All comments must be received by February 28, 2016. The City will evaluate all comments received during the comment period, and the final amendment will be submitted to the Commission at a public hearing on March 15, 2016. Public input will also be accepted at this public hearing on this amendment. A copy of the final amendment will be available for public review at the Housing & Community Development (HCD) Division at the above address during regular office hours. At the close of the public hearing, the City Commission will consider a motion approving the program amendment to the Annual Action Plans of the Consolidated Plans.

Commission meetings are held in the City Commission Chambers in City Hall located at 100 North Andrews Avenue at 6:00 p.m. Prior to that meeting, if you would like more information on the nature or location of the projects affected, or if you would like to comment on the proposed changes during the public comment period, you should contact Jonathan Brown at jonathanbr@fortlauderdale.gov for any CDBG questions; and Mario DeSantis at mdesantis@fortlauderdale.gov for any HOPWA guestions in the Housing & Community Development Division - 700 NW 19th Ave., Fort Lauderdale, Florida 33311 - (954) 828-4527 or TTD/TTY (954) 828-5069.