2019

Human Space Flight Support

60 YEARS AND COUNTING

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Forward

The creation of this compilation book was a series of accumulative events, starting with the simple task of organizing a storage room behind the Commander's office. Little did I know that this would lead to a 3-year project. Files upon files of information, documentation, maps and leave forms were piled up in the black hole of overflowing shelves and filing cabinets. On the second week of slowly combing through the filing cabinets I struck gold! I had found the carbon copy of the original Assignment of Responsibility for DoD Support of Project Mercury. This was the document in which Major General Donald N. Yates was named by the Secretary of Defense as the manager, and the support duties were first identified. This sparked a question, "What else requires preservation?"

Among the cacophony of detailed missions and reams of paper, I came across memorabilia ranging from Project Mercury to Soyuz. Forgotten and neglected glimpses of our history left behind due to simply being overlooked from lack of space. My new mission became salvaging these souvenirs.

Each new discovery led me down a different rabbit hole of DoD Mercury Support (DDMS) history. Who were the original commanders? What was our lineage? How has our mission changed? What roles did we play throughout the various phases of American Spaceflight? Were there untold stories to share?

As the holes went deeper I found myself completing a 60-year timeline of DDMS/HSFS, refurbishing and housing space memorabilia, acquiring models, curating displays, and plotting every recovery of Mercury, Gemini and Apollo on an enormous map. Still, there were questions. While tracing down the leadership of DDMS/HSFS, I had to turn to old news articles. That's when the idea for a compilation book hit me.

It struck me that NASA, the Navy and the Air Force were all exceptional at ensuring their glories were shared. Yet the DoD, especially DDMS/HSFS sat rather quietly in the background as the unnamed facilitators to these historical feats. Throughout the various projects DDMS/HSFS acted like a professional wedding planner; that is they planned, coordinated, trained the personnel, and delegated as needed… putting the puzzle together while never earning much of the exposure or credit. A mention here or there in a book or perhaps a photograph, but scattered few and far between. It was time this organization had its own historical book to look back upon. That compilation is in your hands.

I would like to thank you for your support in my venture. This project was simply something to occupy a curiosity that turned into something bigger. Every article collected was transposed exactly as written. The original articles are left residing in my desk, on microfiche, or in some various form of digital media. Please enjoy the occasional typos and various writing styles throughout.

Finally, I would like to take a moment to blame Brent Maney for starting me on this odd, but wonderful, obsession. Without his hordes of yellowed newspapers from shuttle and connections with past PJs, this book would have never been started.

With all my gratitude,

Deena L. Sullivan

Ft. Lauderdale Day News 16-C - 23 October 1957

Missile Harmony His Job

GEN. DONALD YATES ...some of Eisenhower magic

PATRICK AIR FORCE BASE [NEA] The Army missile experts here don't want this to get back to their bosses In the Pentagon, but they like Air Force Maj. Gen. Donald N. Yates, commander of this missile test center. In spite of the venom between the Air Force and Army over development of the intermediate range ballistic missile, Gen. Yates, in this vital missile installation, has managed to keep inter-service hate out of the program.

“I guess we've discovered that Gen. Yates is too busy supervising the testing of missiles to be concerned with service rivalry," explains a top Army officer here. "He has never made one decision in the three years I've been here that reflects any anti-Army feeling," the officer adds.

Yates ability to keep harmony In spite of explosive conditions elsewhere in the missile field goes deeper than making impartial decisions. They say he has some of that Eisenhower magic for keeping factions in a command at peace.

If he has it, he probably picked it up when he served on Ike's staff through the Normandy invasion.

Yates mixes a cold, efficient approach to his job with a good sense of humor and a willingness to listen to other people's problems. Socially he's a barrel of fun.

That's Important here, too, because the stream of officials through Patrick is enormous. It's his job to entertain them. Not only are missiles a hot subject for official inspections these days, but the beaches, excellent fishing and sun in these parts make official inspecting very pleasant.

The general is an excellent pilot and came to this job with a solid scientific background. He holds a Master of Science degree from the California Institute of Technology, is a former president of the American Meteorological Society and is a member of the Institute of Aeronautical Sciences and the American Rocket Society.

He is a native of Bangor, Maine, is married and has two married children.

The Miami News- 19 October 1958 - Page3- By Milt Sosin

Bosses Cape Missile Center Yates Baby

(Editor's Note: When the Pioneer missile soared into outer space, the eyes of the whole world were focused on Cape Canaveral. Attention is nothing new for Maj. Gen. Donald N. Yates, commander of the sprawling Air Force installation, who is in charge of the most exciting center of research in the world today. Here is a word picture of this remarkable man one whose boundaries are as far as space itself.)

When Maj. Gen. Donald N. Yates feels the weight of missiles bearing down too heavily on him, he gets into his 22-foot cruiser and goes fishing.

Yates, commander of the Air Force Missile Test Center at Cape Canaveral, doesn't even have to catch a fish to make him happy, so long as he's out on the water.
But for the past year, Yates hasn't had many opportunities to steal away in his Barbour cruiser.

DAYS WERE HECTICT
First there were the hectic days of the first Vanguard launchings, then the Explorers, and in between times the military missiles, such as the Atlas, Thor and Jupiter.

Although an Air Force officer, Yates can never be accused of favoring his branch of the service over any other.

Less than five months ago, on May 22, Navy Secretary Thomas S. Gates Jr., presented Yates with the Navy Legion of Merit.

The accompanying citation stated that Yates "repeatedly authorized unusual courses of action (to expedite the Vanguard and Polaris programs) and insured that the Navy's requirements were met, thereby contributing materially to the successful orbiting of the Vanguard test satellite."

THRILLS GIRL WRITERS
Women correspondents especially the more impressionable ones often rush from their first press conference with Yates to file stories about his resemblance to this or that handsome movie actor.

Yates' comment about some of the gushing descriptions of him have been somewhat superfluous - especially when read out loud by one of military colleagues.

Yates, who will be 49 years old Nov. 25, is a native of Maine and he still loves Maine lobsters and clams when he can get them in Florida.

He and his wife, Gertrude, have two children, Mrs. Richard P. Floyd and Donald N Jr. The "N" middle initial in father's and son's names stands for Norton.

When Don Yates graduated from West Point in 1931 at the age of 21, he was a cavalry second lieutenant.

WINS HIS WINGS

But he never led a charge on a horse. He was assigned to the Air Corps at Kelly Field and soon had his wings instead of spurs. After receiving a Master of Science degree in meteorology at California Institute of Technology, he had a varied career in many parts of the world and was the man who picked June 6, 1944, as the best day - weather wise - for the invasion of Hitler's Fortress Europa.

As commanding general of the Air Force Missile Test Center, Yates now leaves the weather forecasting for missile launchings in other hands.

He just plans and keeps his fingers crossed and goes fishing if there's time.

The Orlando Sentinel - 03 October 1959 - Page 3

To Head Support Yates Gets Top Mercury Post

CAPE CANAVERAL (UPI) Maj. Gen. Donald N. Yates, commander of the air force missile test center here, will head support operations for the Project Mercury manned satellite space program.

Announcement of Yates' appointment as Defense Dept. representative for the project was made yesterday. The general will remain as commander of the test center, which has charge of the Atlantic missile range.

Under the Project Mercury program to place a man into orbit around the earth and recover him safely, Yates will be responsible for preparation of over-all plans and requirements in the area of support. He also will direct and control Defense Dept. facilities, personnel, funds and performance of specific support missions.

Existing Defense Dept. and military organizations will be utilized by Yates "to the greatest possible extent in the performance of these duties," the announcement said.

Navy Capt. James G. Franklin was named naval deputy to assist in the project's recovery operations. Franklin will remain on as commander of the naval test unit and director of naval tests at the missile range.

The Nashville Tennessean - 8 November 1959- By Bem Price

Amazing Maze Clutters Space

If Red Tape Were Rockets, Moon Would Be U.S. Colony Now

The United States space and missile program has become one of the most bewildering array of projects in the land. At the moment there are 61 federal organizations and committees involved in the grand effort- and a look at this chart, prepared by The Washington Star- will give you an idea of how the program is tied up in a sprawling maze. From time to time, new projects are added, others discarded. Since this chart was drawn, the air force has been given sole jurisdiction over military space operations, while the National Association and Space Administration (NASA) has taken over the army's major space and missile facility for civilian use.

So many organizations are involved in America's missile and space program it sometimes seems to disappear like a football in a big pileup of players. Then the question arises, who's got the ball?

Here's an attempt to answer that question.

If red tape were rocket power, the moon might be an American colony today.

At the moment, there are some 61 distinct organizations and committees concerned, to varying degrees, with the space and missile effort.

Some critics, including at least one congressional committee, contend that this sprawling hodgepodge of agencies is one of the big reasons why the United States is lagging behind Soviet Russia.

$25 Billion Spent

Since 1950 the United States has spent about 25 billion dollars on missile and space projects, and by mid-1960 the total will reach 32 billion. But some space scientist themselves, while admitting

strain from multl-burcaucratic control, say they're handicapped by a tight squeeze of funds. Even with red tape eliminated, these sources say, it would be hard to catch up with the Russians without an infusion of money.
In broadest outline, the missile effort's chain of command runs from President Eisenhower to the department of defense and the National Aeronautics and Space Administration (NASA). Defense is responsible for purely military space and satellite projects. NASA Is charged with developing missiles and satellites for civilian-scientific use.

But a closer look discloses a more complicated picture.

It starts at the very bottom of the working level and meanders up through laboratories and administrative commands to congress and the White House - over a course strewn with committees, departments, agencies and councils. In addition, there are numerous liaison groups which bustle among each other and everybody else, coordinating, advising and criticizing.

67 Projects.
Beneath this majestic bureaucratic pyramid are 67 rocket, missile and space projects, all in the developmental stage, plus scores of subsidiary research programs. This does not include the completed projects which have given the National 18 more or less operational missiles and rockets.
All right, then, who's in charge?

NASA, the civilian agency, has access to defense department facilities on a "cooperative" basis. Since the line between a civilian type satellite and a military one is hair-thin, the division of work is purely arbitrary. It's a civilian project if NASA foots the bill, and vice versa.

So the military have done most of NASA's work to data since they have been the only organization with the hardware and support facilities.

Now this may change. President Eisenhower announced Oct 21 that the Army's Ballistic Missile Agency at Huntsville, Ala., will be taken over by NASA, subject to congressional approval. This acquisition would give NASA a tidy empire of laboratories and production facilities all its own, perhaps permitting gradual withdrawal of contracts from the armed services.

How did the bureaucratic pyramid grow?

During World War II the United States, shaken by the German development of V-2 guided missiles, embarked on an extensive program to catch up.

After the war ended, the United States took inventory, found it had 40 missile and rocket programs and promptly scrapped 20.

Missile matters rocked along with the three services doing whatever came to mind, if they had the money, until Oct. 24, 1950.

On that date the late Gen. George C. Marshall, then secretary of defense, put the programs under the newly created office of the director of guided missiles.

Marshall's centralized control order remained In effect until Sept. 18, 1953, when a new secretary of defense, Charles E. Wilson, authorized the various military service secretaries to proceed with whatever programs they felt would fit the needs of their particular service.

Wilson's order asked only that the defense department be kept advised of who was doing what and the progress being made.

The results were remarkable, although, in fairness, it must be pointed out that much of the-work had been started under Marshall or before.

Both the army and air force built 1500-mile range missiles and both were working on 5000-mile range missiles.

The air force worked on seven surface-to-surface missiles, two air-to-air missiles, a surface-to-air missile and two air-to-surface missiles.

The army happily went about working on 10 surface-to-surface missiles and rockets and five surface-to-air projects.

As for the navy, it began developing five air-to-air rockets, two surface-to-underwater weapons and three air-to-surface missiles.

Assorted Project

All of the services worked on assorted space projects - cosmic ray studies, communication satellites, meteorological satellites and so forth. Each service's medical departments made studies looking toward the day of man's entry into space.

In Washington this type of duplication is known as "inter-service rivalry" or "healthy competition in the American tradition." It depends on whom you talk to.

And everybody apparently went about their business in the conviction that the U. S. led in missile and space technology. But on Oct. 4. 1957, the Russians put the first artificial satellite into orbit, Sputnik I.

This blow to American pride and prestige set the bureaucratic ball to rolling. Some agencies had their names changed and their functions broadened.

New ones came into being.

In congress the House created a committee on science and astronautics while the Senate named a committee on aeronautical and space sciences. In time the military operations subcommittee of the House committee on government operations felt the missile and space programs fell within its purview.

Appropriations Involved

The appropriations committees of the house and senate, of course, were already involved. So were the house and senate armed force committees.

Since Sputnik I there have been millions of words of testimony on the progress, or lack-of it, in the missile and space programs.

One of the sharpest looks at the programs to date has come from the house military operations subcommittee.

In a report dated Sept. 2, 1959, the committee said: "It is good sense and sound administration to have conjointly an Advanced Research Projects Agency (ARPA), a director of defense research and engineering with all their associated technical panels, and advisory committees, all seeking In behalf of the secretary of defense to keep on top the fast moving missile and space programs?

"Were we well advised to divide the national effort in space exploration between ARPA and NASA, one a military agency, the other civilian, each necessarily intruding into the other's jurisdiction ...each demanding a larger and larger share of the total resources?"

The committee also observed: "There are those who believe that agencies are being piled upon agencies, compounding confusion in a military establishment already too complex…”

After noting that in the 'space and missile field there had been duplication and even triplication of effort, the committee recommended that the army and air force, leaders in the missile and space field, should be reunited.

Sole Jurisdiction

Since this report, the air force has been given sole jurisdiction over military space operations; while NASA is taking over the army's major space and missile facility for civilian use.

At this point the reunification of the army and air force solely to end missile and space effort duplication seems dead.

Now if you are still wondering what this missile and space maze really looks like. There goes. This rundown excludes the interested congressional committees, though they appear in the total count.

President Eisenhower is boss of the whole works. He receives advice from the Bureau of the Budget, the Federal Council for Science and Technology, the National Aeronautics and Space Council, the President's Science Advisory Board and the National Security Council.

His direct chain of command runs to the department of defense and NASA.

Under the department of defense there are the office of defense research and engineering, the advanced research projects agency, the Institute for defense analysis, the Joint Chiefs of Staff and the secretaries of the three armed services.

Services Underneath

Beneath this hierarchy rest the army, navy and air force. Each has a director of research and development surrounded by a technical staff.

The army has an ordnance missile command, a rocket and guided missile agency and the White Sands missile range.

The navy has its office of naval research and under this the naval research laboratory. In addition, the navy has a Pacific missile range, a Naval Air Development Center, an Ordnance Test Station, an Applied Physics Laboratory and a Bureau of Weapons.

Under the air force there are the space technological laboratories, the ballistic missile division, the Air Research and Development Center, the Air Force Missile Test Center, the Air Force Cambridge Research Center, the Air Force Flight Test Center and the Air Force Missile Development Center.

Controls Jet Lab

Then there is NASA which now has acquired the Army Ballistic Missile Agency. It also controls the Jet propulsion laboratory near Los Angeles and six other research centers.

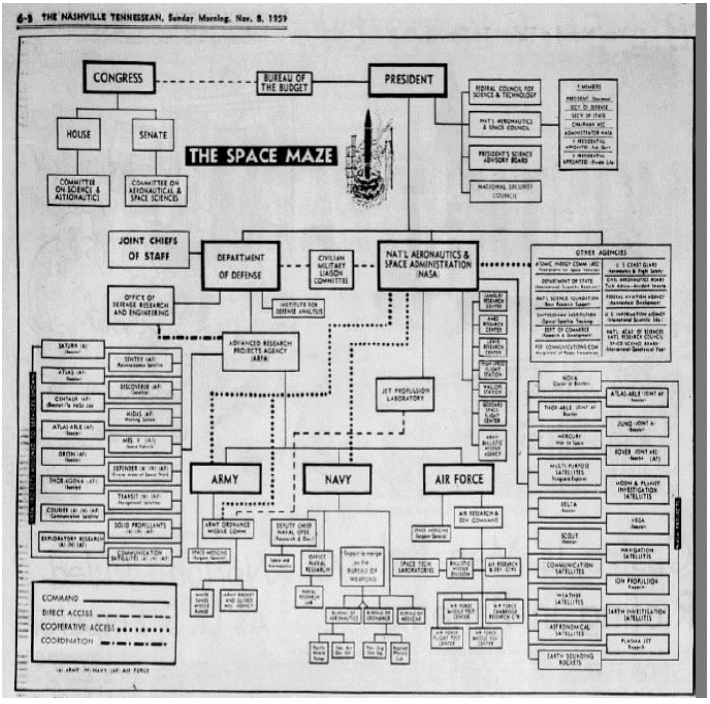
Between NASA and the department of defense is a high-level civilian-military liaison committee.

Each of the three services also has an assortment of weapons evaluation boards which assess the military missiles for usefulness.

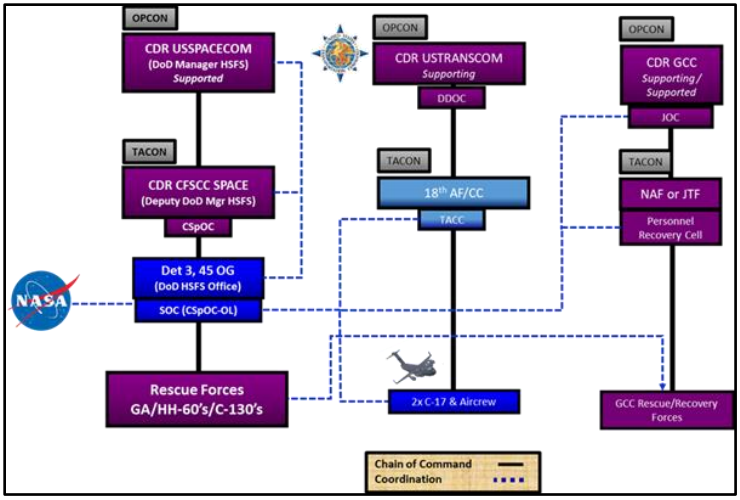
The uncounted liaison committees which are supposed to keep tabs on various projects have already been mentioned.

But you aren't through yet.

The Atomic Energy Commission has three or more groups Involved In the development of missile warheads and space power plants.


6-B THE NASHVILLE TENNESSEAN, Sunday Morning, Nov. 8, 1959
THE SPACE MAZE
CONGRESS
BUREAU OF THE BUDGET
PRESIDENT
HOUSE
SENATE
COMMITTEE ON SCIENCE & ASTRONAUTICS
COMMITTEE ON AERONAUTICAL & SPACE SCIENCES
JOINT CHIEFS OF STAFF
DEPARTMENT OF DEFENSE
CIVILIAN MILITARY LIAISON COMMITTEE
NAT'L AERONAUTICS & SPACE ADMINISTRATION (NASA)
OFFICE OF DEFENSE RESEARCH AND ENGINEERING
ADVANCED RESEARCH PROJECTS AGENCY (ARPA)
JET PROPULSION LABORATORY
ARMY
NAVY
AIR FORCE
COMMAND
DIRECT ACCESS
COOPERATIVE ACCESS
COORDINATION

Then and Now


OPCON
CDR USSPACECOM
(DoD Manager HSFS)
Supported
TACON
CDR CFSCC SPACE
(Deputy DoD Mgr HSFS)
CSpOC
Det 3, 45 OG
(DoD HSFS Office)
SOC (CSpOC-OL)
Rescue Forces
GA/HH-60's/C-130's
OPCON
CDR USTRANSCOM
Supporting
DDOC
TACON
18th AF/CC
TACC
2x C-17 & Aircrew
OPCON
CDR GCC
Supporting / Supported
JOC
TACON
NAF or JTF
Personnel Recovery Cell
GCC Rescue/Recovery Forces
Chain of Command
Coordination

The Miami News - 11 February 1960 - Page 52 - By Morris McLemore

Missile-Quick Cape Tour Frays Ike

CAPE CANAVERAL- To put it plain, Ike looked like he got up too early and ate too much breakfast.

That was the impression when the President landed here at 10:30 yesterday morning. When he departed- at 1:35 in the afternoon - he was a tired man who spent the three hours on this wasteland of white sand and yellowish sandspurs listening quietly as bright, young men explained what makes the big birds fly.

President Eisenhower, like most other Americans, has heard enough about how often the great, silver things don't always fly off Canaveral. And that the Russians are winning the missiles race, why this need is greatest and that program foolish, etc., etc.

Like many another American would like to do, the President called in somebody and said to saddle up, he was going down to see what was what at Canaveral.

Or at least that is what we presume is the reason he put in an extraordinarily strenuous day. Why he flew to Washington from his Gettysburg farm in a helicopter and then on to Canaveral and return to the White House in the brief time of eight hours.

The President was not his usual, happy self when he got off the Air Force 707 jet and he was frayed even more when he stepped back aboard. Although I overheard him say to the missile center commander, Maj. Gen. Donald Yates: "General, you did a great job.'

Yates, an intent man responsible for the test center for almost 10 years of trial, triumph and defeat, rode at the President's side in a 1930 Buick sedan, pride of a limousine fleet that must be the feeblest at any Air Force base.

Eisenhower tried hard to see what can be seen in three hours here. There was no fuss, no thumping of drums, no fanfare for the commander-in-chief. No honor guard snapped to for him, no ladies graced his small entourage.

There was a lot of horsepower in the 22 men who stood silently by as the President listened and occasionally, asked questions of his eager instructors in the new but vital science of space rocketry. Defense Secretary Thomas Gates and James Douglas, secretary of the Air Force, were among the silent 22 as was Maj. John Eisenhower, the President's son.

Ike's few parting remarks were what might be expected, nothing more. He said he'd been wanting to come here "for a long time," that the base was a most highly instrumented place, that the personnel shows every degree of competence one could ask ... There was no growl for the Russians to mull, no hint of change in our approach to the infinitely complicated problems of space penetration. If he has any such things to say Ike will say them elsewhere. And there was no atmosphere of Jollity among his companions, either. Nobody was jumping out of line to shake hands with old pals or political desirables.

The bleak, windy reaches of this 15.000-acre island, 60 miles south of Daytona and 50 north of Fort Pierce is run like a working ranch and members of the President's party didn't act like dudes. There was somberness, a seriousness about the occasion that impressed some of us anew with regret that the President delayed the first visit to Cape Canaveral until so very deep into his tenure.

He saw the old and the new missiles. Starting with a confidential briefing, he looked in on the Titan, the Atlas, Polaris, Pershing and Thor and doubtless was told the most secret plans for Saturn, Minute Man, and all others now on the boards or first stages of construction.

He learned the Atlas has a skin so thin the lower and largest part of the fuselage is only 12 to 19 one-thousands of an inch thick that it will collapse of its own weight if not ribbed from within. Although made of steel, it stands alone only when fueled for flight, when the fuel acts as the skeleton. Yet despite this frail body, the mighty war missile roars 6,000 miles downrange, far into the South Atlantic, at the touch of a button in a concrete house

... When Ike was a young Army officer, he, like the others, concerned himself with the problem of getting a maximum number of riflemen on the yonder side of the creekbank. And then he would try to supply them a bean or two or a bit of bully beef. Things have, changed since then. And Ike learned how much from other young officers who're concerning themselves with the moon and Mars, with putting men a thousand miles into space and getting them a bean or two.

President Eisenhower is briefed on operations by Lt. General Yates at Cape Canaveral Air Force Station in Florida. Photo Credit: NASA

The Miami News - 11 April 1960 - Page 15 - By Bill Baggs

And Along Came General Yates

CAPE CANAVERAL - The wet sands crawl out of the Banana River and climb to a lumpy white hillock. Eastward the sands tumble, in long rises -and shallow gullies, until they reach the Atlantic Ocean. There, where the sands flatten out and point toward the sea, the land is known as the Cape of Canaveral.'

It is on historic old nose of sand.

Pence de Leon discovered it. Sailing northwest through the Bahamas, he sighted the cape In March of 1513.

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ONE OF THE MOST brutal sea captains in all history named it. Pedro Menendez. He heard of 200 Frenchmen poaching on "these Spanish lands" and he set out to investigate. Menendez found the Frenchmen in a log fort. Some of them surrendered and all others were massacred on the sandy cape by Menendez.

The captain raised a new fort on the spot and named it Santa Lucia de Canaveral.

A few years later, one of the first Spanish missions in the hemisphere was staked out on the bare sands.

The sandpipers and the herons occupied the cape for the next two centuries. Occasionally, they were joined by fishermen who had heard of the rich waters. Farmers began to settle along the coast and grow the most prized of citrus . . . Indian River Fruit.

Then, according to a local historian with a sense of humor, along came Maj. Gen. Donald N. Yates.

This wandering introduction to the subject is made to put the general in perspective. Canaveral was pretty much lost in the dust of the history books until General Yates got there in 1954.

In the six years since, it has become a futuristic stage for the world as General Yates has presided over this nation's first reach into space. In these six years, and from this sandy cape, we have put several artificial moons into an orbit of the earth, we have shot a missile beyond the moon, and now man prepares to send a human up there in the unexplored regions of dark, cold, strange space.

So much of this pioneering into space has been the work, directly and indirectly, of the tart little general named Yates, who is being re-assigned to Washington where he will help direct all space probes and military missile launchings in a new job.

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The going of Yates ends the hectic, often embarrassing years of trying to get our missiles into space, the very beginning of the space era, and it was a frequently wearying era.

Probably the worst time this jaunty scientist in a general's uniform ever had as a space pioneer came on December 6, 1957. Even here in 1960, it is uncomfortable to think of the event.

The Office of Naval Research had descended upon Cape Canaveral to put our first missile into an orbit of the earth. The invaders behaved as if they were promoting a circus. Navy press agents circulated among newsmen passing out releases of the coming event.

A naval spokesman told the reporters; "There were a few bugs in the rocket. But I think we've ironed them out. It looks like we'll be ready to blast off at 5 a.m."

The word was promptly flashed by reporters throughout the nation and around the world.

Well, 5 a.m. came and 5 a.m. went and the rocket was still on the ground. The shooting was postponed, hour after hour, from Wednesday until Friday.

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Then, in the bright light of the noon day, the trigger was pulled. The Vanguard toppled over, enveloped in flames, and the little “moon” in her nose fell into a gutter of sand. Later, pathetically, it was found in the sand, beeping insistently.

This greatly publicized attempt and failure moved General Yates to a hard silence. A reporter asked him for a comment:

"Ugh," replied the general.

In February of 1958, another Vanguard was shot. It got one minute into the air and then exploded.

Until then, newspapermen and photographers had stood out on sandy sliver of beach across a body of water from the missile pads. With binoculars, they examined the proceedings, speculated in their stories, guessing right sometimes and guessing wrong too often.

General Yates made a decision. He called the newsmen into a conference. With dispatch, he offered them entry to the missile base. They could look everything over, be fully informed, and all he wanted in return was no hoopla about coming events to get a missile around the earth in orbit. After the shoot, successful or not, newsmen could write until their fingers stiffened.

This was an informal agreement, but it worked, and we did not suffer the role of laughingstock in the worlds. There was no circus-like promotion of coming missile shots. The press was better informed. The public benefitted, because press wrote complete stories when the missiles were shot.

Four months had passed since the Russian Sputnik had gone into orbit and the pressure to get a U.S.A. moon up there was immense. On January 31, the Army's Jupiter-C missile carried a small moon up, kicked it into orbit and Yates marched into a room of reporters with all the raw, unharnessed pride of a new father.

"Boys," he said, "I think we are now in business."

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Later, The Small, crisp general was to preside over the launching of several space shots. By December of 1958, he was to supervise the launching of a four and one-half ton satellite. He presided over our first long reach into space… the flight of the Pioneer almost 75,000 miles towards the moon.

Quietly he also was investing his brains into Project Mercury, the enterprise to put a man into orbit.

The Orlando Sentinel- 24 July 1960 - Page 16

110 Major Events In Cape Canaveral History

24 JULY 1950 First missile launch from Cape Canaveral. Bumper No. 8 lifts off at 8:29 a.m. JULY 1950 Second missile launch from Cape Canaveral Bumper No. 7, lifts off at 6:44 a.m.

I AUG. 1950 Patrick Air Force Base, administrative headquarters for the Air Force Missile Test Center is officially dedicated. Named in honor of Maj. Gen. Mason M. Patrick, former chief of air service.

25 OCT 50 The first Lark missile launched by an air force crew from Cape Canaveral. This was the last of three missiles launched in 1950.

NOVEMBER 1950 - Construction started at Grand Bahama Island for the first missile tracking station on the range. Today's 5,000-

mile Atlantic Missile Range was then officially known as the Florida Missile Test Range.

1 JAN 1951 The 4800th Guided Missile Wing established at the Long Range Proving Ground Division. One of the earliest air force missile units.

14 MAY 1951 The Air Force Missile Test Center was established, replacing the Long Range Proving Ground Division, and placed under the Air Research and Development Command ARDC

20 JUNE 1951 - First launch of the U. S. Air Force Matador from Cape Canaveral.

8 DEC. 1952 The air force's 1st Pilotless Bomber Squadron. Light is established at the Air Force Test Center for training on the U.S. Air Force Matador.

JANUARY 1953 Construction of underwater cable from Cape Canaveral to Puerto Rico begins.

JANUARY 1954 Pan American World Airways takes over operation and maintenance of the Florida Missile Test Range under supervision of the Air Force Missile Test Center. Changeover completed by 1 March 1954.

9 MAR 1954 The 1st Pilotless Bomber Squadron Light transferred to NATO forces

1 AUG. 1954 Maj. Gen. Donald N. Yates succeeds Maj. Gen.

17 JAN. 1951 First launch of Polaris test vehicle in the U. S. Navy' fleet ballistic missile test program at Cape Canaveral.

31 JAN. 51 Explorer I. the Free World's first earth satellite, launched from Cape Canaveral by a Jupiter-C, developed by the U. S. Army. This 30.8-pound satellite, designed to measure radiation belts, is still in orbit.

1 JAN. 1955 Four missile research and development flight programs, are under way at the Air Force Missile Test Center. These include the U. S. Air Force's Matador, Snark and Bomarc and the U.S. Army's Redstone.

MID-1954 The air force's X-17 test program begins at Cape Canaveral to study re-entry problems by simulating re-entry

velocities and conditions with the three-stage, solid-fueled Lockheed-developed X-17. This year-long program was the pioneering effort in development of today's re-entry vehicles, paving the way for many later firsts. A total of 26 X-17 flights were conducted until March 1957.

19 SEPT. 1956 The first Jupiter-C launched from Cape Canaveral. This was a modified Army Redstone which carried an 84-pound payload over 3,000 miles.

25 JAN. 1957 First attempted test flight of the U.S. Air Force Thor IRBM only 13 months after first production contracts were signed. Flight not successful, missile fell back on launch stand.

31 MAY 1957 First launching of the Army's Jupiter IRBM. ATLAS 1 THOR-ABLE VANGUARD

JUNE 1957 First test flight of the U.S. Air Force Atlas ICBM. Lift off successful but malfunction in propulsion system occurs and missile is destroyed by range safety officer.

7 AUG. 1957 A nose cone from a U. S. Army Jupiter-C test vehicle is recovered from the South Atlantic Ocean marking the first recovering of a re-entry body at long range. It was shown to the nation by Pres. Eisenhower in November 1957.

20 SEPT. 1957 First fully successful test flight of the U. S. Air Force Thor IRBM.

OCTOBER 1957 Two Thor missiles successfully test launched during the month.

OCTOBER 1957 First full-range launch on the Atlantic Missile Range. Air Force Snark.

17 DEC. 1957 First successful launch of the U. S. Air Force Atlas ICBM occurs on the 54th anniversary of the Wright Brothers' first flight at Kitty Hawk, N.C. All of the programmed test objectives were achieved on this limited range flight.

5 MAR. 1958 Explorer II launched, but fails to achieve orbit when the fourth stage of the Jupiter-C did not ignite.

17 MAR. 1958 Vanguard I, the nation's second satellite, launched into orbit from Cape Canaveral.

23 APR. 1958 A U.S. Air Force Thor-Able vehicle launched from Cape Canaveral to study reentry problems at intercontinental ranges.

15 MAY 1958 Explorer III launched from Cape Canaveral. The 31-pound satellite confirmed radiation findings of Explorer I. It re-entered the earth's atmosphere in June 1958.

4 JUNE 1958 A U.S. Air Force Thor flight tested for the first time from a tactical-type launcher at Cape Canaveral.

27 JUNE 1958 An all-air force crew successfully flight tests the Snark intercontinental-range missile for the first time.

JUNE 1958 Recovery of the first data capsule at the Atlantic Missile Range after successful re-entry separation from a Thor IRBM.

2 AUG. 1958 First full-power flight of the Air Force Atlas ICBM using both the sustainer and booster engines.

7 AUG. 1958 First launching of the Air Force Bomarc interceptor missile from Cape Canaveral on a signal sent by the SAGEF Control Center at Kingston, New York.

17 AUG. 1958 First lunar-probe flight by an air force Thor-Able vehicle ends when vehicle explodes 77 seconds after lift-off.

11 OCT. 1958 Pioneer I, the nation's first space-probe, Gen. William L. Richardson as commander of the Air Force Missile Test Center.

21 OCT. 1958 First launching of two Bomarc missiles within less than ten seconds of each other at Cape Canaveral. Launch was signaled from the SAGE Control Center at Kingston, N. V. Both missiles scored successful intercepts against different targets.

28 NOV. 1958 First full-range over 6,000 statute miles launch of the U. S. Air Force Atlas ICBM at the Atlantic Missile Range.

6 DEC. 1958 Pioneer III, launched from Cape Canaveral, by a U. S. Army Juno II vehicle. Because of premature fuel cut off, the payload achieved an altitude of only 63,500 miles before it fell back to earth.

13 DEC. 1958 A Jupiter missile carrying a live squirrel monkey in its nose cone was launched from Cape Canaveral as a contribution to space science.

18 DEC. 1958 A U.S. Air Force Atlas is launched into orbit from Cape Canaveral. Lift off of the 244,000-pound missile came at 6:00 P.M. Orlando time. Known as Project Score, the experiment demonstrated the feasibility of the communications satellite concept.

6 FEB. 1959 First test launch of the U.S. Air Force Titan ICBM from Cape Canaveral.

3 MAR. 1959 PIONEER IV, a 13.4-pound satellite, launched into orbit around the sun by an Army Juno II. Signals were received from Pioneer IV at a distance of 416,000 miles from the earth. The project was directed by the National Aeronautics and Space Administration.

8 APRIL 1959 The re-entry body of a U.S. Air Force Thor-Able was recovered at the far end of the Atlantic Missile Range for first time by AFMTC task force after an ICBM-range flight.

23 APRIL 1959 First flight test of the air force's GAM-77 at the Atlantic Missile Range.

27 MAY 1959 First flight test of the air force's Bomarc B long-range interceptor missile.

28 MAY 1959 Two monkeys, Able and Baker, launched in a Jupiter missile to an altitude of 300 miles were recovered alive 1,500 miles down the Atlantic Missile Range. Both primates successfully withstood 38 times the normal pull of gravity and a weightless period of nine minutes.

5 JUNE 1959 Start of construction at Cape Canaveral for the Saturn 1.5 million-pound-thrust space vehicle is announced.

2 JULY 1959 A U.S. Air Force Snark intercontinental-range missile completed its third "round robin" flight at the Atlantic Missile Range.

21 JULY 1959 A full-scale Atlas ICBM nose cone was recovered for the first time after a flight to the far end of the Atlantic Missile Range.

7 AUG. 1959 Explorer VI, launched by an Air Force Thor-Able III vehicle from Cape Canaveral. A "paddlewheel" satellite, Explorer VI measured earth radiation belts around the earth and contained a TV-like scanning device to relay cloud cover pictures.

25 AUG. 1959 The first data capsule from an Atlas ICBM was recovered on the Atlantic Missile Range near Ascension Island.

27 AUG. 1959 The first launch of Titan test vehicle from the USS Observation Island at sea.

9 SEPT. 1959 A one-ton model of the Mercury capsule was launched on an Air Force Atlas from Cape Canaveral to study design features of the man-in space capsule. Called "Big Joe 1" the flight path of the missile carried the capsule to an altitude of about 100 miles to an impact point more than 1,500 miles down the Atlantic Missile Range. The capsule was recovered by the U.S. Navy destroyer Strong.

18 SEP. 1959 Vanguard HI launched into orbit from Cape Canaveral under direction of NASA. Purpose of the experiment was to measure solar X-rays, environmental conditions in space and the earth's magnetic field.

2 OCT. 1959 - Mai. Gen. Donald N. Yates, AFMTC commander, appointed Department of Defense representative for Project Mercury support operations.

13 OCT. 1959 Explorer VII, a radiation-detection satellite, was launched into orbit from Cape Canaveral by an Army Juno II.

26 OCT. 1959 First U. S. Air Force Mace tactical missile test launched from Cape Canaveral.

26 NOV. 1959 An attempt to launch a 372 pound satellite to explore space between the earth and the moon failed when the plastic fairing covering the payload on the three-stage Atlas-Able vehicle came off 45 seconds after liftoff.

5 DEC. 1959 First transcontinental airlift of a U.S. Air Force Atlas ICBM completed by a C-133B air force cargo aircraft, after a seven-hour flight from California.

17 DEC. 1959 Final weapon system flight test of the U. S. Air Force Thor IRBM accomplished at Cape Canaveral.

2 FEB. 1960 Ignition of the second stage of the U. S Air Force Titan ICBM at altitude occurred for the first time following launch from Cape Canaveral.

24 FEB. 1960 First 5.000-statute-mile flight test of the Titan ICBM. A data cassette ejected from the re-entry vehicle of the missile and was recovered by the AFMTC Ocean Range Vessel Timber Hitch one hour and 13 minutes after launch from Cape Canaveral.

25 FEB. 1960 First test launch of the U. S. Army's Pershing tactical-range missile from Cape Canaveral.

11 MAR. 1960 Pioneer V, a 94 8-pound satellite, designed to investigate interplanetary space between the orbits of the

20 MAY 1960 A U.S. Air Force Atlas ICBM propelled its operational type nose cone on a 9,000-mile flight from Cape Canaveral into the Indian Ocean near the southern tip of South Africa. During its history-making flight, the missile attained an apogee of about 1,000 miles.

21 MAY 1960 Maj. Gen, Leighton I. Davis assumed command of the Air Force Missile Test Center succeeding Maj. Gen. Donald N. Yates who became deputy director of defense research and engineering Range and Ground Support, Department of Defense.

24 MAY 1960 Midas H, a U.S. Air Force satellite designed to determine the feasibility of a system for detection of missile launching with satellite-borne infrared sensors, launched from Cape Canaveral by an Atlas-Agena vehicle. Although orbit was achieved, the data link telemetry transmitting infrared scanner malfunctioned two days later.

22 JUNE 1960 Transit HA, another In a series of navigational satellites, launched from Cape Canaveral using an air force-developed Thor-Able-Star vehicle.

11 JULY 1960 A U. S. Air Force Mace tactical missile was launched from a prototype "hard site" at Cape Canaveral for the first time.
15 July. 1960 PERSHING POLARIS Earth and Venus, launched from Cape Canaveral by an Air Force Thor-Able IV vehicle. This NASA satellite has an estimated lifetime of 100,000 years.
1 APR. 1960 TIROS-1, a 270-pound NASA meteorological satellite, launched from Cape Canaveral by an Air Force Thor-Able vehicle. After achieving a near circular orbit, TV cameras in TIROS I relayed thousands of cloud-cover photographs for use in weather forecasting.
13 APR. 1960 Transit IB, designed to determine the feasibility of a satellite system for all-weather navigation, launched from Cape Canaveral by an Air force-developed Thor-Able-Star vehicle. The Transit program is directed by the Department of Defense Advanced Research Projects Agency. The satellite was developed by the U.S. Navy Bureau of Weapons.

Following the successful MA-6 mission, astronaut John H. Glenn Jr., seen here with President John F. Kennedy and General Leighton I. Davis, took part in a whirlwind of activities celebrating the event. This appearance was in Cocoa Beach. February 23, 1962

Department of Defense (DOD) recovery personnel and spacecraft technicians from NASA and McDonnell Aircraft Corp., inspect astronaut John Glenn's Mercury spacecraft, Friendship 7, following its return to Cape Canaveral after recovery in the Atlantic Ocean. Photo credit: NASA

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Gen. Davis Gets New Assignment

PATRICK AFB Lt. Gen. Leighton I. Davis, commander of the National Range Division, has been appointed Department of Defense manager for manned space flight support operations.

He will be responsible for co-ordination of all DOD operational support of NASA's Project Gemini and Apollo plus the Air Force's Manned Orbiting Laboratory project.

Gen. Davis also was DOD representative for Project Mercury support operations from mid-1960 until end of the program. He was responsible for bringing together the many DOD units to operate as a single integrated supporting force from the early ballistic flights of Astronauts Alan Shepard and Gus Grissom to the manned orbital flights in which Astronauts John Glenn, Scott Carpenter, Walter Schirra and Gordon Cooper participated.

DOD support to NASA's Project Mercury was in the areas of launch, network operations, communications, recovery and bioastronautics. For the last one-day manned Mercury mission a total of 29 recovery ships, including two aircraft careers, 171 aircraft and over 18,000 DOD people supported Astronaut Maj. Cooper in his history making 22-orbital flight.

On May 21, 1963, the late President Kennedy presented Gen. Davis with the NASA Medal for Outstanding Leadership In recognition of his contribution to Project Mercury.

Interlude 1: Stories from the 304th Aerospace Rescue Recovery Squadron

Gemini 8 Recovery March 17, 1966

John Ratliff discusses Gemini VII recovery with fellow PJs

John Ratliff:
I have been watching on PBS and National Geographic TV the celebrations this week of the 50th anniversary of the Apollo 11 landing on the Moon. Few people realize the importance of the USAF Aerospace Rescue and Recovery Service in this NASA endeavor. I had the privilege of having Eldridge M. Neal as our PJ Class 67-3 NCOIC. It wasn't until years later that I knew that he was one of three PJs, the other two being Glenn M. Moore and Larry D. Huyett, who made the parascuba jump onto Gemini VIII, effectively rescuing Astronauts Neil Armstrong and David Scott.
I served with David Wendt too, in the 304th Aerospace Rescue and Recovery Squadron (ARRSq), Reserve in Portland, Oregon. What I did not know is that he was with the 33rd ARRSq on active duty during the Gemini VIII rescue mission. He has given me permission to reproduce the e-mail he sent to me in December of 2015 about that mission, which he saw from Rescue Ops.

> "Yes, I remember Sgt Neal well, and yes, I was there for Gemini 8 - I was the duty officer that day - a lowly Capt. that was rather overshadowed when several colonels and at least one BG showed up! I have a photograph of them conferring in our ops area -- as I recall, we got a call from CinCPac himself - probably a 3 or 4 star admiral in Hawaii - and I very well remember the general saying to him, "No sir, we won't land our HU-16 to pick up the astronauts!" Wasn't one of them Neil Armstrong? And of course, the BG told our Col. that under NO circumstances would that -16 land...PERIOD! So, the PJs and the astronauts bobbed around in the ocean for another 24 hours or so until a Navy destroyer finally picked them up. I guess it was humiliating

enough to the Navy that AF PJs were first on scene, and not Navy SEALS.....!! Oh well.. The A/C on the -16 was a fairly senior Capt. -- can't remember his name now -- but when they landed back home he showed us a sketch of the seas there and just what his landing heading was going to be. He had radioed that in and our ops off - L/C XXXXX (he will remain nameless, jcr) - who had mulled it over for awhile and advised 5 more degrees to the N - or whatever!! If they hadn't gone through all that bother, the -16 would have landed - gotten the job done - and been airborn back home before CinCPac could have gotten involved. I think a HC-130 arrived on scene to ride cover and let the -16 RTB. It was quite a party in Naha port when the destroyer finally docked..."

Bill Preble:

I talked to Charlie Hoell Tuesday, and he had some interesting information to add about the only Apollo mission that we actually jumped on. There were five jumpers, Herb Romish, Mike McManus, and Jerry Staley from the 36th ARS, and Norman Kolhstrand, Lenny Thomas and Billy Ray Smith from the 54th ARS. This jump happened in 1968. Billy Ray Smith was the last of the jumpers, and he got his position correct to intercept the capsule as it was drifted by. He was able to attach his reserve parachute to the capsule for the sea anchor to stop it, and then the floatation collar could be dropped. But he had difficulty attaching the reserve chute, as there was a hole that he needed to insert a special attachment, and turn it a quarter turn, in order to have something to attach the reserve chute to. Billy Ray was the last jumper, and therefore the last chance to grab the capsule. According to Charlie Hoell, PJs littered the ocean after that, and needed to be picked up.

This led to a modification of the operational Apollo capsules, which was the addition of a solid D-ring to the capsule. Charlie said it was added just below the door. The mock capsule that

ARRS was using was taken to a shop and a like D-ring added after this jump. The ADDRS (previously defined in the writeup I sent) was developed subsequent to this jump, and was standard for the rest of the Apollo missions.

Charlie Hoell worked on all the NASA flights, Mercury through Gemini through Apollo, and finally went to the Test Group. Charlie wrote some of the book, Pararescue, 50 Years, and parts of this mission were written up on pages 96-97 of this book by the Pararescue Association.

Astronaut James A. Lovell Jr., pilot of the Gemini-7 spaceflight, is hoisted from the water by a recovery helicopter from the Aircraft Carrier USS Wasp. Astronaut Frank Borman, command pilot, waits in the raft to be hoisted aboard the helicopter.
Photo credit: NASA

The Orlando Sentinel - 11 September 1966 - Page 47

It's Surprise For General

Patrick AFB- Lt. Gen Leighton I. Davis, Department of Defense manager for manned space flight operations, found himself involved to an unexpected degree in the recovery of the Apollo Spacecraft on the Apollo-Saturn 202 mission recently.

Gen Davis, who also commands the National Range Division of the Air Force Systems Command, wanted to observe the recovery of the Apollo spacecraft, which was launched Aug 25. Prime splashdown area was in the South Pacific, southwest of Wake Island and west of the Marshall Island group.

In the prime recovery area, which stretched some 2100 miles, four ships from Task Force 130, including the carrier Hornet, and a seven aircraft Aerospace Rescue and Recovery Service array, three from Wake Island and four aircraft from Guam, were on station in the recovery zone. The general's aircraft was one of three staging out of Wake Island.

It was planned that the Hornet would pick up the Apollo spacecraft after *misprint* plane was an HC-130 that carried Pararescue swimmers, trained to attach flotation collars to the spacecraft to keep it afloat until the carrier could be brought into position to pick it up. The other six planes in the recovery area aircraft array also carried the Pararescuemen.

The Apollo capsule, however, reentered and splashed down some 110 miles short of the carrier Hornet.

Three nearby aircraft which the general's plane was one of, headed for the scene of splashdown.

The general's plane and the two other nearby Wake aircraft were the first to arrive on the scene. One of the aircraft deployed its Pararescuemen to attach the flotation collar to the spacecraft to

keep it afloat until the Hornet could steam to the position to pick it up.

One of the first Pararescuemen to jump, however, became tangled in his parachute lines and while Gen. Davis' aircraft deployed its Pararescuemen to finish the job of attaching the flotation collar, the other aircraft dropped its Pararescue crew to assist in freeing the struggling swimmer. The general then had a first-hand look at the crew of his plane working to recover the spacecraft.

The Department of Defense forces, commanded by Gen. Davis, were responsible for support of tracking the Saturn booster and Apollo spacecraft, and recovery of the spacecraft after splashdown. The Pacific recovery zone necessitated the use of Task Force 140 which operates in the Atlantic.

Prime mission for the AS-202 flight was to accelerate the capsule to a relatively high altitude at above-orbital velocities, and then drive the capsule back into the earth's atmosphere to cause reentry heat shield loads similar to those expected on a lunar return trajectory.

Interlude 2: Stories from the Jump Team —John C. Ratliff's narrative

Billy Ray was not much into conversation, but when asked him about whether he had participated in the Apollo program yet, he started talking about the jump he made on one of the first Apollo launched.

This Apollo was unmanned, an orbital flight of the Apollo capsule. It was designed to skip across the atmosphere upon re-entry to test the capsule's aerodynamics. The capsule did skip, further

than expected, and landed well away from the Navy recovery ships. Two USAF HC-130 aircraft with three PJs each were tasked to stop the capsule, which weighed some 11,000 pounds but had only a six-inch draft. Winds were fairly high that day, and the capsule was rapidly drifting in the wind.

There were two USAF Rescue aircraft assigned to this section of the ocean, with three PJs each on board. The 54th and 36th were the only ARS squadrons fully operational with the new HC130H and NASA wanted those aircraft in the primary target area for the splash down; Herb Romish, Mike McManus, and Jerry Staley from the 36th ARS, and Norman Kolhstrand, Lenny Thomas and Billy Ray Smith from the 54th ARS.

Billy Ray was Jump Master, and decided to shorten the count-down. We counted up when going from the wind drift flare to the target—the capsule—and then count down in order to place the jumper going out in position to hit the target—the capsule in this case. That way, he would place himself well down-wind of the capsule and be able to get out of his parachute in time to capture the capsule. So that is how he jumped.

Billy Ray told me he was the last of the jumpers, and he entered the water quite a ways downwind of the capsule. He got his position correct to intercept the capsule as it was drifted by. In order to try to capture it, he had to get out of his parachute, but he retained his harness. On a water jump, we always release one side of the risers as we enter the water, which flings this riser group over the canopy. But on training jumps we retain the other side, and swim against the current to ensure we don't tangle in the parachute lines, and await a recovery boat. But there was no recovery boat for Billy's jump, so he simply disconnect the other side risers and let the parachute sink. Billy was able to attach his reserve parachute to the capsule for the sea anchor to stop it so

the floatation collar could be dropped. But he had difficulty attaching the reserve chute, as there was a hole that he needed to insert a special attachment, and turn it a quarter turn, in order to have something to attach the reserve chute to.

Years later, as I was trying to confirm Billy Ray's story, Norm Kohlstrand wrote back, "My memories differ a little from Billy Ray. We were suited up and ready to go and the capsule blew right past us into the range of a 36th bird. We started getting out of our gear when word came that a PJ was in trouble and his team mate was going to his aid, and we were to get the capsule. We suited up again and set up a pattern." There were five jumpers, Herb Romish, Mike McManus, and Jerry Staley from the 36th ARS, and Norman Kolhstrand, Lenny Thomas and Billy Ray Smith from the 54th ARS.

Kohlstrand was first jumper out of the 54th ARS bird, and carried a NASA sea anchor (which never worked worth a shit). Billy Ray put him out late. Kolstrand knew not to dump his reserve 'cuz we KNEW we'd need it for an anchor. Mike McManus was on the capsule, ridin' it like a bronco. Kolstrand landed next to the capsule and, just before landing, tossed Mac his reserve to use as a sea anchor. He just dumped it and tied the back board and lines around the recovery loop. That stopped the drift. Kohlstrand swam to catch up while Thomas jumped… and then came Billy Ray.

Once the capsule was stopped, the Hercules aircraft could drop the floatation collar. Eventually a total of four PJs were able to get to the capsule, which was a big help as the actual collar installation was more difficult than we practices we underwent because the seas were heavier that day than the areas where we used to. According to Charlie Hoell, PJs littered the ocean after that, and needed to be picked up. Thomas, McManus, Billy Ray

and Kohlstrand were picked up from the capsule by the Navy while Romisch and Staley were snatched up some distance away. This mission led directly to the development of the Aircraft Deployed Drift Reduction System (ADDRS) subsequent to this jump, and was standard for the rest of the USAF Apollo jump missions. It also lead to the modification of the operational Apollo capsules; a solid D-ring was added just below the door. The mock capsule that ARRS was using was taken to a shop and a like D-ring added after this jump.

The ADDRS was developed subsequent to this jump, and was standard for the rest of the Apollo missions. The ADDRS was used to slow the drift of the Apollo spacecraft. Apollo floated with only about 6 inches of draft, and was blown by the wind. To make a parascuba jump on it, we had to slow it down. Developed by Robert Fulton (who also developed the Fulton Recovery System), the ADDRS consisted of two bundles with a long, floating line which was placed across the path of drift of the Apollo spacecraft. When the Apollo capsule encountered the floating line, the line went over the top of the capsule, and was caught by a special three-pronged grappling hook on the top of the capsule. The line then strung out behind the spacecraft, with parachute sea anchors attached to the bundles, effectively stopping the Apollo capsule's drift. Each bundle contained specific items, including the floatation collar for the spacecraft, life rafts, survival equipment, radios, etc. The PJs then pulled the bundles to the spacecraft (or vice-versa) and started the process of collaring the capsule. While this ADDRS was a very good system, and worked very well, the USAF did not get another Apollo mission. We trained using the system though. The USAF did complete surface-to-air recovery of packages from Apollo 8 and Apollo 10 containing films of the recovery, and delivered them to Hawaii.

Billy Ray and I caught a bird to Nakhom Phanom, RTAFY, Thailand on November 22, 1970, then on to Udorn RTAFB, Thailand. I would not have heard this Apollo story except for the fact that all flights on November 20-21, 1970 were grounded due to the San Tay Raid into North Vietnam.

The Missileer – 14 July 1967 – Page 1 & 8

Gen. Davis Gets Medal At Pentagon

Air Force Chief of staff, Gen. John P. McConnell, presented the Distinguished Service Medal to Lt. Fen. Leighton I. Davis in ceremonies at the Pentagon on June 28.

General Davis, as commander of the Air Force Eastern Test Range (Formerly Air Force Missile Test Center), and National Range Division from May 1960 through June 1967, was cited for his outstanding management of range support of the United States ballistic missile and space vehicle program and as Department of Defense manager for manned space flight support operations-specifically, Projects Mercury and Gemini.

General Davis is a 1935 graduate of the U.S. Military Academy and has a master's degree in aeronautical engineering from the Massachusetts Institute of Technology. He also holds two honorary degrees- a doctorate of laws from the New Mexico State University and a doctorate of space science from Brevard Engineering College.

He has repeatedly distinguished himself in management of this country's military research and development programs in support of space exploration. His awards include the Legion of Merit with one oak leaf cluster and the National Aeronautics and Space Administration (NASA) Medal for Outstanding Leadership, presented to him by the President for his part in Project Mercury.

General Davis became the commandant, Industrial College of the Armed Forces in Washington, D.C., on July 1.

Orlando Evening Star - 14 December 1968 - Page 7- By Brevard Society

Where NASA Stops In Space Flights, DDMS Starts

Patrick AFB- Brevard County residents live in the "acronym age." They live with terms like PAFB, NASA, TGIF, AFETR, BOSU, VAB, VIB, ARIA and DDMS. Life here is just a bowl of abbreviations.

What is DDMS? DDMS is the abbreviation for the Department of Defense Manned Space Flight Support Operations. The organization is the combined effort of all Department of Defense (DOD) facilities in support of the launch program.

Months-even years- before a manned space flight is launched, DOD personnel under the direction of the DDMS manager Maj. Gen. Vincent G. Huston, former commander of the Air Force Eastern Test Range here, begin plans to fulfill requirements levied by the National Aeronautics and Space Administration (NASA).

The DOD Manager position was designed by Secretary of Defense. The job, a task falling directly under the Joint Chiefs of Staff, was assigned to the commander, National Range Division, Long range planning, in terms of years, means surveying the future manned programs and then implementing the design and acquisition of specialized needs such as ships, aircraft and electronic stations and equipment.

Short range planning, in terms of months, preceding the specific mission is accomplished by the separate support office. This office has a unique composition of Air Force, Army and Navy representatives. It cuts across individual service lines to provide the necessary support. This is known as DDMS…. Department of Defense Manned Space Flight Support Office. Office director is Air Force Col. Royce G. Olson.

Located at Patrick Air Force Base, the DDMS office is responsible for providing NASA worldwide support using the resources and

in-being capabilities of the DOD that are unavailable within NASA's capability. This includes the areas of global tracking, communications, worldwide recovery capabilities and a host of other related categories.

NASA makes known the mission and support requirements needed from DOD. Then DDMS begins the planning and blocks out the resources needed to fulfill the needs.

Specific requirements are refined as the mission profile is completed. These requirements include:

> Number of ships needed for recovery operations, where they will be positioned and when
>
> Number of search and recovery aircraft, when and where
>
> Intricate worldwide communications systems
>
> Global range tracking requirements
>
> And, the placement of medical teams
>
> Finally, 24 hours before the launch, the DOD manager assumes operational control of the worldwide DOD support forces selected to participate in the mission. The DOD Manager is located at Mission Control, Manned Space Center (MSC), Houston, Tex.

DDMS was established by the DOD manager in September 1964, to serve as a focal point for receipt of all NASA requests for DOD operational support for its manned space flight programs. Prior to that times, during the Mercury program, it was known as the Mercury Support Planning Office, consisting of representatives from all major military units participating in the program.

Its function under the DOD manager was essentially the same as it is today. However, the DDMS now handles a wider variety of support operations.

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Gen. Huston To Lead Apollo 9 Conference

Patrick AFB- Department of Defense Manned Space Flight Support Operations (DDMS) personnel are meeting at Patrick Air Force Base Thursday and Friday to discuss the DOD support of Apollo 9 launch and mission.

Headed by Maj. Gen. Vincent G. Huston, DDMS manager, the DOD group represents more than 9,000 Air Force, Army, Navy and DOD civilians worldwide who will provide support for the entire mission, from launch through splashdown and recovery.

Distinguished guests for the two-day meeting will be Rear Adm. Phillips S. McManus, Navy deputy to DOD Manager and commander, Task Force 140; Brig. Gen. Louis L. Wilson Jr., vice commander, Space and Missile Systems Organization (SAMSO) and Rear Adm. Walter F. Schlech, commander, Military Sea Transport Service (MSTS), New York.

DDMS is an organization of combined efforts of Department of Defense facilities in support of all NASA manned launch programs. The DDMS office is responsible for providing NASA with worldwide support using the resources and in-being capabilities of the DOD that are unavailable within NASA's capabilities. This includes the areas of global tracking, communications, worldwide recovery capabilities and other related categories.

NASA makes known the mission and support requirements needed from DOD. The DDMS begins the planning and blocks out the resources needed.

The local meeting has been divided into two separate sessions. The working groups conference and the formal Apollo 9 Pre-Mission Review Conference.

During the working group sessions, discussions will be held on DOD areas of interest. These include recovery (launch site and splash down); network; communications; public affairs and weather.

The working group sessions will be opened by a general briefing by Co. Royce G. Olson, USAF, director of the DOD Manned Space Flight Support Office.

Other DDMS officials who will lead the group sessions are:

Cmdr. R.P. Gaarder, USN, will lead the discussions on recovery; Lt. Col. F.S. Covey, USAF, network; J.L. Nordbusch, communications; Col. James G. Smith, public affairs and Lt. Col. R.H. Dowd, weather.

The formal conference will be held in the Patrick AFB Comet Service Club.

The Missileer Aerospace Power for Peace- 25 April 1969

Gen. Huston Heads DDMS meeting here

Department of Defense Manned Space Flight Support Operations (DDMS) personnel met for two days this week, to discuss the DOD support of the Apollo 10 launch mission.

The conferees, headed by Maj. Gen. Vincent G. Huston, DDMS manager, represents more than 7,500 personnel from the Air Force, Army, Navy, Marines and DOD civilians who will provide support for the entire Apollo 10 lunar mission from launch through splashdown and recovery. There will also be several thousand DOD contractor personnel involved in the support mission.

The meeting was divided into working group sessions. During these sessions discussions were held on the DOD areas of

interest, to include recovery (launch site and splashdown) network, communications, public affairs and weather.

The working group sessions were opened by a general briefing from Col. Royce F. Olson DDMS office director at Patrick. DDMS is an organization of the combined efforts of DOD facilities in support of the National Aeronautics and Space Administration manned launch programs. DDMS provides NASA with worldwide support using the resources not available within NASA capabilities.

NASA makes known the mission and support requirements needed from DOD and DDMS defines the planning and blocks out the resources required.

Chairmen of the working groups were Navy Commander R.P. Gaarder, recovery; J. L. Nordbusch, communications, Col. James G. Smith, public affairs; Lieutenant Colonels FD.S. Covey, Network and R.H. Dowd, weather.

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Meeting Set on Support of Moon Shot

Patrick AFB- Department of Defense Manned Space Flight Support of Apollo 11 launch and mission. The meeting will be at the Patrick Comet Service Club.

The conferees, headed by Maj. Gen. David M. Jones, Deputy DOD Manager, represent more than 6,000 people from the Air Force, Army, Navy, Marine Corps and DOD civilians who will provide support for the entire Apollo 11 lunar landing mission from launch through splashdown and recovery. In addition, several thousand DOD contractor people will be involved in the support mission

The meeting is divided into several working group sessions. During these sessions discussions will be held on the DOD areas of interest, to include recovery interest, to include (launch site and splashdown), network communications, public affairs, and weather.

The working group sessions will be opened with a general briefing by Col. Royce G. Olson, DDMS office director at Patrick. DDMS is an organization of the combined efforts of DOD facilities in support of the National Aeronautics and Space Administration manned launch programs. DDMS provides NASA with worldwide support using resources not available within NASA capabilities.

Missileer- 20 June 1969- Page 1 & 3

Gen. Jones to Head DOD Force

Succeeds Gen. Huston For Apollo 11 Support

Maj. Gen. David M. Jones will succeed Maj. Gen. Vincent G. Huston June 23 as Department of Defense Manager for Manned Space Flight Support (DDMS). General Jones' new job will be in addition to his present duty as Air Force Eastern Test Range (AFETR) commander and will not involve a transfer from Patrick. General Huston served a three-hat job: commander, National Range Division; DOD Manager for Space Flight Support and deputy chief of Staff of Operations, Air Force Systems Command (AFSC). He is being reassigned to Italy as chief, Military Assistance Advisory Group (MAAG).

As DOD Manager for Manned Space Flight Support, General Jones heads up a force of more than 6,800 people from the Air Force, Army, Navy, Marine Corps and Department of Defense (DOD) civilians who will provide support for the entire Apollo 11 lunar landing mission from launch through splashdown and recovery. Other areas of support the Department of Defense provides for NASA on a manned mission are recovery (launch site

and splashdown) network communications, public affairs, and weather.

The Department of Defense Manned Space Flight Support Office is an organization of the combined efforts of DOD facilities in support of the National Aeronautics and Space Administration (NASA) manned launch programs.

General Jones was named commander of the AFETR in May 1967, following an assignment as deputy associate administrator for Manned Space Flight, NASA, Washington, D.C.

He has served in the Air Force since 1938. He started his research and development work in 1956 while assigned as Deputy Chief of Staff for Operations of the Air Proving Ground Command at Eglin AFB, Fla. In August 1964, he was assigned as deputy Chief of Staff systems at Headquarters Air Force Systems Command Andrews AFV, Md. And was named to his NASA assignment in December of that same year.

General Huston entered the Air Force in 1938 and received his wings at Kelly Field, Tex., in 1939. In September 1952 he was assigned as Air Force Member, Military Applications Division, Atomic Energy Commission, Washington, D.C. and later became Deputy Director, Military Applications Division.

Missileer- 20 June 1969- Page 1

Support Forces Confer For July Moon Launch

Department of Defense Manned Space Flight Support Operations (DDMS) met at Patrick AFV this week to discuss the DOD support of Apollo 11 launch and mission. The meeting was held at the Comet Service Club.

The conferees, headed by Maj. Gen. David M. Jones, Deputy DOD Manager, represented more than 6,800 people form the Air

Force, Army, Navy, Marine Corps and DOD civilians who will provide support for the entire Apollo 11 lunar landing mission from launch through splashdown and recovery. In addition, several thousand DOD contractor people will be involved in the support mission.

The meeting was divided into several working group sessions. During these sessions, discussions were held on the DOD areas of interest, to include recovery (launch site and splashdown), network communications, public affairs, and weather.

The working group sessions opened with a general briefing by Col. Royce G. Olson, DDMS Office Director at Patrick. DDMS is an organization of the combined efforts of DOD facilities in support of the National Aeronautics and Space Administration manned launch programs. DDMS provides NASA with worldwide support using resources not available within NASA capabilities.

NASA makes known the mission and support requirements needed from DOD and DDMS begins the planning and blocks out the resources required.

Chairmen of the working groups are Navy Commander R.P. Gaarder, recovery; J. L. Nordbusch, communications; Col. J. G. Smith, public affairs; and Lieutenant Colonels F. S. Covey, network; and R. H. Dowd, weather.

The Missileer- 11 July 1969- Page 4

For Apollo 11 DOD Forces Stand Ready

Air Force Eastern Test Range personnel will join with other units of the Department of Defense- Air Force, Army, Navy and Marines- in support of the Apollo 11 launch and lunar landing mission.

The launch of the huge Saturn V from Pad 39A of NASA's Kennedy Space Center is scheduled to boost the Apollo 11 crew on their way to the moon on July 16, 1969, at 9:32 a.m. (EDT).

The multi=service force will provide 6,927 people, 54 aircraft and 9 ships during the planned eight-day mission. The DOD support force is under the operational control of Maj. Gen. David M. Jones, Air Force Eastern Test Range commander and DOD Manager for Manned Space Flight Support Operations (DDMS).

During the flight of America's historic first lunar landing mission, AFETR personnel will be providing radar, telemetry, communications and other varied support along the 10,000-mile Air Force Eastern Test Range.

AFETR extends from Patrick and Cape Kennedy AFS on the eastern coast of Florida over the South Atlantic to the Indian Ocean.

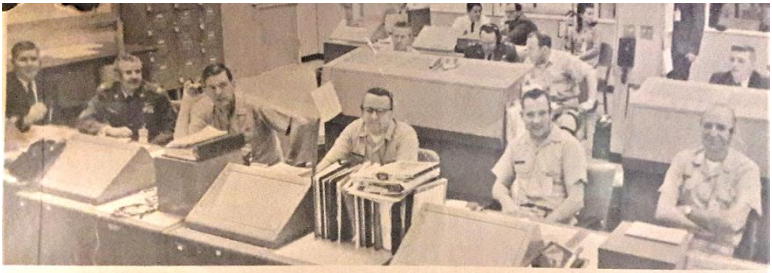
Air Force units supporting the Apollo 11 mission will include the Air Force Western Test Range at Vandenberg AFB, Calif.; North American Air Defense Command (NORAD) headquartered at ENT AFB. Coll.; and the Aerospace Rescue and Recovery Service (ARRS) a unit of the Military Airlift Command (MAC) with headquarters at Scott AFB, Ill.

Units working in other roles are from the Air Force Communications Service (AFCS); Ground Electronics Engineering Installation Agency (GEEIA) from the Air Force Logistics

Command; the Air Weather Service; MAC and units from the United States Air Forces in Europe (USAFE).

Army units providing support for Apollo 11 are the White Sands Missile Range and Defense Communications Agency. Navy units taking part in the overall DOD effort include Navy Task Force 130, (Pacific Manned Spacecraft Recovery Force) and Navy Task Force 140, (Atlantic Recovery Force).

The Marine's 2nd AMTRAC Battalion will be on hand if they are needed for launch abort recovery, using their tracked landing vehicles.



DDMS TEAM AT HOUSTON MISSION CONTROL CENTER

The Orlando Sentinel - 14 September 1969 - Page 7

Space Exec Will Speak

Col. Royce G. Olson, deputy manager for Department of Defense (DOD) Manned Space Flight Support, will address the Air Force Academy Parents' Club at Andrews Air Force Base, Md., Sept. 20.

At the club's quarterly meeting Col. Olson, who is also director, DOD Manned Space Flight Support Office at Patrick Air Force Base, will discuss the DOD role in Apollo support projects. DOD provides worldwide support of Project Apollo from liftoff to splashdown including communication, recovery, rescue, instrumentation and weather analysis.

Col. Olson is also scheduled to address the Lions Club at the Satellite Villa (Sept 16) and the Kiwanis Club of Eau Gallie (Sept. 30) on the same topic.

During his career he has served in various major commands in the Air Force. Before assuming his present duties, as director of the Manned Space Flight Office, he served a tour of duty with the Joint Chiefs of Staff. He was instrumental in the initial development of missile operational readiness testing monitored by the Joint Chiefs of Staff.

The Orlando Sentinel - 10 November 1969 - Page 2 - By Caroline Bernd

Air Force Gears Up For Shot

The Air Force and the Defense Department started to gear up Sunday for the Apollo 12 launch Friday.

Four aircraft will leave Patrick Air Force Base Monday and Tuesday for duty stations for the duration of the Apollo 12 mission.

The APOLLO Range Instrumentation Aircraft of the Air Force Eastern Test Range will provide voice relay communications between the Apollo spacecraft and the Mission Control Center in Houston and telemetry receiving, recording and transmitting from areas unreachable by ships or ground stations.

In addition, one of the four will return lunar samples to Houston following the completion of the flight.

Area No. 1 will deploy from Patrick Air Force Base in Brevard Tuesday. For Hickman AFB, Hawaii, and will cover the second revolution. For reentry on Nov. 24, Area No. 1 will stage out of Nandi and will handle voice relay during the recovery activities.

Area No. 2 will deploy on Monday for Wake Island and also will cover the second revolution. For reentry, it too will stage out of Nandi and will then land at Pago Pago. It will return lunar samples to Houston.

Area No. 3 will deploy from Patrick Monday for Wake Island and will cover the third revolution. For reentry, it will stage out of Darwin, Australia and cover the loss of signal from the ground station at Guam until the blackout period during reentry.

Area No. 4 left Sunday for Guam and will cover the third revolution. For reentry, it also will stage out of Darwin and will cover command and service module separation.

In all, the Department of Defense manned space flight support operations will have 5,976 men positioned around the world to provide support for the Apollo 12 mission.

They will be on seven ships and 52 aircraft, as well as on the ground. Their duties will include recovery operations, data gathering, communications, medical assistance, weather service and public affairs.

Commanding this force is Major General David M. Jones, commander of the Air Force Eastern Test Range at Patrick Air Force Base. He will assume operational control of the worldwide force 24 hours before the launch Friday.

The Missileer- 14 November 1969- Page 1

Units Support Apollo 12, Workload Increased Here

While the majority of the Department of Defense Apollo support forces are deployed worldwide for today's scheduled launch of the Apollo 12 mission, many others serve an important job at Patrick or are kept unusually busy at their regular jobs as a direct result of circumstances of the launch.

The launch phase of the mission brings thousands of official guests and visitors to the Patrick area. Air travel is at a peak keeping the air traffic controllers of the 2179th Communications Squadron (AFSC) extremely busy around the clock.

The motor pool section of 6551st Transportation Squadron makes many trips for VIPs coming to and from the Cape. Hospital people stand by until after the critical abort possibility of the launch phase has passed.

The 6551st Security Police stand by the hospital just in case an emergency occurs in which case traffic control in the hospital area could be a vital factor in saving time. The security police would also be involved for security reasons should any of VIPs visit or stay at Patrick facilitates.

Base Civil Engineering personnel have been working hard to insure that the base has a tip-top appearance. For a review of the worldwide deployment of DOD forces, see pages 4 and 5.

The Missileer- 14 November 1969- Page 4

DOD Personnel Stand Ready To Support Second Moon Landing

The Department of Defense Manned Space Flight Support Operations (DDMS) staff is busy once again preparing for another Apollo mission.

For Apollo 12, DDMS will have approximately 5,976 personnel, 52 aircraft, and seven ships positioned around the world to provide support required by the National Aeronautics and Space Administrations (NASA). This includes recovery operations, data gathering, communications, medical assistance, weather service and public affairs.

Commanding the force is Maj. Gen. David M. Jones, who has the dual responsibility of DDMS manager and commander of the Air Force Eastern Test Range.

Months, and even years before a manned space flight is launched, DDMS personnel begin plans to fulfill NASA requirements. Long range planning, in terms of years, means surveying the future manned programs and their implementing the design and acquisition of specified needs such as ships, aircraft and electronic equipment.

Short range planning, in terms of months immediately preceding the specific mission, is accomplished: how by a separate support office within DDMS called the Department of Defense Manned Space Flight Support Office. It is composed of Air Force, Army and Navy representatives under the direction of Air Force Col. Royce G. Olson.

Located at Patrick, the office provides worldwide support to NASA using the resources and capabilities of DOD that are not within NASA's capability. When NASA makes known its mission and support requirements DDMS goes into action.

Specific requirements are refined as the mission profile is completed. These include: Number of ships needed for recovery operations, where they will be positioned and when; intricate worldwide communications systems; global range tracking requirements; public affairs coordination; and the placement of medical teams.

Finally, 24 hours prior to launch, the DDMS manager assumes operational control of the worldwide force from Patrick. Following Translunar Injection, General Jones will fliy to the Mission Control Center in Houston to oversee DOD support forces during the remainder of the mission.

Prior to the establishment of DDMS in September 1964, DOD support was under the control of what was known as the Mercury Support Planning Office. Its fruition, under the DOD Manager, was essentially the same as it is today. However, DDMS now handles a wider variety of support operations while utilizing less than a quarter of the personnel and half of the aircraft and ships used during the Mercury Program.

The Missileer- 14 November 1969- Page 4

General Watches From Cape, Goes to AOCC, Houston Later

The man who heads the Apollo 12 recovery forces, Maj. General David M. Jones, will be at Cape Kennedy to witness the launch of the second United States lunar landing mission.

General Jones, Department of De4fense Manager for Manned Space Flight Support (DDMS), is responsible for a force of more than 5,900 Air Force, Navy, Army and Department of Defense (DOD) civilian personnel, 52 aircraft and seven ships positioned around the world to provide tracking, communications, launch site and launch abort rescue from launch through splash down and recovery. General Jones will exercise operational control over all supporting DOD forces at T-24 hours.

After the spacecraft has achieved an earth parking orbit, General Jones goes to the Aircraft Operations Control Center (AOCC) at Patrick to await pre-ignition sequence events for the spacecraft's translunar injection (TLI). These events will be covered by Air Force Apollo Range Instrumentation Aircraft (ARIA) flying northeast of Australia some two hours and thirty minutes after the giant Saturn V has blasted off complex 39-A.

Immediately after TLI, General Jones will fly to Houston to oversee DOD support forces during the remainder of the mission.

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Launch Site Rescue Crew Stands By

An elite team of Patrick and other Department of Defense (DOD) personnel will be among the closest spectators to Complex 39-A during the launch of the second United States lunar landing mission –Apollo 12.

This team is the launch site rescue and recovery force under the command of Col. Laurnace T. Gordon, whose recovery force title is "Beach Boss."

"We are responsible for providing necessary and rapid support in case of a launch site emergency," Colonel Gordon pointed out. "It's a vital mission for which we have trained long and hard."

Colonel Gordon will direct his specialized team of about 60 people from an HH-3E command helicopter hovering near the launch pad. Also strategically within the launch recovery area will be two airborne HH-53C helicopters temporarily attached to Detachment 15 of the Aerospace Rescue and Recovery Service located at Patrick. The HH-53 helicopters are from the Aerospace Rescue and Recovery Training Center (ARRTC) at Eglin AFB, Fla.

In the surf just off Cape Kennedy providing the necessary backup for the heavy lift helicopters, will be one Landing Craft Utility (LCU) ship from AFETR.

The Apollo 12 spacecraft is provided with a Launch Escape System (LES) which can be activated while on the pad or during the early phase of the flight. When activated, the LES detaches the command module carrying the three astronauts from the booster and allows it to land safely on land or water.

"Once the LES is activated due to an emergency, the task force of aircraft or the water vessel locate and recover the astronauts and the command module," said Colonel Gordon. "We have this

capability under any impact conditions, whether on land, swamp, in the surf, or in open water. We are geared for any eventuality."

Aboard each helicopter will be a three-man pararescue team ready to leap into the ocean and attach the all-important flotation collar around the spacecraft should a launch problem cause it to fall into the Atlantic.

If a malfunction in the Saturn V booster causes the Apollo 12 spacecraft to fall back on land, the helicopters will immediately airlift firefighters and their equipment into the area. At least one of the HH-53s will carry a fire suppression kit suspended beneath it to combat either hypergolic or brush fires. A second kit is located only a short distance from the pad and can be transported to the area within minutes.

"Although our launch site and recovery forces constitute only a small portion of the overall Department of Defense forces participating tin the Apollo 12 launch, we are active during one of the most critical portions of the mission," Colonel Gordon added.

The launch site recovery forces assume an active position from arming of the LES at T-40 minutes to approximately T +90 seconds. If an emergency occurs after this time, rescue and recovery becomes the responsibility of other DOD elements stationed further out in the Atlantic.

The Missileer- 14 Nov 1969- Page 5

Medical Needs of Men Taken Care Of

USS Hornet Equipped With Bioastronautics Set

When the Apollo astronauts return to earth from their long space voyages one of their primary considerations is a hot shower and change of clothes. Responsible for making sure the astronauts have all they need for that refreshing half-hour or so is the Directorate of Bioastronautics at Patrick AFB.

This office, under the direction of Col. Fredrick J. Frese Jr., assistant for Bioastronautics to the Department of Defense Manager for Manned Spaceflight Support Operations, provides the Apollo recovery ships with what is known as an "uninjured astronaut evaluation and clothing kit." The kit is part of a Bioastronautics Recovery set containing nearly 700 different medical instruments and supplies for use, if needed, in resuscitation anesthesia administration, blood transfusion, major and minor surgery, and postoperative care.

The primary recovery ship is always equipped with the entire set while the secondary ships have only part of it, excluding surgical apparatus. These medical supplies are flown to their destinations from Patrick by the US Navy or commercial air several weeks prior to an Apollo launch.

Bioastronautics, which is defined as the application of life science activities to insure the mission's safe accomplishment, has been providing DOD medical support to NASA since the early 1960s when the Mercury Space Program began.

"While the support is pretty much the same now as it was then," explained 1st Lt. Phillip M. Kuser, personnel and fiscal officer for Bioastronautics, "the amount of equipment and supplies used has decreased considerably due to advances in medical technology." "This support also includes providing medical

personnel who are posted at strategic positions around the world during an Apollo mission," he added.

To assist NASA medical personnel aboard the Apollo 12 primary recovery ship, the USS Hornet, will be a DOD surgical technician. The four secondary recovery ships will be provided one independent duty medical technician.

Launch site medical support includes a medical technician aboard each of the three land recovery vehicles, a surgeon aboard each of the three recovery helicopters, and a 14-man emergency surgical team to augment the staff of Patrick's 6550th USAF Hospital, the launch site medical facility. This support would only be needed in case of a pad or early launch phase abort.

Additional flight surgeons will be aboard two EC-135N Apollo Range Instrumentation Aircraft. Should the need to replace anyone arise, alternate duty technicians and surgical teams will be on alert around the world.

After a typical mission, the recovery sets and other medical supplies are returned to Patrick for re-inventory and updating. Three medical materiel technicians with the Bioastronautics unit then inspect the equipment and begin to assemble the recovery sets for the next missions. Apparatus requiring sterilization is sent to the 6550th USAF Hospital.

Hopefully, all that will be needed in the way of medical recovery support for Apollo 12 will be the "uninjured astronaut evaluation and clothing kit," but should any emergency arise, the Directorate of Bioastronautics stands ready with its worldwide force.

BIOASTRONAUTICS RECOVERY SET - Set like the one on its way to the Apollo 12 Primary Recovery Ship, the USS Hornet, is shown unpacked; containing nearly 700 different items.

Orlando Evening Star · 3 Dec 1969 - Page 17

Apollo 12 Ends Officer Careers

Patrick AFB- The successful completion of the Apollo 12 mission brought to a close the participation of three Patrick colonels in the nation's manned space flight programs.

Col. Royce G. Olson served his last manned mission as director, Department of Defense Manned Space Flight Support Office. He will retire in January, 1970, after more than 30 years of service- the last eight years of which were directly associated with the manned space flight program.

He also serves as a deputy manager for Department of Defense Manned Space Flight Support Office operations.

During Col. Olson's tenure as the director of the flight support office, the manned space flight business has matured to the point where DOD resources have been reduced by almost 50 per cent without the loss of support effectiveness. For example: the DOD had committed approximately 11,000 people in support of Gemini 3 but for the Apollo 12 just under 6,000 were used.

Col Oakley W. Baron is the chief of the Aircraft Operations Division and will retire in February, 1970, after more than 28 years of service. Colonel Baron is responsible for data acquisition from missiles and space vehicles by specially instrumented aircraft and also logistic support of the Air Force Eastern Test Range downrange stations.

The Colonel is no stranger to range support. For five years he worked closely with the Army and Navy at the White Sands Missile Range as chief, Flight Test, at Holloman Air Force Vase, NM, flying aircraft to monitor and control missile test flight over the Range.

Having held the unofficial title of "Beach Boss," Col. Lawrence T. Gordon will end a 23-year Air Force career in February. Col.

Gordon is commander of the launch site rescue and recovery forces, although he and his elite team have never had to provide support in the event of an emergency.

On the day of the launch, Col. Gordon directed his specialized team of flight surgeons, pararescuemen and firemen from an HH-3E helicopter hovering near complex 39-A. He was one of the closest spectators during the launch.

The Orlando Sentinel · 4 February 1970 - Page 6

Patrick Air Base Colonels Honored

Three Patrick Air Force Base colonels, retiring from military service, received the Air Force Legion of Merit at recent ceremonies.

Col. Royce G. Olson received the Legion of Merit, second Oak Leaf Cluster; Col. Ryamond J. Disher received the Legion of Merit, first Oak Leaf Cluster; and Col. Jack C. Clark was awarded the Legion of Merit for the first time.

Olson's award was presented for exceptionally meritorious conduct as the director of the Department of Defense Manned Space Flight Support Office (DDMS) from March 28, 1965 to Jan. 31, 1970.

During that time Olson was instrumental in the success of the Department of Defense (DOD) support to the Gemini and Apollo Manned Space Flight programs.

As director of the DDMS office Olson was responsible for coordinating the activities of the joint DOD force which supplied the National Aeronautics and Space Administration (NASA) with men and equipment of recovery of astronauts and spacecraft, bioastronautics, communications, telemetry and radar tracking support.

Disher was decorated for his outstanding service to the United States as commander of Detachment 5, of the Air Force Systems Command's Air Force Contract Management Division, at Patrick Air Force Base from July 16, 1967 to Jan. 31, 1970

Disher was cited for his contributions to the effectiveness and success of the U.S. Air Force and NASA space and missile programs including the Atlas-Agena, Minuteman III, Titan III-C, Delta and Saturn-Apollo programs at the Air Force Eastern Test Range (AFETR), the John F. Kennedy Space Center and the NASA Mississippi Test Facility.

Clark was awarded the Air Force Legion of Merit for his distinguished service to the United States as Chief of the Range Contract Management Office at the AFETR from June 1, 1967 to Jan. 31, 1970

The citation accompanying the award red in part, "In this important assignment, the leadership, exemplary foresight, and ceaseless efforts consistently demonstrated by Col. Clark resulted in significant contributions to the effectiveness and success of the United States Air Force Eastern Test Range missile and space test support responsibilities."

The Missileer Aerospace Power for Peace- 27 Mar 1970

Col. VanArsdall Selected as New DoD Beach Boss

Col. Robert A. VanArsdall, currently assigned to the Directorate of Range Engineering, has been assigned to wear a second hat by Maj. Gen. David M. Jones, AFETR commander and DoD Manager for Manned Spaceflight Support Operations. Colonel VanArsdall has assumed the duty of director of launchsite recovery forces, a job previously held by the now retired Col. Lawrence T. Gordon.

Colonel Gordon had directed his team of specialists through the Apollo 12 mission while serving as assistant director of the Directorate of Range Operations. As director of the launch-site recovery forces, Colonel Gordon had come to be called the "Beach Boss." Fortunately, his forces have never had to be called upon. However, he and his team of specialists operating from helicopters and comprised of Pararescuemen and firemen were ready nevertheless.

Colonel VanArsdall "shadowed" Colonel Gordon during the Apollo 12 mission to familiarize himself with the intricate preparedness operations required of the team. On April 6, the new Beach Boss and his recovery crew enter an intensive five-day permission exercise designed to review their procedures and overall readiness status.

In his permanent position with the Directorate of Range Engineering, Colonel VanArsdall is the Director of development on an approved development program to provide Eastern Test Rage Users with a hypo-acoustic scoring array.

Before undertaking this job, the colonel was the assistant director of the DoD Manned Spaceflight Support Office (DDMS) working under Col. Royce G. Olson, now retired, but then the director of the DDMS office.

The new beach boss received his Air Force commission upon graduation from West Point in 1948. One of the qualifications that may have been looked into considerably when General Jones picked Colonel VanArsdall for the additional duty, was the fact that he spent eight years with the Aerospace Rescue and Recovery Service as an SA-16 amphibious craft commander and also an operations officer.

Colonel VanArsdall holds Air Force Commendation Medal with two Oak Leaf Clusters.

Several NASA and military officials (background at dais) meet the press on April 10, 1970, during a scheduled a T-1 prelaunch briefing for the Apollo 13 mission in the Apollo News Center at the Kennedy Space Center. The briefing participants, from the left, are Dr. Charles A. Berry, Director, Medical Research and Operations Directorate, Manned Spacecraft Center (MSC); Dr. Donald K. (Deke) Slayton, director of flight crew operations, MSC; Chester M. Lee of the Apollo Program Directorate, Office Manned Space Flight (OMSF),NASA Hq. and Apollo 13 Mission Director; Dale Myers, Associate Administrator, OMSF,NASA Hq.; Dr. Thomas O. Paine, NASA Administrator; Dr. Rocco A. Petrone, Apollo Program Director, OMSF,NASA Hq.; Walter J. Kapryan, NASA's Director of Launch Operations; James A. McDivitt, Manager of the Apollo Spacecraft Program Office; Roy E. Godfrey, Manager, Saturn Program Office; and Col. Kenneth J. Mask, USAF, DOD Manned Space Flight Support Office.
Photo credit: NASA

The Missileer- 17 April 1970- Pages 4 & 5

Department of Defense in Apollo 13

Last Saturday's beginning of the Apollo 13 mission, to have been America's third lunar landing expedition, had the same dependable Department of Defense (DoD) support that has characterized all of the nation's previous space missions.

As trouble developed on the Apollo 13 mission, DoD recovery forces showed their true versatility. With the splash-down date and location unknown earlier this week, DoD forces prepared for all possibilities. As more information was obtained the number of recovery areas diminished until one was finally selected.

Despite the trouble, DoD forces maintained the capability to recover the astronauts regardless of the location of their landing.

DoD provided approximately 4,397 persons, 47 aircraft and 5 ships positioned around the world, for support of Apollo 13. The support is from the following action and cooperating agencies: Aerospace Rescue and Recovery Service (ARRS), Air Force Communication Services (AFCS), Air Force Systems Command (AFSC), Air Force Eastern Test Range (AFETR), Air Force Logistics Command (AFLC), Air Force Western Test Range (AFWTR), Air Weather Service (AWS), Defense Communications Agency (DCA), Military Airlift Command (MAC), Department of Defense Manned Space Flight Support Office (DDMS), Navy Task Force 130 (TF-130), Navy Task Force 140 (TF-140), North American Air Defense Command (NORAD) and U.S. Coast Guard (USCG).

DoD has streamlined its support forces considerably since the first manned orbital mission. At that time, Astronaut John Glenn had the support of 26,000 persons, 126 aircraft and 24 ships.

The commander of AFETR, Maj. Gen. David M. Jones, exercised operational control over Control Center, Houston, and at T-24 hours. The DoD manager's support staff, under the direction of Col. Kenneth J. Mask was located at the Mission Control Center, Houston and at the Alternate Control Center, Patrick, during operations.

Apollo 13 marked a first for the new commander of the launch-site recovery forces. Col. Robert A. VanArsdall shadowed Col. Lawrence T. Gordon while Colonel Gordon carried through the duties as "Beach Boss" during the Apollo 12 launching last year.

Colonel VanArsdall's specialized forces are composed of two HH-53C heavy lift helicopters with accompanying pararescuemen

from Eglin AFB, Fla; and a CH-3F helicopter from Patrick's Detachment 3, 39th Aerospace Rescue and Recovery Wing.

Patrick personnel under the Beach Boss's tutorage are pararescuemen from Detachment 3 and firemen from the base fire protection branch, Base Civil Engineering Division. A flight surgeon for each of the three helicopters is drawn from military hospitals throughout the United States so that no one hospital's supply is depleted.

DoD land tracking stations and Apollo Range Instrumentation Aircraft (ARIA) join the NASA Manned Space Flight Network (MSFN) stations during Apollo missions to form a global tracking and instrumentation system. For the Apollo 13 mission, the following land tracking stations provided DoD network support: Cape Kennedy AFS, Merritt Island, Grand Bahama Island and Antigua Island.

In addition to tracking support, the AFETR also provides range safety, the protection of life and property in the launch area should the mission go awry.

The Missileer- 24 April 1970- Pages 4&5

Beach Boss Preaches Readiness

Launch-Site Recovery Force Practices

Although the launch phase of the Apollo 13 mission was performed flawlessly, a highly proficient lunch-site recovery force stood by just in case they were needed. Fortunately in the history of U.S. manned space flight, there has never been an emergency in the earliest phase of flight.

Recognition, therefore is hereby brought to these men of the Launch-Site Recovery Forces. Commanded by Col. Robert A.

VanArsdall, referred to as the “Beach Boss,” the force’s mission in the event of an abort after the first motion of the spacecraft, either by launch escape system (LES) or by boost, is to: recover the Apollo flight crew following command module (CM) impact in the launch site area, render medical assistance and transport the flight crew to a designated medical facility.

The Department of Defense recovery forces under the control of Colonel VanArsdall are comprised of: two HH-53C Aerospace Rescue and Recovery Service (ARRS) helicopters of the Aerospace Rescue and Recovery Training Center (ARRTC), Eglin AFB, Fla., one HH-3E ARRS helicopter of Detachment 3, 39th Aerospace Rescue and Recovery Wing (ARRW), located at Patrick; one Landing Craft, Utility (LCU) provided and supported by the AFERT; two three-man KAMAN-501 fire-fighting teams from Patrick; and two NASA jammed hatch technicians.

In addition to three flight crew members, each helicopter carries three pararescuemen and a flight surgeon to provide rescue and medical aid to the astronauts, if required.

When the astronauts enter the CM at approximately T minus 2 hours, 40 minutes, the helicopters assumed ground alert at the helipad adjacent to the Range Control Center on Cape Kennedy AFS, and the fire-fighting and jammed hatch units proceed to Playalinda Beach northwest of the launch pad to assume an alert station. The three helicopters become airborne one hour before actual launch and assume a race track pattern alert position north of the launch pad when the LES is armed at T minus 40 minutes.

The LCU, which has the capability of lifting the CM from the water and may also be used for shallow water salvage operations, would be stationed approximately five nautical miles out to sea. Personnel of the LCU have a 110-foot diving capability.

Colonel VanArsdall would direct recovery operations, should the need arise, from the HH-3E helicopter. At launch, the three helicopters would proceed down the ground track until the impact prediction point for an abort exceeds their maximum range (Approximately T plus 120 seconds).

In the period of time between manned missions, the individual units who have personnel on the beach boss's recovery team, hold practice and training sessions for the next mission. In the final week before a planned lift-off of an Apollo mission, Colonel VanArsdall assembles all his forces for a week of an Apollo mission, Colonel VanArsdall assembles all his forces for a week of intensive permission exercises at the Cape to insure thorough mission understanding and competence of all participating personnel and equipment.

In this last readiness test, the entire force undergoes simulations of these four major possible emergency situations: impact of command module on land, in swamp, in surf and in deep water.

Other emergency conditions that the force trains for and is thoroughly briefed on are: jammed hatch, hypergolic fire/fuel suppression, command module egress and rendezvous pickup (pad egress).

Colonel VanArsdall has high praise and admiration for the men assigned to him in this very important stand-by recovery force. "The personnel of the Launch-Si8ght Recovery Force are specialists who are highly trained to cover all possible contingencies. I have no doubt, that if called upon, they will accomplish their mission effectively."

The Missileer- 5 March 1971- Page 1

New AF Uniforms Due Here Soon

The Air Force has authorized new blue uniforms including the short sleeve, open collar blue Air Force Shade 1550 shirt, or wear with Air Force shade 1084 or 1549 dress trousers as an optional combination in lieu of 1505s.

Officers will wear miniature rank insignia on the collar and enlisted men will wear three-inch chevrons.

Some of the new uniform combinations have arrived here. Among people here who have the uniforms are Col. Kenneth J. Mask, Director of the Department of Defense Manned Space Flight Support Office (DDMS); Maj. Jerry D. Harris, DDMS Air Operations Officer, and Maj. John E. Shaeffer. DDMS Air Operations Staff Officer.

The officers say advantages of the new uniform are easy maintenance, because it is wash-and-wear, and cooler and more comfortable wear than the 1505 uniform. They said their wives are very happy with the uniform because it is wash-and-0wear and needs only folding or hanging up as it comes out of the dryer.

Colonel Mask added that the uniform is better than the 1505s because it is “definitely distinguishable as an Air Force uniform.”

The Base Exchange here is scheduled to receive the new uniform sometime in March, according to Gladys J. Ramsey, Assistant Manager. Work is continuing to develop acceptable dark blue, wash-and-wear trousers to go with the 1550 shirtsleeve shirt.

Other new items include service and garrison caps, an overcoat, and a nine-ounce shirt, all in shade 1549.

Interlude 3: “Apollo Shark Jump”

Apollo jump on August 7, 1971. This was just before my being deployed on the first trans-Pacific flight of helicopters, and then volunteering for Vietnam duty (where I served with the 37th ARRSq at DaNang in 1970-71).

8 August 1971

Dear Mom and Dad:
My muscles ache, and yet they wish to get out and do something. I went to bed last night at 11:30, and woke up at 12:00 noon today. And thus ended one of the longest weeks I've had.

Last weekend I had alert both days. Monday we got up early for a land jump. Tuesday was a regular workday, and Wednesday I again went on a 48 hr alert (the last one before my TDY). Tuesday was the day our air conditioning went out and we slept down at our work section. I got a couple of hours sleep Tuesday night and four or five Wednesday night. Thursday night I got to bed at 11:30 and got up at five for our Apollo jump.

I was the jumpmaster, so I had to get together our jumpmaster kit and make out the forms in addition to getting my equipment together. Our briefing was as usual, going over the weather, jumpmaster briefing for order of jump, communications between the boat and aircraft, and between the jumpmaster and pilot, safety precautions, emergency procedures, airspeed, altitude and flap settings and so on. In addition, we had a photographer and reporter from the base newspaper aboard. Major Risdon, in introducing them, asked whether they had flown before. One said yes, but not in our aircraft. Then the major told them to pay attention to the safety briefing because they "don't know how this crowd operates." I noticed a few chuckles here and there.

The night before we had already loaded the various kits on board. When we got to the section in the morning they had changed aircraft, so we had to change our equipment around.

When briefing was finished, we went to the plane, strapped in, and I dozed as we taxied, awaited clearance, then took off. After takeoff I began getting the clamps (used to hook the spotter chute onto the flare) screwed down on the flares and positioned on the weighted end so that the ignited end would be away from the lines in the water. (It takes about a minute to ignite.) Then I went over and started getting into my equipment. I had my swimsuit, 1/8" shorty jacket (wet suit), booties and knife on when Beasley (one of the PJs) ran up and said "There's sharks all over down there." I rushed to the window and soon began seeing them myself. They were all over. There were big ones and little ones. Hammerheads and others with pointed heads. Most of them were over ten footers, some were over fifteen and one I saw was over 20'. We were still seeing them as we dropped the ADDRS.1 (It's a system with a kit containing life rafts on one end and an Apollo floatation collar on the other connected by a long line. The aircraft passes downwind of the capsule and one kit, then the other a couple of seconds later, is dropped out the back ramp of the HC-130. The spacecraft then drifts into the line which connects the two kits and catches it on a grappling hook attached to the capsule. The parachutes on the kits act as sea anchors and stop the spacecraft's drift so that we don't have to jump on a moving target.)

The original plan was to drop two PJs on the first pass, one (me) on the second and one on the third for a total of four jumpers. Because of the sharks in the area (about a mile from the target), we modified this somewhat. One one person would go out per pass. This way the boat would be able to pick up the jumpers immediately after they hit the water.

I, as jumpmaster, put one spotter chute out and then began the check of MSgt Gorny's equipment, for the next pass was to be a "live drop." We were on final (going for the target) and I gave two corrections to the pilot. Then I tapped the doorstep, the sign for the jumper to get into the door and get ready to jump when I 8slapped his thigh. Immediately I put my hand in front of him and moved him out of the door, calling "No drop this pass, Standby." I had put him in the door too late and, had I jumped him, he would have been too far from the target. The next pass I did jump him; following him was SSgt Branam, a reservist who went to Scuba School with me, and I jumped on the third pass. I had jumpmastered with tanks and a main parachute on, so I was a little tired by the time I got into the door myself. This was one of the better excuses for my bad body position. When I jumped I came up sideways so that my head was down, feet straight up and the 'chute opening on my left side. When it opened I was sorta whipped down into an upright position. Other then that I had a good jump, got out of the harness and rolled into the boat. I just laid there a couple of minutes, happy to be out of the jump gear. As I lay there, a flood of drowsiness came to me, from which I didn't recover until 3:30 PM, when I went to the NCO club and ordered a juicy, medium rare "T" bone steak.

Well, so much for my steak, arrrrr, I mean jump. I have some good news. I have a line number for Staff Sargent and will probably be promoted in September or October.

How's things at home. Swell, I hope. Tell Bill I'm in pretty good shape and hope I can still outrun him even if I can't outweigh him.

Have Bill and Ken scout around for the best hunting and fishing spots if they aren't already doing so (Ha, ha). And tell Bill to be sure and get some pictures of his logging operation.

See you later.

Love, John

**What I didn't tell my parents in this letter is that when I got into the water, rather than trying to pick up my 'chute (standard procedures), the pickup boat came directly to me and said, "Get out of the water!" I said, "Why," and the boat party repeated their order, but louder. I grabbed the gunnel with my hands, and flipped myself up and over the side. I was laying on my back on my scuba tanks in the bottom of the boat when I was told that I had landed on top of about a 10 foot shark.

The Orlando Sentinel- 25 July 1971 - Page 3

'Beach Boss' Recovery Adds Apollo Protection

If the United States' fifth attempt to explore the lunar surface is terminated during the first 90 seconds of flight, the safe recovery of the Apollo 15 astronauts will depend on the "beach boss."

The "beach boss," US Air Force Col. Robert A. VanArsdall, commands the Department of Defense Launch Site Recovery Force.

Although there has never been a launch abort in the earliest phase of a manned mission, the "beach boss" team rehearses months to prepare for its mission.

Members are charged with quickly locating and rescuing the astronauts and, if possible, recovering the command module.

The team is prepared for an emergency on the pad, impact on the land or in the ocean.

Examples of the water rescue practice operations have been witnessed by many Brevard residents. Mysterious lights seen floating to earth recently off the east end of the State Road 520 causeway attracted large crowds to the area.

The backbone and workhorse of the Launch Site Recovery Force is the HH-53 Super Jolly Green Giant helicopter. Capable of lifting more than 18,000 pounds, enough to carry the command module under its fuselage, the HH-53 has a dash speed of 220 m.p.h. The three helicopters and crews for Apollo 15 will be from Detachment 15, 44th Aerospace Rescue and Recovery Squadron at Patrick Air Force Base.

At T minus one hour the three helicopters are airborne one mile north of Complex 39A. With forty minutes to go the astronauts launch escape system is armed and “beach boss” is ready.

“Once we arrive at the impact point it would take approximately five minutes to retrieve the astronauts,” VanArsdall states.

When the giant Saturn V is on its way the recovery helicopters follow its ground track down the recovery zone.

The launch abort area for the recovery force extends 1,000 miles into the South Atlantic from Cape Kennedy. The HH-53’s, capable of midair refueling by an HC-130 tanker on alert, will travel the length of the recovery zone if the need arises. For shallow water salvage a Landing Craft Utility (LCU) will be stationed five miles offshore. The USS Austin and the NASA tracking ship, Vanguard, will be downrange for deep water recovery.

Suspended beneath one of the helicopters airborne northeast of the launch pad will be a unique firefighting apparatus, the fire suppression kit. The downwash from the helicopter's blades can open a cool air path for the other airborne rescue teams if a land impact starts brush fires. The 1,250 pound suppression kit can dump 850 pounds of foam on the area almost as soon as the command module lands.

Aboard the other two helicopters are Pararescuemen, medics and jammed hatch technicians. If the command module lands in the ocean the rescue procedure will be identical to the end of a mission recovery.

Pensacola News Journal - 27 Jul 1971 - Pages 1 & 3 – By Judy Kaczor

For Apollo 15: Eglin Discovers Flotation Collars Slashed by Knife

Eglin AFB- An inquiry by the Office of Special Investigation continued Monday at Eglin Air Force Base after the pre-flight discovery of five knife-slashed flotation collars intended for use during recovery of Apollo 15.

A routine check and inflation of the collars, before loading them aboard recovery aircraft revealed the slashes. Each collar costs approximately $5,000.

Houston's NASA News Center disclosed that the collars were stored among life rafts and scuba tanks in the Eglin Parajumpers Ready Room. Authorities said the collars were tampered with between July 13-19.

The incident had no impact on the Apollo 15 mission or countdown. The damaged apparatus was replaced by the Naval Rework facility at Pensacola Naval Air Station where the collars are manufactured.

At a pre-flight press conference Monday, Col. Kenneth J. Mask, director of the Department of Defense and Manned Space Flight Support Office at Patrick Air Force Base, responded to queries about the collars.

“The flotation collars had single puncture wounds at the end of the cases; they were covered, they were not open and they obviously had something that was driven through the end into the flotation collars. That’s about all we know.”

All information resulting from the continuing investigation will be turned over to the Federal Bureau Investigation.

Defense officials noted Monday that the “PJ Ready Room” is open during normal hours and locked nightly. Inspectors found no evidence of forcible entry. The facility is located across from the Eglin Recovery Headquarters, in a metal building near the flight line.

Two of the five flotation devices were to be on board Air Force rescue and recovery aircraft deployed out of Eglin Monday to cover Station “A” in the Atlantic should Apollo 15 have ended in an abort.

Of three remaining collars, two were slated for use on the backup recovery aircraft, with the final collar used as a spare. The slashed collars will be repaired and used for training purposes.

NASA News Center confirmed that the Eglin 55th Air Space and Recovery Squadron was on duty Monday at Station “A” assisting as it has for all previous Apollo missions.

The C-130 aircraft position themselves so that three Parajumpers on board can be dropped into the water near the capsule and help with the recovery of an abort flight.

The Missileer- 18 February 1972- Page 1

Col. Vette Named DDMS Director

Col. Alan R. Vette has been selected as the new Director of the Department of Defense Manned Space Flight Support Office (DDMS), a joint staff located at Patrick. Colonel Vette will also serve as the Deputy DoD Manager for Manned Space Flight Support Operations.

He succeeds Col. Kenneth J. Mask who is retiring this month after 30 years of Air Force service.

Before coming to Patrick, Colonel Vette was Vice Commander of the 41st Aerospace Rescue and Recovery Wing at Hickam AFB, Hawaii. His overseas assignments include tours in England, Scotland, Okinawa, Japan and Vietnam.

During his Vietnam service with the Aerospace Rescue and Recovery Service (ARRS), he was credited with 101 combat rescue missions and made 10 combat saves. In his other ARRS assignment, he has been associated with the manned space program since Project Mercury.

Colonel Vette has accrued 8,000 flying hours during his varied military career including time in bomber, cargo, fighter, trainer and amphibious aircraft.

He is a graduate of Air Command and Staff College.

Among his decorations are the Silver Star, Distinguished Flying Cross with one Oak Leaf Cluster, Bronze Star, Air Medal with four Oak Leaf Clusters and the Air Force Commendation Medal with two Oak Leaf Clusters.

Colonel Vette was born on Nov. 11 1919, in Chicago. His family later moved to the Gulf Coast of Mississippi where he resided until entering the Air Force on Jan. 13, 1942.

The Missileer: Aerospace Power for Peace- 14 April 1972 - Pages 4 & 5

Department of Defense Prepares to Support Apollo 16 with Men, Ships, Aircraft

DOD Forces Ready For Anything; Global Tracking Keyed For Launch

More than 4,060 persons, 40 aircraft and six ships provided by the Department of Defense (DOD) are being readied around the world to provide vital support to the astronauts of Apollo 16.

DOD Manager for Manned Space Flight Support Operations, Maj Gen. David M. Jones, assumes command of DOD forces at T minus 24 hours. He will direct the force from Cape Kennedy Air Force Station and Patrick AFB until translunar injection (TLI). After TLI until the end of the 12-day mission he will be at NASA's Manned Spacecraft Center in Houston.

On launch day, helicopters of the Detachment 15, 44th Aerospace Rescue and Recovery Squadron at Patrick will provide launch site recovery support in case of a launch pad emergency or an abort during the early stage of powered flight. Standing by in the Atlantic in case of a launch abort will be the Navy's USS Opportune and a Landing Craft Utility (LCU) provided by the Air Force Eastern Test Range.

The droop-snoot Apollo Range Instrumentation Aircraft (ARIA) home-stationed at Patrick will again provide the crucial communications link on reentry of the command module in the Pacific. One ARIA will transport the first lunar sample from Hawaii to Houston.

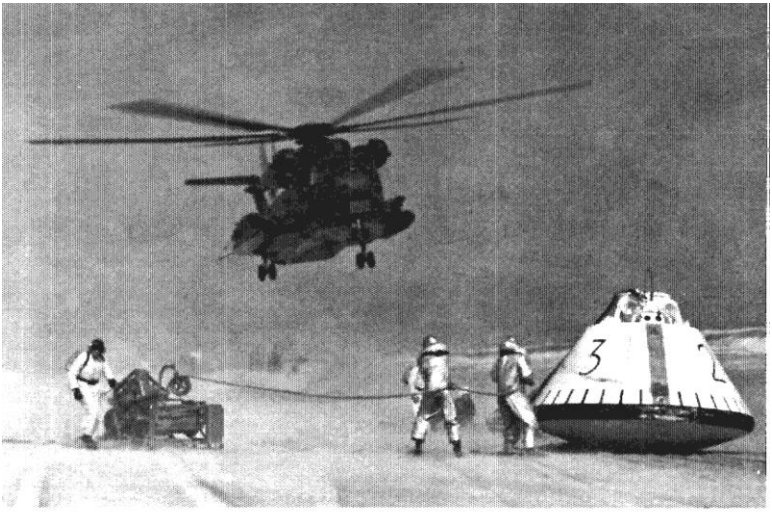
Recovery of the astronauts and the spacecraft in the Pacific will be accomplished by the crew of the USS Ticonderoga and helicopters of the Helicopter Combat Support Squadron One,

Imperial Beach Naval Air Station, Calif. The Ticonderoga will be supported by t the USS Hassayampa.

The secondary recovery ship, the USS Carpenter, will stand by in the Pacific in case of a contingency landing in that area.

Other DOD support will be provided NASA in areas of public affairs, weather service, medical assistance, communications and data gathering.

Coordination of DOD resources dedicated to the Apollo 16 mission is provided by the Department of Defense Manned Space Flight Support (DDMS) Operations staff at Patrick. This Joint-service staff, headed by Air Force Col. Alan R. Vette, is responsible for coordinating the work of 15 defense agencies around the world. To fulfill NASA support requirements DDMS works for months and, in some cases, years in advance to organize the men and equipment necessary to insure a successful mission.



Launch site recovery training

“Never Used…Fully Capable” Beach Boss’ Team Ready For Rescue

Despite the fact that the eyes of the world will be focused on Cape Kennedy later this month, Col. Robert A. VanArsdall hopes he will escape being noticed.

Colonel VanArsdall is commander of the launch site rescue and recovery force for the upcoming Apollo 16 manned space flight.

His official title is “Beach Boss,” and though he and his elite team have never had to provide support in the event of an emergency, they are always ready.

On the day of the launch (April 16), Colonel VanArsdall will direct his specialized team of flight surgeons, Pararescuemen and firemen form an HH-53 helicopter hovering near complex 39-A. He will be among the closet spectators during the launch.

But he will hardly have time to watch the flight. He is responsible for two HH-53 helicopters within the launch recovery area that will be on hand to rescue the three astronauts if an abort arises. In addition, he will be issuing orders to a Landing Craft Utility (LCU) ship in the surf just off Cape Kennedy in the event it is needed.

The Apollo 16 spacecraft has a launch escape system (LES) which will detach the command module carrying the astronauts from the booster in case of an emergency. The module will come back to earth on land or water, depending upon what stage of flight the spacecraft was in when the emergency occurred.

Colonel VanArsdall and his task force then go to work. They locate and recover the astronauts and command module whether on land, swamp, in the surf, or in open water.

Aboard each helicopter will be a three-man Pararescue team ready to leap into the ocean and attach the flotation collar

around the spacecraft should a launch problem cause it to fall into the Atlantic.

If a malfunction in the Saturn V booster causes the Apollo 16 spacecraft to fall back on land, the helicopter will immediately airlift firefighters and their equipment into the area. At least one of the HH-53s will ferry a fire suppression kit suspended beneath is to combat either hypergolic or brush fires. A second kit is located only a short distance from the pad and can be transported to the area within minutes.

The launch site recovery forces assume an active position from arming of the LES at T-40 minutes to approximately T+2 ½ hours.

“Even thought, mission after mission, there is natural tendency for recovery crews to become complacent, this has not happened,” Colonel VanArsdall pointed out. “In view of their professionalism, this will never happen. These men take each mission as it comes. They train real hard and even though they have never been used, they are fully capable of doing the job, should the need arise.”

Colonel VanArsdall’s confidence in his team is founded upon an association with the Air Rescue and Recovery Service that goes way back to the mid 1950’s. A native of Cody, Wyo., and a 1948 graduate of West Point, Colonel VanArsdall has been “Beach Boss” since Apollo 13. He also assumed the position of Director of Range Operations, Air Force Eastern Test Range in November 1970.

The Apollo 16 prime crew relax aboard the NASA Motor Vessel Retriever during water egress training activity in the Gulf of Mexico.

The Orlando Sentinel - 18 Feb 1975 - Page 19

Admiral Visits Establishments

Patrick AFB- Vice Admiral Robert E. Adamson Jr., visited Patrick Air Force Base recently for briefings on the Apollo-Soyuz Test Project (ASTP) and a tour of Air Force and NASA facilities at Cape Canaveral.

Stationed at Norfolk, Virginia, Admiral Adamson is Commander, Naval Surface Force, U.S. Atlantic Fleet. He also serves as Deputy Department of Defense manager for Manned Space Flight Support Operations. It is in this capacity that he visited the manned space flight support office at Patrick.

A 1943 graduate of the U.S. Naval Academy at Annapolis, Md., Admiral Adamson has had a military career which includes service in World War II, Korean, and Vietnam conflicts. He has a master's degree in physics and is a graduate of the Army's Command and General Staff College.

Admiral Adamson is commander of Naval Task Force 140 which will be responsible for Navy Rescue and recovery services in the Atlantic Ocean Area during the launch and flight of the ASTP mission.

Florida Today - 21 Jul 1975 - Page 6A- By Robert Robinson

Rendezvous in Space: Splashdown Crew Ready

Johnson Space Center, Tx- If problems should develop aboard the Apollo spacecraft, it could be brought down just about anywhere in the world.

But, even before those problems develop, a group of men in the Recovery Operations Control Center have decided where the ship will land, should an emergency arise.

“In the event that something should happen requiring early termination of the mission, the spacecraft would be brought down at one of the daily target areas,” Lt. Col. John Sniegowski said Sunday.

Sniegowski and Air Force Lt. Col. Jerry Wacker and Navy Commander Jim Garvey are part of the Department of Defense Manned Spaceflight Support Office quartered at Patrick Air Force Base.

Sitting on the third floor of the Mission Control Center, the recovery team keeps hour by hour tabs on Apollo and the weather in possible splashdown areas. The Apollo is scheduled to return to earth Thursday at 5:18 p.m. EDT.

The prime recovery ship New Orleans is in the primary recovery area west of Hawaii, Sniegowski said. It sits just outside the target point for that day.

“They started sitting way out when these guys started landing so close to the target area” he said. “We got afraid the command module was going to land on the deck of the ship.”

“I’m the weatherman in the group,” Wacker said. “Before a launch, we send up about 16 rockets checking the atmosphere.”

After launch, he keeps up with weather around the world.

“It’s really difficult to visualize a problem that would develop where we would need an almost immediate deorbit,” said NASA’s Paul Chaput, head of the operations support section.

“But, we do pick out target points for each revolution,” he said. “We have a target point near England where we could go out and pick them up by helicopter.

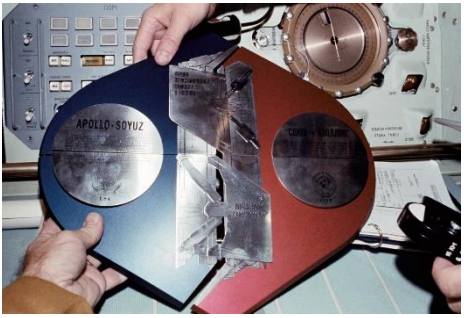
“We try to keep splashdown in the Northern Hemisphere because all of our bases are in the north,” he said. “But, Apollo

13 had as critical a problem as we could think of, an explosion onboard, and it took several days to get them back.

“Then, they came down right in the target area,” he said.

Once the Apollo program is over, JSC’s Recovery Control Center goes out of business, he said. But, many of those involved have started working on the shuttle.

“It looks like NASA may ask us to support them to recover the solid rocket boosters,” Garvey said.



The Apollo-Soyuz Test Project (ASTP) Commemorative Plaque is assembled in the Soviet Soyuz Orbital Module during the joint U.S.-USSR Apollo-Soyuz Test Project docking mission in Earth orbit. The plaque is written both in English and Russian.

The ASTP Apollo Command Module, with astronauts Thomas P. Stafford, Vance D. Brand and Donald K. Slayton still inside, awaits pickup by the prime recovery ship, the USS New Orleans, following splashdown in the Central Pacific Ocean to conclude the historic joint U.S.-USSR Apollo-Soyuz Test Project docking mission in Earth orbit. The CM touchdown occurred in the Hawaiian Islands area at 4:18 p.m. (CDT), July 24, 1975. A team of U.S. Navy swimmers assists with the recovery operations. A recovery helicopter hovers overhead.

Florida Today - 20 June 1980- By David Bailey

Shuttle Rescue Plan Tested

Seals and PJs jumped into the drink from a Jolly Green Giant Thursday morning to hook up a litter.

Or- Minus the bureaucratic lingo- a five-man team practiced rescuing Space Shuttle astronauts from the water.

That's what was going on in the Banana River near Patrick Air Force Base. The description depends on who was doing the talking.

According to the official Department of Defense account, Air Force Para-rescuemen (who are called PJs for Paramedics who are Jump-qualified) and Navy Underwater Demolition Team members (called UDTs or seals) tested water rescue procedures from a HH-3 (Jolly Green Giant) helicopter in an off-runway contingency (crash).

To the five men doing the rescuing, it meant jumping into the Banana River in scuba gear, inflating a raft, swimming up to a motorboat simulating a downed Orbiter, and practicing airlift operations with a stretcher.

Then the brass sat down in a conference room and talked about what the team did right or wrong.

Although there were a few "glitches," as the Air Force calls them, most of what the team did was right.

"We accomplished everything we set out to do," said Col. John Sniegowski, director of the Department of Defense Space Shuttle Support Office.

Members of the team also were pleased with the operation, saying that in many ways, rescuing astronauts from a downed

Shuttle will be a lot easier than recovery operations in earlier NASA missions.

For one thing, the Orbiter will be easy to find. “Wherever she goes down, it’ll be wall-to-wall tiles,” said Air Force Chief Master Sgt. Joe Fernandez, as he stood on his wet suit to avoid sand spurs lining the banks of the Banana River. The thousands of tiles designed to protect the Shuttle from the heat of re-entry into the Earth’s atmosphere would fall off on impact with the water, officials said. “It will be a lot easier to spot than looking for a downed Gemini or a scorched Apollo capsule.”

But once the rescue team reaches the Orbiter, it will be no easy job getting onto it, team members said. It’s likely to land in shallow water and “it will be like trying to step out of the water and scale a two-story building,” Fernandez said.

According to the plan, a helicopter will approach the Orbiter upwind to avoid toxic gases that could be leaking from the spaceship’s orbital rocket system. Three of the frogmen will be dropped about 200 feet upwind of the orbiter. The two others will be dropped off on the other side.

After inflating rubber rafts, the two teams will swim up on both sides of the Orbiter. The three-man team will throw a line over the top of the spacecraft, and the two-man team will tie a rope ladder to the end of the line.

Once the rope ladder spans the Orbiter, one of the Navy demolition men will climb atop the vehicle, open the hatch, enter the cockpit, disarm the ejection seats and help get the crew out.

Thursday, the team practiced dropping into the water of the Banana River from a helicopter, approaching a boat and attaching a stretcher to a helicopter rescue line.

Today, the team will go to Kennedy Space Center and practice getting up on and entering a mock-up of the Orbiter cockpit.

Why not do both operations with the mock-up out at KSC?

“Our alligator experts tell us that one of the things that attract alligators is people thrashing around clapping their hands in the water,” said Sniegowski. And helicopters make a lot of noise.

There’s a resident alligator in the practice pond called Fat Albert, who’s rumored to be longer than the tallest astronaut is tall.

“The one thing we wouldn’t want on that one-in-five-million chance is to have one of these five young men bitten by an alligator,” Sniegowski said.

But what will they do about the alligators in the event that the Orbiter does crash? That’s one advantage of the toxic fumes.

Tallahassee Democrat - 20 Mar 1982 - Page 8

NASA scurries to ready desert for shuttle

Cape Canaveral (AP)- NASA was creating an instant desert spaceport Friday to receive the shuttle Columbia on its return to Earth, as astronauts Jack Lousma and C. Gordon Gullerton flew barrel rolls over Texas to condition their bodies for the ship’s seven-day test flight.

On launch pad 39A at Kennedy Space Center, officials encountered no significant trouble in preparing the shuttle for liftoff at 10 am Monday.

Equipment was en route from California to the new landing site in New Mexico aboard a charter train with clear-track priority.

In Huston, the astronauts ended a long session in computer-driven simulators, rehearsing White Sands landings with the flight controllers who will guide them down.

In the afternoon, the astronauts did barrel rolls and loops in their T38 jets over the Houston area, to acclimate their bodies to space flight.

Experienced gain in Columbia's first missions was paying off in the countdown for Flight 3.

"It's much smoother," said test director Norman Carlson. "The team is more mature and so is the flight hardware. We're understanding it better. It's operating almost perfectly."

The countdown slipped three hours behind schedule with a troublesome computer an malfunctioning fuel line regulator, but it was back on track I time for the crews to relax during a planned, eight-hour nighttime hold.

Forecasters predicted weather would be no concern for Monday's launch.

The calm at Cape Canaveral had a counterpoint in the hectic activity on two desert sites in the West. "My people out there are running around in circles," said Col John W. Sniegowski the Air Force liaison with NASA.

A 23-car train, loaded with equipment needed to handle a shuttle landing, left water-logged Edwards Air Force Base in California for the parched White Sands Missile Range in New Mexico. The train had top priority, a NASA spokesman said, and other rail traffic was expected to get out of the way.

There was an irony in the train's departure on its 32-hour trip: Overnight the weather had turned from stormy to beautiful and clear.

The Northrup Strip at White Sands, a desolate pair of intersecting gypsum runways, suddenly received the fawning attention of astronauts, technicians and the world's press.

Sniegowski said equipment to create a "bare base" – eight portable buildings, electrical generators, communications gear, etc- was being utilized to ready White Sands for the shuttle.

Except for the extra expense and the trouble of moving the equipment, NASA appeared pleased tat being able to demonstrate to commercial customers that the shuttle won't be hindered by bad weather; that it can go to an alternate landing site.

Don Phillips, a NASA launch official, said the New Mexico landing would probably delay Columbia's return to Cape Canaveral by about four days.

Tillet said shuttle crews enjoy landing at Northrup because the snow-like white gypsum is visible from very high altitudes. It's familiar territory for Lousma and Fullerton, who have made hundreds of practice landings there.

The Tampa Tribune- 22 March 1982 - Page 18

NASA Prepared For Emergencies

Cape Canaveral (UPI)- Space agency officials have designed an elaborate emergency system in case the space shuttle Columbia should have to abort its flight soon after launch Monday.

"We sit back and hope that we never have to use it," said Col. John Sniegowski, head of a massive rescue team that will be on standby status at Cape Canaveral when the Columbia lifts off.

The rescue team members are trained to handle a series of emergencies, including a launch pad catastrophe, a land or water landing and ejection of the astronauts.

They have a fleet of helicopters available to get to the scene quickly in the event of an abort at the spaceport.

The most easily handled emergency, space agency officials said, would be an “abort-to-orbit” situation in which the Columbia’s main engines and solid propellant motors provided enough thrust to reach a low Earth orbit for the remainder of the mission.

The loss of one main engine just before reaching full orbit would force an “abort-once-around” maneuver in which the Columbia would land at New Mexico’s White Sands Missile Range before completing its first full trip around the Earth. Should the Columbia lose two engines just before reaching orbit, the space agency would order a trans-Atlantic flight and emergency landing at an airstrip in Rota, Spain.

The loss of one or more main engines just after liftoff forces the astronauts to return the Columbia to a landing strip at the Kennedy Space Center.

The space agency’s worst fear- a catastrophic failure just after the spacecraft clears the tower would force the crew to eject.

T-38 chase planes remain relatively close to the NASA reusable space shuttle Columbia (STS-3) as it heads for a completion of an eight-day mission on the White Sands Missile Range's Northrup strip. Astronauts Jack R. Lousma and C. Gordon Fullerton were aboard the craft. This view was photographed from another T-38. Photo credit: NASA

The Messenger · 29 January 1986 - Pages 1 & 2- By Howard Benedict

Search for debris continues

Cape Canaveral, Fla (AP)- Ships and aircraft searched the sea today for debris from shattered Challenger and the remains of the five men and two women who died in a "national tragedy" that dealt a severe setback to America's space program.

An investigation team was to meet today to start the long probe into why the $1.2 billion spaceship, seemingly on a perfect course, suddenly blew apart 74 seconds after liftoff Tuesday, raining fiery debris into the Atlantic Ocean.

Some experts who studied television tapes of the disaster said they thought the problem centered in the external fuel tank, containing more than a half-million gallons of liquid hydrogen and oxygen to power the orbiter aloft.

The deaths were the first aloft after 55 successful U.S. man0in-space flights, including 24 previous shuttle missions. The first "common citizen" chosen for a space trip, New Hampshire schoolteacher Christina McAuliffe, was one of the victims.

Eight ships, including four Coast Guard cutters, searched throughout the night over the 50-by-100 mile rectangle where Challenger's wreckage fell. Eight planes and helicopters resumed their hunt at daylight.

Lt. Joe Carr of the Coast Guard, which is coordination g the search, said several small pieces of wreckage drifted ashore in the Cape Canaveral area overnight. He asked residents who find anything that might be a part of the shuttle to turn it in to the Coast Guard.

Coast Guard vessels also picked up debris of varying sizes overnight, but Lt. Cmdr. Jim Simpson could offer no specific.

Simpson said search ships spotted what they described as "floating tanks." But because of darkness and the fear of an explosion from volatile residue, the ships did not attempt immediately to recover the items, he said.

Earlier, a few pieces "five or 10 feet long" were spotted, but most of the recovered items were thermal tiles, about 30,000 of which covered the shuttle to protect it from reentry heat, said Col. John Shults, director of Defense Department contingency operations.

The search area is between 50 and 130 miles southeast of Cape Canaveral, the water between 70 and 200 feet deep. Although the explosion occurred 10 miles high and 8 miles southeast of the launch pad, the shuttle's nearly 2,000 mph momentum propelled the wreckage much farther out over the water.

The debris will be examined in a hangar at nearby Patrick Air Force Base.

The investigation could take months, just as it did after America's only other space program tragedy, the launch pad fire that killed three Apollo astronauts 19 years ago this week. The Soviets have lost four cosmonauts in flight.

The Apollo fire, in a test, grounded astronauts for 21 months, and Tuesday's explosion is expected to halt space shuttle flights fro many months. Jesse Moore, director of NASA's shuttle program, said a shuttle will not fly again until the cause of the accident is pinpointed and corrections made.

The National Aeronautics and Space Administration had planned a record 15 shuttle flights this year, and Challenger was on the second. The ship, making its 10^{th} flight, had been the workhorse of a four-ship fleet.

Killed along with McAuliffe were commander Francis R. Scobee, 46; pilot Michael J. Smith, 40; Judith A. Resnik, 36; Ronald E. McNair, 35; Ellison S. Onizuka, 39, and Gregory B. Jarvis, 41.

Scobee; Miss Resnik, America's second woman in space; McNair, the nation's second black astronaut, and Onizuka, a Japanese-American, were making their second shuttle flights.

The space shuttle Challenger lifted off from Pad 39B Jan. 28, 1986 at 11:38 a.m. (EST) with a crew of seven astronauts and the Tracking and Data Relay Satellite (TDRS). An accident 73 seconds after liftoff claimed both crew and vehicle. Photo credit: NASA

Flight directors Jay H. Greene (foreground) and Alan L. (Lee) Briscoe study data on monitors at their consoles in the flight control room (FCR) of the Johnson Space Center's Mission Control Center. The photo was made just moments after the announcement came that Challenger's launch phase was not nominal. Photo credit: NASA

The Messenger - 29 January 1986 - Pages 1 & 2

Investigation begun before smoke cleared

Space Center, Houston (AP)- The search for what caused Challenger to explode, killing all seven aboard, began even before the burned, twisted pieces of the spaceship had all splashed into the Atlantic Ocean.

NASA engineers started the investigation within seconds of the blast that shattered the Florida sky at 11:39am EST Tuesday, and it may take months and hundreds of experts to reach a conclusion that could determine the shape and future of NASA's manned spaceflight program.

A formal board of investigations will be named soon, according to shuttle program director Jesse Moore, but an interim panel already has begun collecting data. When the formal board meets, it will face a mountain of data, thousands of photographs and libraries of papers tracing the history of each and every one of the millions of parts that made up space shuttle Challenger.

Controllers in Mission Control moved quickly to preserve any clues. Even as smoke from Challenger's fireball hung in the blue Florida sky, a spokesman said the Houston controllers were storing computer data to make certain it was not erased and lost.

"Mission Control is frozen at the point of explosion," Johnson Space Center Public Information Chief Harold Stall said. It will stay that way for the investigation, preserved at a moment of disaster, he said.

Miles of computer tapes from the maze of mechanical brains in Mission Control's backroom will be reviewed "millisecond by millisecond," said a computer engineer.

NASA officials generally declined to be identified, but most said the investigation will follow the pattern of earlier space agency

accidents, including the 1967 fire that killed three astronauts in an Apollo spacecraft.

An official said experts will be searching for hints of what might have led to the explosion, looking particularly for clues of anything out-of-the-normal, such as temperature or pressure increases or aerodynamic buffeting.

At the Kennedy Space Center in Florida, ships and helicopters rushed to where debris from shuttle fell. Some pieces were recovered, and officials said it is expected that other pieces will be reclaimed from the ocean floor.

A few pieces “five or 10 feet long” were spotted, but most of the recovered items were thermal tiles, about 30,000 of which covered the shuttle to protect it from reentry heat, said Col. John Shults, director of Defense Department contingency operations in Florida.

The chunks will be examined microscopically and chemically for clues to the cause, direction and force of the explosion, an official said.

Investigators also will have thousands of photographs to study. At least six TV cameras were focused on Challenger as it lifted off the launch pad. Film from the cameras will be enhanced by computers and analyzed frame by frame.

Contractors who built the spacecraft components will play a major role in the study.

At the Martin Marietta plant in New Orleans where the shuttle rocket fuel tank is made, officials already were assembling data on the tank used for Challenger’s launch. The silo-like vessel is 154 feet long, 28 feet in diameter, and contains 1.6 million pounds of super0cold liquid hydrogen and oxygen at the moment of launch.

Television views seem to indicate that Challenger's explosion centered on the tank, but Martin Marietta officials refused to speculate.

"We don't know what could have exploded," said Matt Siebel, the NASA manager at plant. "There are so many failure modes."

If the investigation board is able to determine a cause, engineers for NASA and its contractors will then design a way to prevent a reoccurrence. This may require new hardware that will have to undergo tests that could take months.

Only when NASA is satisfied the problem has been corrected would shuttle flights resume.

Following the 1967 Apollo fire, it took NASA 22 months to find the cause, correct it and finally launch the first Apollo spacecraft.

"The Apollo was a simple spacecraft compared to the shuttle," one space center official said. "It may take even longer for the orbiter."

Come already are questioning if it is wise to ever send the shuttle into space again. Moore was asked at a news conference if it was possible the space shuttle was too complex to be flown safely.

It was, he said, a possibility that would be studied.

Wisconsin State Journal - 29 January 1986 - Pages 1 & 3
- By Howard Benedict

Shuttle's tragic flight: Nation mourns as NASA seeks clues

Cape Canaveral, Fla. (AP)- A catastrophic explosion blew apart the space shuttle Challenger 74 seconds after liftoff Tuesday, sending schoolteacher Christa McAuliffe and six NASA astronauts to a fiery death in the sky eight miles out from Kennedy Space Center.

"We mourn seven heroes," said President Reagan.

The accident defied quick explanation, though a slow-motion replay seemed to show a flame or other abnormality on one of two peel0away rocket boosters followed by the detonation of the shuttle's huge external fuel tank. The tank-turned-fireball destroyed Challenger high above the Atlantic while crew families and NASA officials watched in despair from the Cape.

Other observers noted the boosters continued to fly crazily through the sky after the explosion, indicating the problem might have originated in the giant tank itself.

"We will not speculate as to the specific cause of the explosion based on that footage," said Jesse Moore, NASA's top shuttle administrator. National Aeronautics and Space Administration officials are organizing an investigating board and Moore said it will take a "careful review" of all data "before we can reach any conclusions."

The explosion followed an apparently flawless launch, delayed two hours as officials analyzed the danger from icicles that formed in the frosty Florida morning along the shuttle's new launch pad.

“There were no signs of abnormalities on the screens” as flight controllers monitored Challenger’s liftoff and ascent, a source said. The source, at the Johnson Space Center in Houston, said the blast occurred “unexpectedly and with absolutely no warning.”

Mission Control reported there had been no indication of any problem with the three shuttle engines, its twin solid boosters or any other system and that the shuttle just suddenly blew apart 10 miles high and eight miles downrange of Cape Canaveral.

Reagan, in an Oval Office address after he postponed his State of the Union message because of the tragedy, reaffirmed his commitment to the shuttle program and said, “The future doesn’t belong to the fainthearted, it belongs to the brave.”

“We will continue our quest in space,” he said. “There will be more shuttle flights and more shuttle crews and, yes, more volunteers, more civilians, more teachers in space.”

He added: “Nothing stops here.”

NASA announced it had suspended its ambitious 1986 shuttle schedule, however.

“We’re obviously not going to pick up any flight activity until we fully understand what the circumstances were relative to launch,” Moore said.

He declined to speculate about how long an investigation might take, saying only that flight safety was the agency’s first priority.

NASA delayed its announcement that there appeared to be no survivors until it had conducted search-and-rescue efforts. Even before Moore’s statement, it seemed impossible anyone could survive such a cataclysmic explosion.

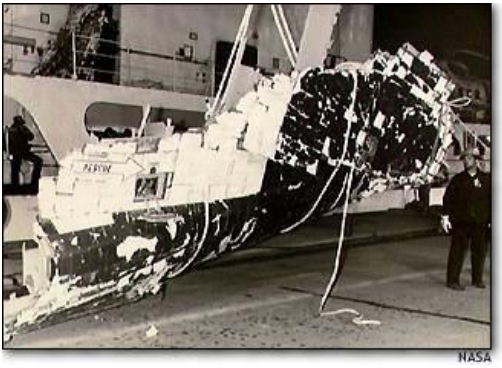
The crew included Mrs. McAuliffe and six NASA astronauts: commander Francis R. Scobee, 46; pilot Michael J. Smith, 40; Judith Resnik, 36; Ronald E. McNair, 35; Ellison S. Onizuka, 39; and Gregory B. Jarvis, 41.

Col. John Shults, director of Defense Department contingency operations here, said a search armada of helicopters, ships and planes had spotted several pieces of debris floating in the Atlantic.

“We have seen several pieces, what looked to be about five or 10 feet long and a couple feet wide,” he said. The debris will be recovered and brought to a hangar at nearby Patrick Air Force Base.

NASA said most of the debris being found consisted of the thermal tiles that coat the outside of the orbiter to protect it from the heat of re-entering the atmosphere.

Shults said debris from the shattered shuttle fell into the ocean in an area between 50 and 130 miles southeast of the launch site. He said the water there was 70 to 200 feet deep.



A portion of the side hatch area on the space shuttle Challenger’s crew compartment is pulled from the Atlantic by the recovery ship, the USS Preserver. Discovered by divers Mike McAllister and Terry Bailey.

The Missileer- 31 January 1986- Pages 1 & 2
- By Robert Ely and A1C Dave Berg

Facing the challenge

Disaster demands lengthy vigil of shuttle's Air Force team

Tragedy etched a big Y of smoke and gas Jan. 28 in a cloudless sky, but for members of the Eastern Space and Missile Center and other units supporting the launch of the Space Shuttle Challenger, there was little time to reflect on the orbiter's last message: why?

Plans that Col. John N. Shults and his staff of the Shuttle Contingency Support Office hoped they would never need became the only reality of the moment.

Watching form firing room #3 in the Launch Control Center next to NASA's towering Vehicle Assembly Building, Colonel Shults knew at 11:39 a.m., along with most who had ever seen a shuttle launch, that something serious was wrong.

"By 11:40 the Range Safety Office had notified of the impending impact coordinates," said Colonel Shults. The staff of the Shuttle Contingency Support Office faced the challenge of initiating immediate search and recovery operations.

Many of Colonel Shults' staff working the Support Operations Center in the Range Control Center at Cape Canaveral AFS "began reviewing what assets were available to help in the search," he said.

They notified local rescue forces already immediately available including two CH-3 Jolly Green helicopters from Detachment 15, 39th Aerospace Rescue and Recovery Wing at Patrick AFB.

They reported to the National Military Command Center at the Pentagon. The commander in chief of the Atlantic Fleet received a call since, Colonel Shults explained, he bore the regional

responsibility for search and rescue. That was later delegated to the U.S. Coast Guard out of Miami once the contingency support managers had set the operation in motion. In turn, the Coast Guard delegated control to the ESMC Aircraft Control officers, Lt. Col. Robert Cherry, Majors Rich Heinauer and Jim Mills, with the controllers at the Patrick AFB Radar Approach Control Facility. At mid-afternoon, the Coast Guard arrived at Patrick and assumed control of the recovery effort.

"They had to wait 57 minutes until Range Safety told us all the debris had fallen," Colonel Shults said. "Of course, our original intent was to look for survivors or remains."

Before the day was out, two Navy frigates, a Navy missile destroyer, two 82-foot Coast Guard cutters, two NASA recovery ships, ten helicopters and five fixed-wing aircraft would be involved in the operation.

"The joint service cooperation during the initial intense recovery operation as well as the communications and radar tracking assistance from radar approach controllers was the best I've ever seen," said Major Mills.

The first on-scene helicopter over the search area, Jolly 1, a CH-3 from Patrick's Detachment 15, was initially in command of the search operations.

Back at the hangar on south Patrick Drive, the refueling crew awaited Jolly 1's return while plots monitored communications that flew so fast they were unintelligible to the untrained ear.

In addition, an electrical specialist and an instrumentation specialist were dispatched to Detachment 15 from the 549th Consolidated Aircraft Maintenance Squadron in case problems showed up during the flight check prior to Jolly 1's return to the search.

Detachment 15 Commander, Maj. Thomas Griffith, reported at a recovery mission briefing late in the day that he and his crew saw bubbling, white foaming plashes in the water. He said he observed a single parachute that appeared to be attached to a piece of solid rocket booster. This was also observed by communications relay pilot Capt. Cindy Bourne.

An unidentified NASA pilot, airborne in a mission support aircraft at the time of launch, said that 25 miles offshore he saw "some orange panels, tubing, stainless steel and a spherical tank."

SMSgt. Kenneth D. Gunn, chief of ESMC's explosive ordinance disposal unit, also got a call he'd hoped never to hear. The 10-person team is unique in that it is the only Air Force unit of disposal technicians qualified to work on the shuttle vehicle and systems.

The unit's job this week is to cull the hazardous debris from all the wreckage. Technicians will be working around the clock until the job is done.

As the search continued into the afternoon, the ESMC Protocol Office had its share of contingencies to attend to.

Space had to be found at Patrick in case Vice President George Bush and his party decided to remain overnight. In order todo that, said 2nd Lt. Tom DeSantis, some preparations had to be completed.

In addition, rooms in billeting were set aside for any of the astronaut's family members in need. Family members of one astronaut spent Tuesday night at Patrick, although officials declined to release their names.

In the minutes immediately following the tragedy, members of the 6550th Security Police Squadron were dispatched to secure

and clear the helicopter pad at Patrick's USAF Hospital in case rescuers found survivors. That vigil did not last long.

For Colonel Shults and the contingency support staff whose primary job involves astronaut safety and security of the shuttle should anything out of the ordinary occur during the flight, "this was the most catastrophic end of that scale."

The plans in place for catastrophe "worked as well as I would have expected," Colonel Shults said. "I don't think we could have responded any faster, or probably any better."

Trying to imagine all possible scenarios and then figuring out how to get the shuttle back should one of those scenarios develop requires both imagination and technical expertise, two useless things when all you can do is pick up the pieces.

"You feel devastated," said Colonel Shults. "I knew that despite everything… there was nothing that could be done, and very little hope that we would find anyone alive."

Wide angle lens was used to capture only a portion of the crowd gathered for memorial services for the seven members of the STS-51L Challenger crew at the Johnson Space Center. President Ronald Reagan speaks at the lectern at far left edge of the frame. The photographer for the picture was positioned on a large platform erected to accommodate the many members of the news media on hand for the event. Photo credit: NASA

The Missileer – 17 July 1987 – Page 13 – By A1C Dave Berg

Life Lines

Two six-man rescue teams from the Patrick Fire Department participated in space shuttle emergency egress training July 14-15 at the Kennedy Space Center. The training was part of a study

conducted by Patrick AFB's DOD Managers Space Transportation Systems Contingency Support Office (DDMS).

Using NASA's space shuttle mock-up. The training study was designed to compare space shuttle rescue training received by overseas fire departments to those stateside, according to Maj. Greg Stankie of DDMS.

Thirty days before, both Patrick teams received classroom shuttle egress training, which is designed to save an astronaut's life should a shuttle be forced into an emergency landing.

One team, representative of an overseas rescue team and the training it receives, did not receive the hands-on training using the shuttle mock-up.

Both teams were put to the test using the mock-up July 14-15. How did the teams fair?

According to Maj. Michael Chandler, also of DDMS, both teams' performances were outstanding and the results don't substantiate bringing overseas rescue teams stateside for hands-on training.

"We never realized how diverse (DOD) rescue training capabilities were. We had underestimated those people and since we had never tested it, we probably underestimated the DOD (rescue) training program," said Major Chandler.

The key to the Patrick Fire Department rescue team's performance was its prior training on pilot evacuation techniques for the many Air Force aircraft, said Major Chandler.

"They were highly motivated," he added.

The Missileer- 24 July 1987- Page 3- By Robert Ely

Duffer pulls out miracle hole-in-one for charity

A duffer playing in a golf tournament July 17 only because it was a charity fund-raiser aced the Patrick course's par-3, 165-yard 16th hole, but was so busy celebrating hitting the green that he didn't see the ball drop.

Capt. Jay Rudy of the Shuttle Contingency Support Office said that whenever he plays golf he shoots about 132 on 18 holes.

"My bowling average and my golf average are the same," he said.

Captain Rudy was one of 144 divot-makers who took to the links July 17 for the Special Olympics Booster Club's first fund-raiser. A Naval Ordinance Test Unit team led by Capt. William Bancroft took first place.

First Lt. Richard Acosta, Booster Club president, said the tournament netted $1,073 to start the kitty needed for Patrick AFB to sponsor its annual Special Olympics sports tournament in January. Special Olympics is a sports program for physically disadvantaged youths and young adults.

Lieutenant Acosta said he had never been to a golf tournament before, much less organized one. The event did so well, he said, because of course manager and pro Paul Jerman's expertise and the work of about 15 volunteers including Sgt. Stan Detsch of the Air Force Technical Applications Center, club vice president, Sgt. Jim Hunt of AFTAC, club treasurer, Sgt. Mark Westcott, a club member who also works at AFTAC, and 2nd Lt. Peg Zaniewski of the Consolidated Base Personnel Office, who got many of the 36 teams together.

Lieutenant Acosta said the Booster Club plans a bowling fund-raiser in August or September, a racquetball tournament in the fall and another golf tournament later this year.

Captain Rudy will look to repeat his moment of glory when that next one comes around. Fleeting though that may be, it can be expensive. Tradition requires that anyone shooting a hole-in-one buy drinks for everybody at the clubhouse.

“I had to buy a keg for the club and then I told them I would donate $50 to the Special Olympics,” said Captain Rudy. “Without the Special Olympics, I would never have known what it feels like to make a hole-in-one.”

The Missileer- 24 July 1987- Page 16

Donor Award

Jack Dibble, American Red Cross volunteer, presents the Blood Donor Group of the Month Award to Col. John N. Shults on behalf of the DOD Managers Space Transportation System Contingency Support Office (DDMS). DDMS had seven of 18 members participate in the drive.

The Missileer- 24 July 1987- Page 1B & 2 B- By Dawn Chute

Saving The Crew

Shuttle Mock-up puts rescue specialist in touch

After two and a half years of planning and building, a shuttle crew compartment soon will be available to help train Defense Department fire-fighting and rescue personnel stationed at augmented shuttle landing sites, according to Maj. Michael Chandler, project officer. He is training an exercise branch chief at Patrick AFB's DOD Managers Space Transportation System Contingency Support Office (DDMS).

The Crew Rescue Procedural Trainer, or mock-up, is built to scale to represent the shuttle from just behind the crew compartment forward. It measures about 17 feet wide by about 32 feet long and is made of wood and aluminum.

Inside the compartment, instrument panels are simulated with photo plated aluminum sheets because "fire crews can do a lot of damage to real instruments when they're wearing all their rescue gear," said Maj. Gregory Stankie, assistant project officer and deputy chief of DDMS's training and exercise branch.

Although most of the instrumentation is simulated, the switches that power down the vehicle as well as those that extinguish fires will operate like shuttle switches. The crew breathing system will also be operable "but not exactly shuttle," Major Stankie said.

The mock-up sits on a flatbed trailer and is built so that it can be used horizontally or vertically to simulate both runway and launch-pad situations.

"We wanted it to be mobile so that it can be used in a variety of training situations," Major Chandler explained. "When a shuttle lands, a number of people meet it. These people make up what we call a convoy. By having the mock-up moved to the runway,

we can train rescue personnel inside the mock-up while other convoy personnel are training outside."

The mock-up is built in five modules that will be assembled and tested in November. "We'll cycle it through its horizontal and vertical positions and make sure that everything that needs to work does," Major Chandler said.

Once the demonstration is completed the mock-up will be disassembled and transported to Edwards AFB, Calif., where it will be reassembled and stationed "for the foreseeable future," said Major Chandler.

Firemen from augmented landing sites will meet for training at Edwards AFB. "They'll be hand-picked volunteers," said Major Stankie. "You don't just go out and grab a bunch of guys to do this sort of thing."

Although Chanute AFB, Ill., personnel have done the actual construction, Patrick personnel did most of the planning and coordination.
"This office is responsible for training DOD contingency-response personnel," Major Chandler explained. "To do that we ask Air Training Command (ATC) to provide certain instruction and classes."

DDMS's original intent was to support Vandenberg AFB, Calif., with rescue training, according to Major Chandler. When ATC said it needed a trainer, DDMS concurred. "Kennedy Space Center already had something similar, although not as elaborate, but the West Coast needed something, too," he said.

"We started the coordination process," he continued. "We recruited another part of ATC to build the mockup and found money from the 6595th Shuttle Test Group at Vandenberg AFB. Then we put together the MOU (memorandum of

understanding) and statement of work to guide the progress of the project."

"The statement of work is in its third change now," Major Chandler added. "During the time this project has been in progress the orbiter has changed. We try to catch the modifications as they occur so that we can change our own requirements."

Air Force crash rescue personnel routinely practice on the aircraft common to their bases, according to Major Chandler. "The hazards involved and the national priority and attention demand that we have highly qualified people available at shuttle landing sites," he said. "Training in a mock-up like this is the only way to ensure personnel are highly qualified."

The Missileer – 14 August 1987- Page 4B

Thanks to firefighters

SSgt David C. Contat and Hugh Fontaine of the Patrick Fire Department accept a token of appreciation from Col. John Shults for the department's help in testing training needs of shuttle rescue teams. The Defense Department's Shuttle Contingency Support Office, which Shults headed until his reassignment Aug. 10, devised the test.

The Missileer- 15 January 1988- Page 3- by Dawn Chute

Shuttle mock-up for fire and rescue training ready for action

After more than three years of planning and building, a space shuttle trainer for Defense Department firefighting and rescue personnel is ready for action, according to project officer Maj. Michael Chandler, a member of Patrick's DOD Managers Space Transportation System Contingency Support Office (DDMS).

The DOD Orbiter Crew Rescue Procedural Trainer, nicknamed the "mock-up," is a full-scale representation of the shuttle from just behind the crew compartment forward. Inside the compartment, instrument panels are simulated with photo plated aluminum sheets. Dummy switches allow rescue personnel to practice powering down the vehicle, extinguishing fires and working with the crew breathing system.

The mock-up is built to sit on a flatbed trailer and can be used either horizontally or vertically to simulate both runway and launch-pad emergency situations.

Major Chandler and Col. Dave Phillips, DDMS director, traveled to Chanute AFB, Ill., last month to perform a preliminary acceptance inspection of the mock-up and attend a media event with various VIPs and local and national news personnel.

"the inspection went very well and the mock-up exceeded expectations in detail and quality of workmanship," Major Chandler noted, adding that the media day was also a big success.

"DDMS arranged for astronaut (Col. Steven) Nagel to attend the event," Major Chandler said. "He gave individual interviews and described ongoing actions to return the shuttle to flight."

Major Chandler briefed VIPs and media representatives on how the DOD intends to use this mock-up. "I talked the audience

through an actual rescue operation," he said, adding that even those building the mock-up were surprise at the many steps involved in removing an astronaut from a shuttle.

According to Major Chandler, the mock-up is currently being disassembled and shipped from its building site at Chanute AFB to its operational home with the Air Training Command (ATC) at Edwards AFB, Calif.

Florida Today- 16 August 1988- By Ann Mittman

Military Practices Shuttle rescue drills

Operation tests recovery of astronauts who bailed out into the ocean

A contingent of 150 military personnel spent Monday in waters off Cape Canaveral practicing rescue operations needed if astronauts bail out of the Space Shuttle.

The one-day operation involved personnel from the Air Force, Navy and Coast Guard.

Twenty NASA observers participated, as well as Drug Enforcement Agency high-speed boats, which guarded the six volunteer victims posing as astronauts.

“The validation exercise was a complete success,” said Col. George Phillips, director of space transportation system contingency support planning. “This gives us confidence that we will be able to support an astronaut bailout if necessary.”

The rescue crews were airlifted from Patrick Air Force Base at 10 a.m. by HC130 aircraft.

They were dropped in the Atlantic Ocean about 30 minutes later to rendezvous with the victims 25 miles off the coast, said Air Force public affairs spokesman Maj. Bob Eberie.

Crews were following the scenario that would occur if one of the Orbiter’s three main engines fails shortly after liftoff and the astronauts were forced to make an emergency landing near the pad.

During their return, they have to use the escape system created since the Challenger accident.

In an emergency, astronauts attach themselves to a telescoping metal pole that extends out of the orbiter and parachute to safety.

The system, however, would not have saved the seven astronauts who died on board Challenger, because it can only be used during controlled gliding flight when the Shuttle re-enters the atmosphere or fails to achieve orbit.

Using motorized rafts, the rescue crews reached the victims and loaded them onto a 20-man raft to take them to a central location where they were picked up by Air Force HH3 helicopters.

This was the only practice operation planned before the Space Shuttle Discovery's launch, now tentatively scheduled for late September or early October.

Last month, Kennedy Space Center fire and rescue crews and Air Force personnel practiced rescuing the astronauts if they had to abort the mission and make an emergency landing in water or on land.

NASA embarked on a multi-million dollar program after the Challenger disaster to upgrade its ground safety systems and install an in-flight escape system. The agency expects the more than $70 million in improvements to give astronauts a better chance of surviving.

The Missileer- 19 August 1988- Page 1- By SMSgt. Mike Beeman

Bailout exercise is 'complete success'

The Department of Defense (DOD), in conjunction with NASA and the Coast Guard, conducted an exercise Monday to test DOD's capability to locate and recover astronauts after bailout from a space shuttle.

The exercise began at 6:30 a.m. when the Freedom Star, one of the shuttle booster recovery vessels departed Port Canaveral. Onboard were military people from Patrick who would portray astronauts during the exercise.

At approximately 8:30 a.m. the first stand-in astronaut was deployed off the Freedom Star in a one-man life raft. The last were deployed by 9:50 a.m. At 10 a.m. a simulated liftoff of a shuttle began.

"Shortly after the simulated liftoff we had built in a problem that shut down one of the main engines and a short time later a second one stopped," commented Maj. Chris Malbon, of Defense

Manager's Space Transportation System Contingency Support (DDMS) office and the organizer of the exercise.

The exercise was then supposed to simulate what is referred to as a return-to-launch-site abort or RTLS, and while this was being attempted the crew would realize that they could not make it back to the runway at Kennedy Space Center.

"At this point the crew was notified by NASA officials to bailout," said Major Malbon.

As this occurred, members of the DDMS staff, seated in the Contingency Support Operation Center on Cape Canaveral AFS, notified DOD rescue crews standing by that the crew was attempting a bailout.

"During this exercise, and also during an actual launch, DOD has an HC-130 aircraft 200 nautical miles downrange to support a contingency such as a bailout,' noted Major Malbon. "The commander of that aircraft assumes the responsibility of on-scene commander and directs the rescue operations. His call sign in AIR-BOSS, and the aircraft he flies is referred to as KING 1."

Onboard KING 1 are three pararescue (PJ) teams specially trained to handle just such an emergency.

"As soon as KING 1 arrived on-scene he quickly located the six astronauts on the surface and deployed the PJ crews," said Major Malbon.

The first item that the air crews parachuted out of the aft end of the HC-130 was a package that contained a motorized Zodiac raft the PJ team usedon the surface to retrieve the astronauts. The raft was followed immediately by a team of three PJs.

"As soon as the bailout was declared, three HH-3 helicopters from Detachment 15 at Patrick were ordered airborne from their position next to the shuttle landing facility at Kennedy Space

Center," commented Major Malbon. "An additional HC-130 standing by at Patrick deployed to escort the helicopters to the scene to retrieve the astronauts."

While the helicopters were en route to the scene two teams of PJs were collecting the astronauts and moving them to a central location at the scene for retrieval.

During an actual launch a Navy frigate and Coast Guard vessel both equipped with helicopters would be on standby in the area.

Once the astronauts were collected and the helicopters had arrived, the process of retrieving the astronauts with a device known as a penetrator began. "The penetrator is lowered from the side door on the helicopter, the astronauts seat themselves on it and are slowly raised back to the helicopter," Commented Major Malbon. Up to four astronauts can be placed onboard each helicopter.

After all six astronauts had been retrieved the three helicopters began the return flight to Patrick escorted an air refueled by the HC-130s.

"Had this been an actual emergency the helicopters would fly the astronauts to one of the medical facilities identified to provide medical care to the crew," said Major Malbon.

"The helicopters also each have PJ teams and a flight surgeon on board," noted Major Malbon.

In addition to the aircraft and Freedom Star, high-speed boats from the Customs Service and a smaller Coast Guard vessel, the Point Charles, were in the exercise area to assure safety and provide assistance where necessary. About 150 people participated.

"This validation exercise was a complete success," said Col. George D Phillips, director of the DDMS office. "This gives us

confidence that we'll be able to support an astronaut bailout if necessary."

Spaceport News- 29 January 1993- Page 3
- By 1st Lt. Mike Paoli (Moron AB, Spain)

Crews stand by to support orbiter landing overseas

For eight and a half minutes Wednesday the United States Air Forces in Europe were poised for action.

At 3:59 p.m. Central European Time special tactics team members from Royal Air Force (RAF) Alconbury, England; C-130 crews from Rhein-Main Air Base, Germany; and medical specialists and firefighters from U.S. Air Force Base (USAFB) units throughout Europe stood ready as the Space Shuttle Endeavour left its launch pad at Kennedy Space Center, Fla.

"Safety is our first concerning the Shuttle program," said astronaut William F. Readdy, part of a NASA team flown to Moron before the Shuttle launch. "It's essential for the safety of our astronauts that if some kind of emergency requires a landing of the Shuttle at Moron, Spain; Banjul, Gambia; or Ben Guerir, Morocco; that they have landing and navigational aids and lighting and support crews trained and ready to respond."

The evaluation of landing aids, navigational aids and lighting brought Readdy to Moron Air Base, but for other necessities in the event of an abort, NASA relies heavily on the U.S. Air Force and Navy, according to Readdy.

Moron, Banjul and Ben Guerir were all identified by the Department of Defense and NASA as transoceanic abort landing (TAL) sites for Endeavour's launch. USAFB was tasked by DoD to provide NASA support at all three air fields, according to Readdy.

Three C-130s and crews from the 435th Airlift Wing, Rhein-Main Air Base, Germany, flew to each location before launch. On board each were doctors and medical technicians from RAF Alconbury, England; Ramstein Air Base and the Army's 7th Medical Company, Germany. Also, the aircraft bound for Banjul carried six pararescuers and three combat controllers from RAF Alconbury.

"They are there to provide emergency triage support during the launch ascent, approximately eight minutes," said Capt. Ron S. Borke, 321 Special Tactics Squadron commander at Alconbury.

During much of that eight-minute period, the astronauts have to option to abort the launch. They then have the option of either exiting the orbiter or trying to land at one of the TAL sites.

If they choose to exit the orbiter over water, the C-130s would locate them via homing beacons attached to each crew member. Special tactics team members would then jump from a C-130 with two eight-man boats and a 20-man life raft.

In the event of an uncomplicated landing at a TAL site, NASA-contracted Lockheed employees would do a safety analysis to ensure there are no chemical leaks or other dangers and see that the orbiter is powered down. Finally, they would assist the crew out of the orbiter.

Banjul and Ben Guerir have firefighters in place, so USAFB firefighters are deployed only to Moron. However, only four instead of the usual 18 firefighters deployed, since Endeavour's launch coincided with Operation Restore Hope efforts at Moron. Twenty-three firefighters previously were deployed to Moron in December in support of the Moron tanker task force, according to Senior Master Sgt. George A. Martin, a fire protection manager from Ramstein Air Base. The deployment force provides air refueling to Somalia-bound airlift.

“Eighty-five percent of our firefighters here have taken an orbiter familiarization class, a two-day training period in which we learn the design of the orbiter,” Martin said. “It is a complete familiarization required to extract the orbiter crew.”

Several of the firefighters also received hands-on training at Edwards AFB, Calif., involving physical familiarization with a mock-up of the Shuttle.

Moron firefighters are deployed form Ramstein, Bitburg, Sembach and Spangdahlem Air bases in Germany; Alconbury, Mildenhall and Upper Heyford royal air bases in England; and Aviano Air Base in Italy.

“We’re fortunate at Moron to have USAFB not only provide an ideal landing site, but some very talented officers and enlisted people to support all the potential contingencies,” said Readdy, a carrier aviator prior to his NASA career and currently a commander in the Naval Reserve. “It’s a total team effort, as most complicated, technical tasks are. We rely on technical assistance from NASA, NASA contract people and Air Force and Navy support.”

Florida Today- 29 July 1993- Page 1D – By Todd Halvorson

Landing site team flees armed bandits in Africa

A NASA team at an emergency shuttle landing site in Africa was forced to flee to Europe after armed bandits attacked their hotel, NASA officials said Wednesday.

But the 20-member squad will be back at Yandum Airport in The Gambia in time for shuttle's Discovery's launch attempt next Wednesday.

"This will not affect the launch," Kennedy Space Center spokesman Mitch Varnes said.

Four or five bandits armed with machetes and shotguns attacked the seaside resort where the team was staying last Friday, Varnes said.

"The bandits came into the hotel and roughed up a few tourists," Varnes said. "They broke into some rooms but none of our people were attacked."

One of the bandits was shot to death on the beach near the resort by hotel security guards, Varnes said. The others were arrested and jailed.

About half the NASA team was sleeping in The Kairaba Hotel at the time of the attack while the other half was working seven miles away at Yandum Airport, one of two emergency shuttle landing sites in Africa.

The attack did not prevent the team from supporting last Saturday's launch scrub, Varnes said.

Top shuttle managers, however, decided to send the crew to Brussels, Belgium, after the scrub. The team is expected to return to The Gambia Friday to prepare for the upcoming shuttle launch attempt.

"The Gambian government has taken steps to see that this kind of incident doesn't occur again," Varnes said. "They've tightened security and we feel comfortable enough that we'll be bringing the troops back this weekend."

The Gambia is on the west coast of Africa. Its international airport is located near the nation's capital, Banjul and has an 11,810-foot-long runway.

The runway is staffed by NASA during launches in case a major system failure forces a shuttle an emergency landing there.

Authors Note:

This publication did not go over well within the DDMS office. A few recorded comments included "Serious but… overblown/ over emotional," and "Grossly overstated- NO BIG DEAL."

Rota Coastline – 10 February *1994 – Pages 1 & 7 – By Tony Lee*

Local teams support shuttle program

"Discovery, you are go for take-off."

With those words another space shuttle crew was hurtled into orbit from the Kennedy Space Center in Florida last week. Months of intricate planning and coordination go into each shuttle launch. Not only the minute details of the launch itself, but contingency plans in case of an emergency. Once a shuttle lifts off, a handful of emergency landing sites around the globe go on alert.

One such site is Moron Air Force Base, Spain. Approximately 35 miles from Sevilla, Moron is ideal for recovery operations with an 11,800-foot runway and 1,000-foor overruns. Moron was designated Transatlantic Abort Landing site (TAL) for space

shuttle launches in 1984. There are four TAL sites in southern Spain and northern Africa: Zaragoza Air Base, Spain; Ben Guerir Air Base, Morocco; and Yundum International Airport in Banjul, the Gambia. Various special shuttle ground support equipment, maintained at each site, are stored between missions.

Augmenting the TAL in Moron before a shuttle launch is a team of 10 doctors and corpsmen from U.S. Naval Hospital, Rota. The Rota team is headed by Lt. Randal LeBlanc. The Shuttle Support Team's job is to standby to render medical assistance if needed. In an emergency the team would take charge of stabilizing any injuries the astronauts might receive and then transporting them to the nearest medical facility.

The team must be familiar with not only advanced trauma life support, but also space shuttle toxicology, physiological changes due to space flight and each astronaut's medical history. Other considerations include taking blood pressure readings on a patient wearing a 120-pound sealed space suit and where and how to cut the space suit off to treat a serious injury.

Launched eastward from Kennedy Space Center over the Atlantic, the shuttle is placed into an orbit over the earth's equator. If the mission aborts during the transoceanic portion, the shuttle crew would continue across the Atlantic to land at a TAL runway. Once a mission is aborted, these alternate landing sites would be activated between two and eight minutes after launch, depending on the nature of the emergency.

Though Moron has lost many of its military personnel due to the military downsizing, its role in the safe recovery and medical treatment of shuttle astronauts has not diminished. According to Air Force Capt. Jim Quetsch, Moron Airfield Support Coordinator Officer, "We help ensure that if the shuttle lands (here), we safely recover the astronauts and return them to the U.S."

Cmdr. Wayne Collier, Deputy Chief of Operations for the Department of Defense Manned Space Orbiter Office, echoed that determination, “We want to plan each shuttle mission right, and that requires (through) planning, which means training, if we want to do it right.”

Doing it right also means getting the right people for the job from many locations. A Navy C-130 of the 23rd Wing, Airlift Squadron in Pope, N.C. is used to transport injured astronauts. The C-130 is selected for shuttle support since the aircraft can takeoff form runways as short as 3,000 feet.

Others include members of the fire department of the 86th Civil Engineering Squadron from the Kaiserslautern Military Community at Ramstein Air Base, Germany. This group of firefighters has specialized NASA training in Shuttle Orbiter Rescue Procedures. Senior Master Sgt. Michael King, who leads the firefighters said, “My guys are ready and trained in interior (orbiter) rescue, ground support, firefighting and decontamination support, working with the Moron Air Base Fire Department.” In addition, Rota’s NEMOC sends a mobile weather team to Moron to provide weather support.

The shuttle team has a long list of equipment stored at the hospital here, and the equipment is moved to Moron for each shuttle support mission. Everything from specialized bolt cutters for removing the astronaut’s pressure suits to a supply of matching blood for each of the shuttle crewmembers.

HM1 Michelle Jennejahn has been stationed here for three-and-a-half years and is the longest standing member of the specialized team. Behind the scenes, Jennejahn said there’s a lot of work. The reward, she said, is the experience. “This is a once in a lifetime chance for unique training. This type of training is not like any other training – this (the shuttle support program) doesn’t ever happen in a car accident.”

The hazards involved in an emergency space shuttle landing include toxic gases and the superheating of the craft itself caused by reentry into the earth's atmosphere. Temperatures of the skin of the ship can remain as high as 220 degrees a half hour after landing. The shuttle's wheels, which support the 170,000 pound craft during landing, have been known to burst into flames up to an hour after touching down.

Additional hazards are also present inside cargo by payloads – rocket boosters fro most payloads to be launched and taken into orbit contain liquid or solid fuels, and possibly pyrotechnics.

In the event of an emergency landing, Moron support and recovery vehicles line up in front of the runway fire/crash building and are kept appraised of the shuttle's arrival and crew status by hand-held radios. The "convoy" as it is called, consists of ambulances, decontamination crews, bio-environmental engineering detection crews, and other essential services.

Spanish authorities establish a security parameter while communication is established with the shuttle crew. Initial reports between the crew and ground personnel includes crew status, equipment and hatch safeties applied, and APU shutdown. External shuttle condition is also relayed to the crew, followed by ground crew initial hazard assessment and toxic gas sampling. An imaginary circle is drawn around the shuttle determining safe zones.

Once the ship has been declared "clean" stairs are moved into position for crew deembarkation; the crew is checked for any toxic contamination, then taken to decon and medical areas. The shuttle support team check each astronaut and reports their medical condition. If further medical aid isn't required, they are transported with a security escort from the runway.

In the case of detection of toxic gases, crew injuries and contamination, rescue members assist in removing the astronauts from the shuttle.

Always present and offering advice and suggestions are individuals from NASA, the Department of Defense Manned Space Office, and an astronaut for crew-specific recommendations. Present during the Discovery launch last Thursday was astronaut Terry Wilcutt. His role is an advisor and obtaining the most accurate weather observations for the shuttle crew. Each TAL site has an astronaut present, normally arriving ad y and a half prior to launch. They check and ensure the runway landing and shuttle-specific aids are functional. TAL site weather forecasts may not always agree with the ground aspect's weather forecast," Wilcutt explains. "We have the final word. As long as we can see the landing aids, we can have the shuttle crew land." If necessary, the airborne astronaut can also "talk-down" the shuttle aircraft commander.

Collier, reflecting on the training learned from the exercise, noted that this was the first time a TAL exercise included a MEDEVAX simulation. "For months we talked about having a major simulation and the ability to use the C-130 to take patients all the way to Rota." He also described the exercise as "extremely valuable training. This proves we can do what we say we can do and make it better."

Florida Today- 30 April 1996- Page 1- By Frank Oliveri

Shuttle rescuers drill for disaster

Each launch puts hundreds of military personnel on alert

When residents along the Space Coast hear the roar of a space shuttle launch, few notice the faint whir of helicopters clearing boats from the ocean should the launch go awry.

Nor do they notice the surging engines of an HC-130 aircraft as it lifts off an hour before the launch to fly 200 miles out over the ocean, where it holds a vigil until the shuttle blasts into orbit.

Several more aircraft, ships and at least 450 military personnel also wait alertly for the command, "Mode 8 declared," which puts into motion a massive rescue operation aimed at saving the lives of astronauts dropping into the ocean.

An exercise last week was just a drill- as it's always been. But each time the shuttle's powerful engines fire up, many in Brevard County remember the 1986 Challenger disaster, unaware that the green U.S. Air Force aircraft flying over the ocean and Challenger are inextricably linked.

Important lessons were learned and a plan of action devised by NASA and the Defense Department's Manned Space Flight Support Office to save the lives of uniquely trained astronauts should the once inconceivable occur.

"there was no bail out capability for the astronauts at that time (when Challenger exploded)," said Lt. Col. Chris Malbon, special assistant to the commander of the Manned Space Flight Support Office, which was created in 1959 for the Mercury program. "When it blew up, they said, 'go rescue them,' so we tried to find them, but there was nothing left."

Shuttle Support forces on Wednesday settled 50 miles off Florida's coast to practice for a so called Mode 8, an intricate

ballet of man and machines in the sky, on land and in the ocean to save astronauts in the event a shuttle should fail to make orbit.

Eleven aircraft and four ships stand ready to scoop astronauts from potentially turbulent waters up to 200 miles off Florida's East Coast each time a shuttle blasts from its pad. A large part of the airborne forces belongs to the 301st Rescue Squadron, an Air Force Reserve unit based at Patrick Air Force Base.

"It's an easy mission to get motivated for," Malbon said. "The guys are all local, and they're real gung-ho to do this. When you are waiting to save someone's life, it feels like a good thing."

Emergency Plans

Shuttles have been lifting off since 1981, and there never has been an engine failure or any other reason for an emergency landing. If one should be needed, though, four emergency landing plans can be applied at different times in the flight, after the shuttle's two solid rocket boosters separate from the shuttle- roughly two minutes into the flight.

The first, and most relevant to Mode 8, can be tried immediately after the boosters are dropped.

In the scenario played out by the rescue team, the shuttle would loop high over the Atlantic Ocean and head back to the landing strip at Kennedy Space Center. The shuttle's external tank would then drop into the ocean before the craft flies to the runway.

If, however, the shuttle commander or ground controllers determine that a return flight is impossible, the crew would attempt to bail out.

NASA and the Air Force have various response levels, or modes, to shuttle incidents, with Mode 8 being the absolute worst case scenario.

Modes 1-4 are problems that occur on the launch pad. Modes 5 and 6 support the shuttle if it should return and land at Kennedy Space Center. Mode 7 indicates that the shuttle has crash-landed in an area where ground transportation in unable to reach it.

The Mode 8 scenario arose from eh Challenger disaster and began during STS-26, a shuttle mission in 1988.

How it all works

Hours before the astronauts even board the shuttle, though, preparations for a rescue are being made.

Before a shuttle launch, two Air Force HH-60G Pave Hawk Helicopters clear boats form the water to create what is called a safety box in which the shuttle, or its debris, might fall.

A plane called King 1 flies about 200 miles off the coast. The aircraft carries the "air boss," who controls rescue operations from the back of King 1 through several radios, while plotting the location of aircraft, ships and floating astronauts.

"We are poised to do what NASA tells us," said Maj. Robert Marzig, an air boss. "When we hear 'Mode 8 declared!' We go into action. It would happen pretty quickly, too. Maybe in the first 10 minutes."

Gauging the time the astronauts prepare to jump ships and the projected landing point of the shuttle, the air boss accurately can plot the location of the astronauts parachuting into the ocean, Marzig explained.

"That gives us a (search and rescue) box of their likely location," Marzig said.

The air boss' next move largely is determined by the location of the astronaut "string," or the line of astronauts in the water, Marzig said. At that point, King 1 is racing to the site.

When the Hatch is blown off the shuttle, a long pole extends from the craft. Astronauts use the pole to keep from crashing into the plunging hull of the shuttle as they are escaping.

Once the astronauts leave the shuttle, the air boss sets the rescue operation in full motion:

- Four Helicopters, Jolly 1 though 4, and two airplanes King 2 and 4, are ordered into the air. The King aircraft are to provide refueling to the helicopters during the rescue mission.
- The six aircraft fly at 120 knots to the site of the downed astronauts.

At 200 miles, the astronauts could be in the water for two to four hours, said Maj. Bill Harper, an HH-60G pilot. Jolly aircraft can remain in the air for two hours without refueling. But with King aircraft in support, Jollys may operate for as long as the pilots' endurance.

"When we have astronauts in the water, the adrenalin factor really comes into play," Harper said.

Each Jolly carries two pararescue specialists and one flight surgeon, while each King aircraft carries siz pararescue specialists.

A Navy frigate and a Coast Guard Cutter, both with helicopters, also move to recover the downed astronauts. An E-2C Hawkeye radar airplane flies over the area, providing exact locations of ships and aircraft to the air boss. A Coast Guard Falcon aircraft also aids in the search.

Finding the astronauts

Astronauts each carry equipment ranging from water dyes to sophisticated radio transmitters to help rescue forces find them. In addition, each astronaut floats in a tiny life boat.

Then either helicopters or King aircraft typically drop pararescue specialists near the front and rear of the astronauts, along with high-powered rubber boats. Master Sgt. Joseph Dougherty, a pararescue specialist, said each astronaut's health is quickly assessed.

"If we have to wait an hour for the helicopters to arrive, we'll set up a 20-man raft in the middle, which serves as a triage point," Dougherty said.

Stretchers are lowered, and astronauts are lifted out by the Jollys. Each helicopter carries two astronauts to a hospital.

But Harper said weather and darkness could make recovery a near impossibility. For example, while weather at Kennedy Space Center is optimal for launch, a huge storm could be brewing 200 miles off the coast.

"Weather 200 miles out is not justification for aborting the launch," Malbon said. "We'll warn NASA, but they don't have to listen."

Dougherty said that ocean swells often obscure astronauts from their rescuers.

Mode 8 exercises occur once each year, but Harper explained that each aspect of the mission is practiced often. The challenge, he explained, is orchestrating the operation for a speedy return of the downed as astronauts to their homes and families.

"It's absolutely essential that we run these exercises each year," Melbon said. "Everyone does their thing regularly, but command and control of the operation needs to be practiced."

Melbon, who took part in the attempt to recover Challenger astronauts, said support has come a long way since then.

“We’re all players on a team,” Malbon said. “We want to get them out of the water as fast as possible.

Florida Today- 18 May 1994- Page 2A- By Jim Banke

Air Force exercise to rescue astronauts tonight

Space Coast skies will be busy with aircraft tonight as the Air Force practices rescuing NASA astronauts from the waters of the Atlantic off Brevard County.

Increased activity over Patrick Air Force Base and Cape Canaveral Air Station can be expected between 7 p.m. and 5 a.m. Thursday, said 45th Space Wing spokeswoman Terri Brancher.

The exercise is part of an annual rehearsal of what would happen if a space shuttle crew were forced to bail out of their orbiter during a launch or landing and parachute into the water.

“We are not releasing the exact location of the exercise (off shore) so there is a better simulation of a real-world situation and response,” said Lt. Col. Pete Colbert, director of the exercise.

A contingent of Air Force, Air Force Reserve, Air National Guard, Marines, Coast Guard and NASA ships, airplanes, helicopters and personnel stand by during every launch and landing in the event of an emergency.

The effort is coordinated by the Pentagon's Manned Space Flight Support Office.

Should they be needed, pararescue forces would try to determine where each astronaut was floating in the water and jump in to recover them. Each astronaut wears a bright orange spacesuit to help rescuers spot them.

Tonight's exercise will be the first of its kind at night, and officials will test a new locator device to help them spot the astronauts in the dark.

The device, sewn into the astronauts' spacesuits, uses Navstar Global Positioning System satellites to determine precisely where each crew member is in the ocean. It then radios the information to rescuers.

Meanwhile, another mock disaster – this time of a natural nature- is being used to test the Air Force's response in a series of weather-related drills and exercises.

With hurricane season starting June 1, Patrick officials are testing their ability to cope with a giant storm heading toward Central Florida. Simulated evacuations and other tests will be conducted through Friday.

Associated Press- 18 December 1996- TSgt. Ray Johnson

Shuttle 911: DOD Unit Develops Launch, Recovery Contingencies

Much like long-lost spirits finally drifting home, two chunks from the space shuttle Challenger washed ashore on a Florida beach in December. Along with the wreckage came grim memories of an explosion that ripped Challenger apart 73 seconds into its ill-fated Jan. 28, 1986, launch—killing all seven aboard, including Air Force Lt. Col. Ellison Onizuka and retired Col. Dick Scobee.

Ironically, the barnacle-covered wing pieces—once thought forever swallowed by the Atlantic Ocean—surfaced less than five miles from the Department of Defense Manned Space Flight Support Office: a multiservice unit that serves as the 911 for shuttle launches and landings.

Unfortunately, there was little DDMS, housed at Patrick Air Force Base, Fla., could do for Challenger's crew 11 years ago as the orbiter disintegrated in front of a television audience of millions. Today, there is little it doesn't plan for if things go awry again, said Brig. Gen. Robert Hinson, 45th Space Wing commander and Deputy DOD Manager for Manned Space Flight Support Operations.

"The primary concerns are for problems encountered during the shuttle's launch and ascent to orbit," said Hinson, a bomber pilot who's flown 3,000 hours in the B-1, B-52 and FB-111. "Our job is to assure NASA we can provide on-site rescue and medical assistance if a crew puts down either in water or at a transoceanic abort landing site."

Established soon after the National Aeronautics and Space Administration Act of 1958 was enacted, DDMS has worked with NASA since the days of Projects Mercury, Gemini and Apollo. And its support—since those early manned space flight efforts—has gradually developed to include astronaut rescue and recovery, alternate landing sites, payload security, medical support, and airlift and sealift.

Aligned under the commander in chief, U.S. Space Command, DDMS mans offices at Patrick AFB and Johnson Space Center in Houston, and by charter has direct access to all DoD units—at any level at any site to coordinate required support.

"When needed, we can make things happen very quickly," said Lt. Col. Chris Malbon, special assistant tot eh DDMS commander,

and a helicopter pilot who flew numerous recovery support missions during the Challenger aftermath. “This is extremely handy if NASA has a real-time contingency need at an emergency landing site.”

During blastoffs from nearby Kennedy Space Center, the 30-man DDMS runs a support operations center, or SOC, controlling Air Force, Navy, Marine and Coast Guard aircraft and ships positioned on and off Florida’s eastern coastline.

Inside the SOC, which is staffed 24 hours a day, all eyes remain trained on closed circuit television coverage from Kennedy and several digital clocks counting down the seconds before blastoff.

The first eight minutes, as the shuttle launches and slides into initial orbit, concern SOC members the most. If problems arise early, Malbon stressed there is “nothing the astronauts can do” for the first two minutes until the solid rocket boosters burn out, allowing the crew to gain control of the $1.7 billion machine.

“But if the eight minutes go by without incident,” he said, “we are , for all practical purposes, out of the woods” as the main engines—after producing nearly 1 million pounds of thrust—push the shuttle into orbit.

Still, after the boosters burn off, there is a six-minute window were problems could arise, forcing astronauts to consider several abort options, including returning to Kennedy, landing at emergency sites in the United States, Spain and Africa, or making one low orbit while attempting to correct the problem.

In the early 1980s, a faulty sensor forced a shuttle crew into making such a choice when one main engine quit, with the second engine threatening to shut down. After moving into a low orbit, the astronauts started two smaller engines, which pushed the shuttle into a normal orbit and allowed the mission to continue.

And there is one final option—bail out.

Following the 1986 catastrophe, NASA developed a crew escape system for the Columbia, Discovery, Atlantis and Endeavor orbiters—a capability Challenger didn't possess. As a last recourse, today's astronauts can parachute from a shuttle.

If the astronauts must bail out, then DOD's alert forces spring into action. The Reserve's 301st Rescue Squadron provides four HH-60G helicopters and an HS-130. Together These Air Force aircraft join with an E-2C, P-3s, a Marine Corps KC-130, a U.S. Navy ship with Coast Guard ships and aircraft to form a complete rescue task force.

Several hours prior to a shuttle mission, two HH-60G crews clear the "box" (a launch danger zone) and then rendezvous at Kennedy Space Center with other squadron choppers. They are "cocked and ready if need be," said TSgt. Jeff Mucha, 301st RS space operations NCOIC.

The two AF Hercules aircraft alternate patrolling 200 miles off the coast, or standing alert at Patrick alongside an E-2C, the Navy's counterpart to the E-3 Airborne Warning and Control System aircraft, and a Marine KC-130 tanker.

"What you have is true rainbowing: the merging of many different units," said Col. Ric Severson, 301st RQS commander. "This coming together forms a true joint-service effort in support of a national interest."

While shuttle duty is similar to the 301st's combat and humanitarian missions, there are some distinct differences.

For example, pararescuemen aren't overly concerned with toxic fumes when saving a fisherman stranded in a sinking john boat. But they must use caution with the shuttle, Malbon said. "It has some nasty chemicals that you don't want to mess with."

Just as concerned are the military and civilian firemen who would extract injured astronauts from a downed orbiter. Therefore, they must attend familiarization at one of 22 global DoD sites where the shuttle could land in an emergency.

“We need to ensure they know what they’re dealing with,” said Senior Master Sgt. Rick Dienst, training supervisor for shuttle rescue operation. “What to do if gases are leaking. How to remove space-suit tubes and wires. And how to carry astronauts weighted down with an extra hundred pounds of gear.”

Medical responders, too must practice for problems they could encounter when treating injured astronauts and transporting them to NASA-approved hospitals. To stay current, flight doctors, nurses and pararescuemen—most form outside Patrick—take periodic classes in cardiac support, advanced trauma life support, toxicology and site specific training.

Another shuttle support concern for DDMS is weather. Designed to withstand extreme hear during re-entry, the orbiter’s outer tiles have one Achilles heel: they are extremely vulnerable to moisture. And because of Florida’s sometimes unpredictable coastal weather—especially lightning strikes and fast-hitting thunderstorms—NASA relies heavily on Patrick’s 45th Weather Squadron for launch day forecasts.

With a billion-dollar spaceship and astronauts’ lives on the line. Weather conditions weigh heavily when and no-go decisions are made—which can be seconds before liftoff. And the youngest 45th WS airmen can scrub a mission if they believe current weather conditions are hazardous.

“Any member of the launch weather team can make a weather-hold call,” said Col. Tom Adang, 45th Weather Squadron commander. “If our young airmen see anything that violates weather-launch criteria, they are authorized to stop the liftoff.

Any member of the team can call red (weather conditions violated—stop the launch)."

"There must be at least one 'go' TAL site," Adang explained. "We have post-card weather here, but the TALs were under downpours, canceling a flight. Safety is our number one priority."

Accordingly, DDMS deploys weather teams overseas to operate an expendable balloon system, which monitors atmospheric conditions and collect upper-level wind, temperature and moisture data. Besides determining status of landing weather, NASA uses the information to compute how much energy is needed to reach TAL.

Unfortunately, the Challenger crews never had a chance to make such a landing. Seconds after the 1986 explosion, DDMS made a "shuttle 911 call." They hope it's the last.

Missileer- 20 March 1998- Page 8 & 9- By 1st Lt. Ken Hoffman

DoD practices astronaut rescue over ocean

Cool temperatures, high seas and winds challenged rescue teams for this year's DoD Manned Space Flight Support Office (DDMS) Mode VII exercise March 13. Originally scheduled for Mach 12, the exercise was delayed a day due to weather.

"The exercise was a tremendous success," said Col. Tom Friers, DDMS commander. "We learned a lot, and more importantly, everyone returned safely from conditions which approached our limits for winds and wave height. All six 'survivors' pf the shuttle bail out were located and safely onboard helicopters, receiving medical treatment in under 2 hours and 45 minutes," he said.

From noon to 3 p.m., Marines, airmen, sailors and Coast Guardsmen under the direction of DDMS, worked as a joint force

during the exercise to rescue six astronauts from the cool Atlantic waters 20 miles off the coast of Cape Canaveral.

Astronauts, Lt. Cmdr. Heide Piper, U.S. Navy; Capt. John Philips, U.S. Navy Reserves; and Frank Caldiero, civilian; participated in the exercise as survivors rescued from the ocean. David Progue, an astronaut survival instructor from Johnson Space Center, Texas, also played a survivor. Mannequins were used as the other astronauts.

“I have a greater appreciation for what it could be like fi we ever have to face this situation. I’m more mentally prepared,” said Piper. “I also have a better appreciation for the rest of the players in this operation.”

The 920th Rescue Group at Patrick AFB provided one HC-130 rescue aircraft, three HH-60 helicopters, pararescue and medical personnel. The 102nd Rescue Group, an Air National Guard unit from New York provided one HC-130 and pararescue teams. The U.S. Navy participated with one E-2C Hawkeye aircraft and a frigate with a SH-60 helicopter. The Marines provided support with one KC-130 tanker. The Coast Guard’s support included a Falcon jet and a cutter with a HH-65 helicopter. Medical personnel from the 45th Space Wing also participated in the exercise.

“It is certainly a challenge to keep track of all of the moving parts in an operation such as this, but a well written and coordinated concept of operations, detailed briefing, and practice help us all know what the other guy is doing,” said Friers. “All of the players are experienced professionals.”

According to Friers, counting “those at sea, on shore and in the air,”

More than 700 people participated in the exercise.

The exercise ended with some of the astronauts being transported to designated hospitals in Centeral Florida where they received simulated treatments.

U.S. Department of Defense: DoD News- 30 April 1999
- By Douglas J. Gillert

Shuttle Down! DoD-NASA Team Tests Contingency Response

Marsh birds wade slowly in the brackish swamps. An alligator, belly bloated, moves sluggishly across dry mud. Pesky flies buzz and flit from bush to bush. There's no other discernible movement.

In dense foliage not far from a now empty runway, the tall, white mockup of a space shuttle orbiter seems out of place. NASA placed it there to train fire and rescue workers and prepare shuttle crews how to react if the shuttle misses or overruns the landing strip.

NASA officials are quick to point out that such a contingency is unlikely to occur, but they know they must be ready for the unlikely and unknown. Because it has the resources to do so, DoD provides NASA with crash and rescue services worldwide. The Defense Manned Space Flight Support Office at nearby Patrick Air Force Base is the primary link between the two agencies and coordinates all DoD involvement.

In the scenario played out March 16, the space shuttle Discovery has returned from an 11-day international space station mission. Upon approach to Cape Canaveral, it loses energy and turns toward the dense brush. A simulated crash landing placed the shuttle in an area inaccessible to NASA emergency crews on the ground.

The situation is called a Mode VII setup, which despite its name is one of just three landing contingencies NASA and DoD practice. The others are Mode V, a landing mishap on or near the runway where the shuttle crew escapes the orbiter unaided or with help from the rescue crew; and Mode VI, where the rescue crew can reach the shuttle by land to assist the astronauts. In Mode VII, rescuers can't reach the shuttle by land and, instead, have to be lowered from helicopters.

The office also conducts a Mode VIII, ocean bailout exercise at least annually, but this is the first time in four years it's done the NASA-run landing mishap. Air Force Col. Tom Friers, the Manned Space Flight Support Office commander, believes land- based scenarios should be exercised more frequently and hopes to have another one in the fall.

On the NASA flight line, four Air Force Reserve HH-60 helicopters from Patrick's 920th Rescue Group stand by while a NASA UH-1E circles the crash site. The Reserve pilots and pararescue jumpmen -- PJs -- are poised, ready to respond as soon as they get the word. They learn NASA firefighters must be dropped into the crash zone and now scramble to reconfigure the aircraft cabins to accommodate them and the medical equipment and supplies needed on the drop.

"Jolly 1," the lead HH-60 Black Hawk, makes several low passes over the treetops as the "air boss" looks for the best place to insert the rescue team and equipment. He selects a flat area with tall grass adjacent to the forest, 200 feet from the orbiter. Soon, the firefighters arrive and descend on thick, green "fast ropes" from the other hovering helicopters. Because space shuttles contain many hazardous fuels and chemicals, the firefighters wear pressurized silver suits and liquid oxygen backpacks they'll breathe from.

The helicopter carrying the doc and PJs also carries Advanced Cardiac Life Support and Advanced Trauma Life Support equipment. "The PJs have to be certified in ACS and ATS, and the docs are certified flight physicians trained in survival, from either the Air Force, Army or Navy," says Greg Loudermilk, a program analyst in the Space Flight Support Office's medical division and a PJ, himself.

"Every PJ is combat-search-and-rescue-qualified and an independent medical operator," Loudermilk said. "They're used to working with mass casualties in the field and carry with them special communications and medical equipment. They're trained to understand and respond to the kinds of health problems astronauts may have at re-entry."

The Black Hawk carrying the medics arrives on scene. The PJs and Naval Reserve Dr. (Cmdr.) Jay Phelan descend ropes, then receive their equipment as it is lowered by cable from the chopper. They'll wait at the drop zone for the firefighters to bring them survivors.

While the helicopters complete their aerial drops, another NASA rescuer driving a huge all-terrain vehicle has managed to carve a path through the dense brush and soon whisks the firefighters to within 30 yards of the orbiter. They know the orbiter like it's theirs -- how to shut its electrical systems down, where the crew members are positioned.

Nimbly, they remove a hatch cover, enter the orbiter and determine that the crew has survived the crash landing but there are injuries. Using rigid plastic litters, they remove the crew one-by-one, talking to them, trying to comfort them. After loading them into the ATV, they rush the astronauts to the drop zone, where the PJs and flight surgeon wait behind a "clean- dirty line" -- established by the PJs by stringing yellow police tape between two bushes.

On the dirty side, the firefighters wave Draeger tubes over the astronauts, checking them for contamination. Some are contaminated, and their rescuers spray them with decontamination "wash" from hand-held plastic bottles.

Once the astronauts are decontaminated, the firefighters pass them across the clean-dirty line to the PJs, who in a real contingency would begin loosening or cutting away the space suits and checking the extent of injuries. For training purposes, nobody's wearing the $80,000 space suits -- that part and the cutting is simulated, although the Manned Space Flight Support Office has one reusable cutaway suit and a video used for training at alternate landing and mission-abort sites worldwide.

One of the rescuers removes the NASA helmet from a "survivor," Navy Dr. (Cmdr.) Laurel Clark. Her blue NASA flight suit simulates a space suit, and the sergeant gently loosens it at cuffs and waist to help her breathe.

Phelan and the PJs stabilize their patients and call in medical evacuation helicopters to transport them to hospitals. NASA uses a network of Florida civilian hospitals in Melbourne, Titusville and Orlando, Gainesville and Daytona. They, too, participate in the exercise.

NASA and DoD infrequently test their ability to rescue astronauts if the shuttle crashes on land, because a bailout at sea is more likely, said Air Force Maj. Dean Gordon, a space shuttle contingency officer. At sea, DoD has total responsibility for an astronaut rescue, and the Manned Space Flight Support Office tests its "Mode VIII" capabilities at least once a year. But because NASA and DoD have overlapping responsibilities during an on-land shuttle contingency, setting up an exercise takes more time. The recent lull in the shuttle launch schedule, however, prompted the DoD agency to push for a Mode VII exercise.

"These exercises are critical for getting people used to handling contingencies such as this," said Clark, an astronaut since 1996. "It's unfortunate we can't exercise more than we do."

Air Force Lt. Col. Rick Lenz, chief of operations in the flight support office, said other astronauts feel the same way. "The feedback we get from the astronauts is that they appreciate the interface," Lenz said. "It gives them a little higher level of confidence knowing somebody is going to be watching out for them."

45th Space Wing Missileer – 26 May 2000- Page1 & 10- By Lynda Yezzi Valentine

DDMS units train for disaster

When Space Shuttle Atlantis rocketed into the predawn sky May 19 the astronauts on board were going through their launch checklists. At the same time, inside a small room in Building 423 at Patrick AFB, military members went over checklists of another kind- contingency checklists.

Needed only if something went wrong with Atlantis, the men and women of the Department of Defense Manned Spaceflight office sit console in the Support Operations Center at Patrick, coordinating a myriad of people, aircraft and ships around the world. Their primary job: to wait and hope they are never needed. Because if they are called, the astronauts are either attempting to return to Kennedy Space Center, abandoning the shuttle somewhere over the Atlantic, or attempting to reach a Transatlantic Abort Site somewhere off the Coasts of Spain or Africa.

While Atlantis' liftoff was picture perfect and those manning the SOC and those deployed around the globe went home unneeded, less than a week prior to the real mission DDMS practiced the launch with a mock in-flight emergency. The scenario, called a "mode," tested the DOD search and rescue forces' ability to locate, recover and provide medical treatment to the astronauts. All-in-all there are eight modes, which refer to the various kinds of emergencies the shuttle can possibly encounter. Modes one through four involved launch pad emergencies; modes five through seven are landing mishaps, and then there is mode eight- the most extreme situation where the shuttle crew bails out of the orbiter.

The Exercise

The exercise that took place May 8 through 12 was a Mode VII. It began exactly like a real-world launch with supporting DOD and Department of Transportation aircraft and personnel arriving at Patrick AFB a couple of days prior to the simulated launch. Although the units participating don't vary, the actual crews flying the missions do change frequently, requiring DDMS personnel to brief all portions of the shuttle launch before each mission.

This joint force consists of Airmen, Marines, Coast Guards, and Navy personnel, under the direction of DDMS Commander Col. Tom Friers, who said he thought the exercise went very well.

“I’m particularly pleased with the results, given that most of the players had never flown in a scenario such as this,” Firers said. “All the forces show up at Patrick current and qualified in their combat mission, but not necessarily familiar with the shuttle rescue mission. It’s DDMS’ job to properly brief and integrate these forces form different services and components into an efficient package, something we do for every Shuttle launch.”

Launch Day

Just like a real shuttle launch operation, the DDMS crews spent the morning of a launch deploying to their pre-determined positions and waited for the countdown to T-0. Meanwhile, back at Houston, a shuttle crew flying an ascent simulation was about to encounter multiple emergencies which would lead to a failed attempt to return to KSC.

When the mission audio made it clear the shuttle was experiencing trouble and would not be able to make it back to KSC, the DDMS crew went on full alert. Once the shuttle commander declared a Mode VIII the rescue forces sprang into action.

To provide as much realism as possible, the seven astronaut ‘survivors’ participating in the exercise included four actual astronauts. The survivors traveled by ship approximately 65 miles off the coast of the Cape, where they were set adrift in the ocean inside the personal life rafts they would be required to use in a real bailout scenario.

Once in the water, the survivors checked their equipment and tried to contact rescue forces via radio. Meanwhile, a few feet away, real safety boats kept a watchful eye on the men and women in the water. For added realism, the rescue aircraft

responding to the mode VIII were forced to fly a 100 mile corridor prior to proceeding to the bailout area. Within 30 minutes, the first rescue aircraft was circling overhead, looking for survivors in the general area where the shuttle 'went down.'

Coordinating with an 'air boss' who orchestrated the search and rescue efforts, each of the aircraft and ships in the water worked together to locate the downed astronauts, while a separate Navy aircraft coordinated the movements of all assets within the rescue zone- called 'the SARDOT." Once the survivors had been located, teams of pararerscue specialists (PJs) either deployed from helicopters or parachuted into the water with a deployable zodiac boat package known as a RAMZ. Once the PJs were in the water, they proceeded to the astronaut survivors and began administering first aid.

The PJs evaluated the medical conditions of the survivors based on information provided by cards each survivor was wearing and symptoms they relayed to their rescuers. The PJs then provided that medical information to the flight doctors onboard each aircraft, who in turn recommended treatment for each survivor. Once stabilized, the PJs loaded the survivors onto a ship or aircraft and the flight doctors continued to treat the astronauts on the way to a local hospital, which was chosen based on the injuries and the capabilities of specific hospitals. According to Friers, the exercise was a complete success. "The numbers speak for themselves- from a dead stop 150 miles away, the rescue force scrambled, launched, and recovered all survivors within 2 hours and 15 minutes of their bailout," he said. "More importantly, although the exercise involved approximately 700 people performing many 'high risk' maneuvers, the whole thing went off without a single injury."

Department of Defense Manned Flight Support Office: Getting them home safely

When it comes to safety of the astronauts, the Department of Defense Manned Space Flight Support Office is critical to success.

The official mission of DDMS is to serve as the focal point for military contingency support to the space shuttle.

But in layman's terms, DDMS's mission is putting people into space and returning them safely to Earth.

Layman's terms aside, DDMS has been coordinating U.S. military efforts to assist space shuttle astronauts since 1958.

The office was originally formed to provide much needed DoD support to the initial manned space flight effort.

Since the late 1950s, the office has continued to be the focal point for all DoD contingency support to Projects Mercury, Gemini, Apollo, Apollo/Soyuz, and the space shuttle programs.

DDMS is responsible for astronaut rescue and recovery, contingency landing site support, of airlift/ sealift for contingency operations, as well as other support services required in the event of a shuttle emergency.

Mr. Chris Malbon, deputy commander for DDMS, said the office has inherent capabilities within DoD that National Aeronautics and Space Administration doesn't have but needs.

"First and foremost, our number one goal is the safety of the astronauts," Malbon said.

"Ultimately, when things (with the shuttle) go wrong, we react. We provide needed training to the sites around the world, ensure medical contingency personnel are fully trained, ensure the sites

are ready to accept the orbiter if necessary, and confirm airlift and sealift operations are prepared."

In cooperation with NASA, DDMS is responsible for the day-to-day operations and support of NASA's manned space flights and validates NASA requests for DoD support.

The support office also provides tactical control of those DoD forces supporting a specific space shuttle mission.

The commander-in-chief of U.S. Strategic Command is the DoD manager for DDMS, while the 45th Space Wing commander is the deputy DoD manager. In addition to offices located here at Patrick, DDMS maintains a landing support office at the Johnson Space Center in Houston.

According to Mr. Malbon, DDMS is a unit of only 36 people, 12 of whom are qualified to visit transatlantic landing sites to train recovery in the event of an emergency.

When a space shuttle prepares to launch, the DoD Support Operations Center begins its operations a day prior and maintains 24-hour contact with DoD forces and facilities around the world supporting the mission.

While the shuttle is in orbit, these sites provide a variety of support, including launch abort sites, launch contingency support (Pre-positioned military forces on standby to rapidly conduct search and rescue operations), transoceanic abort landing sites, augmented/emergency landing sites, shuttle turnaround support, and end of mission support.

These locations can be quickly equipped and staffed to support space shuttle landing operations.

When asked what he thought one of the most challenging parts of his job was, Malbon replied, "We are a small, unique unit. No one comes 'prepared' or trained for this very specific mission. In

DDMS, new members need months of concentrated training to become fluent in the key roles within the office.

"It's a great mission- a mission I truly believe in."

45th Space Wing Missileer- 19 July 2002- page 7
- By 2nd Lt. Warren Comer

DDMS nominated for AF award

Air Force Space Command nominated the Department of Defense Manned Space Flight Support Office Space Shuttle Recovery/Turnaround team here for the 2002 Chier of Staff Team Excellence Award on June 13.

DDMS has been recognized for its initiative in improving a functional plan that could have a $10.5 million savings should the space shuttle have to make an emergency landing at a trans-Atlantic landing site.

"It certainly was a surprise and an honor (to be nominated), said Navy Cmdr. Mike Masla, DDMS chief of plans and programs.

"We took on a plan that was designed to recover the orbiter from anywhere in the world and back to Kennedy Space Center," said Lt. Col. Timothy Lee, former chief of plans and programs for DDMS, now the chief of the organization's office at Johnson Space Center in Houston, Texas. "NASA had a plan to move tons of equipment and personnel by air to that landing site, but it wasn't feasible to move that much equipment that fast."

With the DDMS team, they developed an entirely new plan that prioritized deployment of forces according to importance for several different landing sites, projecting that this would save NASA millions of dollars should the shuttle need to make an emergency landing.

“I think the most significant impact made by the team over the last couple of years was the introduction of a force module menu,” said Cmdr. Masla “It allows the recovery management team to tailor the quantity and types of DoD support to the needs of the contingency landing site in a very flexible way.”

While NASA is responsible for turnaround, or bringing the shuttle back to Kennedy Space Center, DDMS provides a considerable amount of support activities when the shuttle is forced to land at a location other than KSC.

“The unit’s expertise includes a mix of pilots, navigators, space operators and a broad range of civilian support as well,” said L. Col. Lee. “We have also worked hard to bring tin the right people with the right expertise from outside DDMS. There is a lot of people we can tap into within the DoD.”

With this much involved in a mission that could take place on the other side of the world, DDMS personnel are constantly challenged with finding ways to support NASWA’s mission even when they could be forced to operate out of a location that doesn’t have any support equipment set up.

Budget constraints have also posed a considerable problem. Coming up with new ideas that will help accomplish the mission while saving money is exactly what the Shuttle Recovery/Turnaround team has done.

“NASA has limited resources just lie we (DoD) do,” said Lt. Col. Lee. “We all have to be good stewards of that money.”

Not only did the team make significant strides in reducing the cost of the operation, they were also able to streamline forces to make shuttle recovery and turn-around more efficient.

Before the project began almost two years ago, NASA had no plan that allowed them to tailor the types and quantities of DoD

support NASA would likely require in a shuttle turnaround scenario.

"Today, if a shuttle contingency landing occurs, one can pull this publication off the shelf and be well-prepared to support NASA's support requests," Said Lt. Col. Lee.

Since each landing site is different from the next, it called for a specific plan for each location. For every landing site, a person was designated as the site planner.

For their efforts in tailoring a mission to specific needs and places, the Shuttle Recovery/Turnaround team will compete against 21 teams in mid-September.

A panel of four general officers will select the winning reams based on their review of a ream presentation and written award packages.

45th Space Wing Missileer – 7 February 2003 – Page 3
– By Capt. Susan A. Romano

DDMS responds to Columbia tragedy

The Department of Defense Manned Space Flight Support Office located here responded instantaneously when the Space Shuttle Columbia accident occurred upon re-entry into the Earth's atmosphere Feb. 1.

Two hours before Space Shuttle Columbia was due to land at 9:16 a.m., DDMS was on the job monitoring the flight.

Approximately 16 minutes before landing, DDMS personnel initiated their catastrophic incident checklists when NASA announced they had lost contact with Columbia.

The DDMS mission is to coordinate NAS requests for Department of Defense's unique capabilities in support of the nation's manned space flight program, if search and rescue is needed.

Within seconds, DDMS mobilized its rapid response team and coordinated with the U.S. Coast Guard to dispatch C-130 Hercules aircraft to patrol the coast of Florida and the Gulf of Mexico for falling debris.

For the first few hours, through coordination took place between DDMS and numerous national agencies, including U.S. Strategic Command, the Federal Emergency Management Agency, the National Military Command Center, the Director of Military Support and the Air Force Rescue Coordination Center.

Later, as search and rescue efforts took place in eastern Texas and western Louisiana, DDMS dispatched personnel to Barksdale AFB, La,. And Naval Air Station Fort Worth, Texas, to assist NASA and FEMA in their recovery efforts. DDMS also had aircraft and crew poised and on alert throughout the day in case additional support was needed.

DDMS is still on the job coordinating NASA requests for additional DOD resources and passing those requests to Barksdale AFB to the recovery team headquarters.

"On behalf of the entire DDMS team, I'd like to convey our sympathy to the crew's families," said Navy Cmdr. Michael D. Masla, DoD Support Operations Center director. "We are very proud of the loved ones they have lost and the courage these families have displayed during this terrible tragedy."

"Our sole purpose is to train for contingencies like the Columbia accident," said Col. David Dingley, DDMS commander. "But it's a job we hope we never have to do. When called upon, however, the entire team performed magnificently and I couldn't be prouder of their performance under very tough circumstances."

The office is a unique unit made up of only 36 people, yet are charged with an extraordinary responsibility – astronaut rescue and recovery, contingency landing site support, payload security and medical support.

Seated in front, from left, are: Astronauts Rick D. Husband, mission commander; Kalpana Chawla, mission specialist; and William C. McCool, pilot. Standing, from left, are: David M. Brown, Laurel B. Clark, and Michael P. Anderson, all mission specialists; and Ilan Ramon, payload specialist, representing the Israeli Space Agency.

Stars and Stripes- 21 November 2003- By Scott Schonauer

Morón drills for shuttle emergency landing

NAVAL STATION ROTA, Spain — If disaster strikes aboard a space shuttle shortly after takeoff, astronauts will have people such as Petty Officer 3rd Class James Quinn waiting on the ground.

Quinn is part of a Navy medical team from Rota that travels to Morón Air Base every time a shuttle launches from Florida. Astronauts have 35 minutes from the time the rocket boosters lift an orbiter off the pad to make an emergency landing at the Spanish air base.

The 60-member team held an exercise Thursday in Rota to practice what it would do if a space shuttle had to abort a mission minutes after takeoff.

During the drill, Quinn barked out commands to the other firefighters, who helped rescue sailors playing the part of injured astronauts.

“Let’s go!” he yelled. “Let’s move! We need to get this guy out of here!”

Using bulky, silver chemical suits and a C-12 propeller plane resembling a space shuttle, the team trained for disaster. Space shuttle Atlantis is scheduled for launch in September 2004.

It will be the first journey into space since Columbia broke apart over Texas on Feb. 1, killing all seven astronauts on board.

Morón Air Base, a small Air Force base 35 miles southeast of Seville, is one of three major emergency landing sites in Spain and Morocco. There are dozens of similar Transoceanic Abort Landing bases, or TALS, spread across the globe.

During each launch, the Navy medical team from Rota lines up on the Tarmac in Morón just in case they are needed. A similar team from Ramstein Air Base, Germany, travels to Zaragoza, the other emergency landing site in Spain.

Rota’s team has two major exercises each year. A group of NASA representatives usually travels to Spain to help teach new personnel how to use the equipment and critique performance.

Dr. Philip Stepaniak, a flight surgeon from Johnson Space Center in Houston, said it is important that team members get familiar with working with the complicated, $200,000 astronaut flight suits and are aware of the toxic gasses that are typically released during an emergency landing.

Florida Today- 19 February 2004- page 21- By Chris Kridler

Mock disaster tests KSC rescue crews

NASA chopper, fake shuttle compartment play part in drill

Cape Canaveral- The white helicopter in the sky holds the first hope of rescue for the downed orbiter crew during a drill at Kennedy Space Center.

Aboard the NASA chopper, fire chief and rescue operation commander Norbert Kuhman spies the crashed shuttle- actually a mock-up of the crew compartment- in a swampy area south of the runway. It's on land, a boon to rescuers, but it's blowing smoke, a sigh of possibly toxic gas.

The helicopter crew gets word to the Air Force reservists who fly the "jollies," as in Jolly Green Giants, the big green helicopters usually parked at Patrick Air Force Base. For shuttle launches and landings, the 920th Rescue Wing is on hand at KSC.

Clad in a protective silver suit, Gina Tucker of Palm Bay rode one of the HH-60 helicopters to the site Wednesday to lead the simulated rescue.

"There's a lot of adrenaline that kicks in; a lot of excitement behind that, and you get focused on what your mission is at that point," said Tucker, a captain and trainer with Space Gateway Support.

It's impossible for observes not to think of Columbia's destruction as the rescuers, breathing with the help of liquid air packs, begin pulling mock astronauts out of the crew compartment and strapping them to plastic sleds for evacuation.

Drills are always treated as realistically as possible, said Butch Wilmore, a real astronaut on hand to observe.

Even though it's hard to predict what damage a crash short of the runway might cause to an orbiter, "we're hoping for the best," Wilmore said, "that we have crew members that we can pull out, take to hospitals, and they go on to fly another day."

The mock astronauts. Actually rescue workers in full orange flight suits, are tagged with explanations of their injuries. They range from "walking wounded" to severely hurt, said Lt. Col. John Bicket of the Department of Defense Manned Space Flight Support Office.

"When you see the orbiter, you have a lot of things running through your mind," Tucker said, including how to talk to the flight crew and which hatch to open. "You're always one step ahead of yourself."

Workers at the Launch Control Center help coordinate rescue efforts by passing on vital information, such as weather data. On their screens, they see the white compartment in the distance, thanks to a camera on top of the Vehicle Assembly Building.

A light-green M-113, a small rescue tank, transports three mock crew members to safety. Four are taken away by helicopters. Victims get preliminary treatment at a nearby triage area and then are flown or driven to local hospitals.

To make the drill more interesting, two rescuers also sustain mock injuries and have to be rescued by the tank.

Rescuers face a variety of threats, from toxic materials to fire, Space Gateway Support's Kuhman said.

"The protective gear is vitally important," he said. "If we can't protect ourselves, then we can't complete our mission."

Missileer – 09 April 2004- Page 3- By A1C Shaun Emery

NASA recognizes DDMS shuttle recovery efforts

The Department of Defense Manned Space Flight Support Office was presented an award form NASA for its role in support of the Space Shuttle Columbia recovery effort.

The award, a collage made up of pictures from the mission and a mission patch, expresses the appreciation for the vital contributions to the Columbia recovery efforts and for helping forge a lasting partnership with NASA, said Dean Schaaf, NASA ground operations manager.

DDMS provides support, including astronaut rescue and recovery, contingency landing site support, medical support, contingency airlift coordination and other items requested by NASA in the event of a shuttle emergency.

Before Columbia's break-up, DDMS was in standard posture providing contingency support, said Lt. Col. Fredrick Van Cleave, DDMS deputy chief of operations.

"When it became apparent Columbia was missing DDMS executed their Catastrophic Incident Checklist, channeling up requests for a search and rescue.

Many DDMS personnel prepared themselves for long hours.
"We keep the Support Operations Center manned 24 hours a day during a routine shuttle mission," said Lt. Col. Van Cleave. "Usually it's just one person, but after the incident, we had as many as three people in there around the clock."

According to Lt. Col. Van Cleave, DDMS contacted installations in the mishap area to determine the best location to support recovery operations.

Once they decided on Barksdale Air Force Base, La., DDMS activated their prearranged military airlift to transport NASA, contractor and DDMS personnel to the site.

“We continuously rotated our people for a couple weeks at a time to the various search sites,” said Col. David Dingley, DDMS commander.

Because NASA did not have the capability, DDMS coordinated and ran air searches and scheduled air assets – including military helicopters- during the recovery effort.

“By synchronizing our actions with NASA, the Federal Emergency Management Agency, the U.S. Forestry Service and a list of other agencies, we were able to recover approximately 40 percent of the orbiter,” said Col. Dingley.

“The plans we had in place worked well,” he said. “And we gained a better understanding of how to react to a disaster of this magnitude.

Florida Today- 18 April 2004- Page 50

Patrick AFB: It’s just a rescue and recovery drill.

Rescue and recovery exercises will test crews to ensure they are prepared for the space shuttle’s return to flight.

The Department of Defense Manned Space Flight Support Office will conduct the exercise Monday through Wednesday in conjunction with NASA. It will involve about 500 people and a variety of aircraft and ships.

The exercise will allow for a practice run of the recovery operation the Department of Defense forces would use in the event of a shuttle mishap.

The joint, inter-agency exercise simulates an abort scenario for the shuttle. The Department of Defense Manned Space Flight Office passed at Patrick, coordinates it.

Florida Today- 20 April 2004- Page 11- By Chris Kridler

Forces practice shuttle sea rescue

Patrick Air Force Base- Planes, helicopters and ships are poised to swoop down on a shuttle crew forced to bail out over the Atlantic.

Monday and today, military and NASA rescuers are acquainting themselves with their mission at Patrick Air Force Base. At 9 a.m. Wednesday, they'll begin a simulated "Mode 8" ocean rescue.

"Obviously, there's more visibility because of Columbia, and that brings in a heightened awareness," said Air Force Col. Dave Dingley, commander of Department of Defense Manned Space Flight Support.

The last ocean drill was in October 2002, though a land-rescue was staged in February at Kennedy Space Center.

"We try to practice as much realism as we can, understanding the artificiality of the exercise," Dingley said.

A rescue might be 150 miles offshore, but the simulation will be 35 miles out and helicopters, which usually lead a rescue, will be grounded due to "poor weather." Ships will be the first responders.

"It's a very complex and large rescue and recovery force that you have to coordinate and bring together," Dingley said. "…You need to practice this."

The drill simulates a situation in which a shuttle fails to reach orbit and attempts to return to KSC. In a real accident, it could take rescuers 45 minutes to get a crew.

Stars and Stripes- 21 November 2004 – By Scott Schonauer

Morón Air Base prepares for space shuttle emergency

If the space shuttle had to make an emergency landing shortly after launch, what would it be like?

NASA officials, along with U.S. military and Spanish civilian medical teams, wanted to know.

So they held a mock shuttle disaster Friday on the runway at this military base in southern Spain to test how they would react to such a catastrophe.

It was an important drill.

If disaster struck the shuttle, astronauts could use the base runway 35 miles southeast of Seville to make an emergency landing.

“It’s exercises like this that give us assurance that should we launch and there is a contingency, locations like these are ready,” Tim O’Brien, a senior NASA representative, told the teams.

Morón — a Spanish base that is home to about 120 U.S. Air Force personnel — is one of two emergency-landing sites, or Transoceanic Abort Landing bases, in Spain. The other is in Zaragoza, which is in the northeast. There are more than four dozen similar sites spread out across the globe to give NASA a last chance at saving the shuttle and the crew if something goes wrong.

More than 50 people from NASA, the U.S. Navy, U.S. Air Force and emergency medical teams from a hospital in Seville participated in the exercise. Although the base has held similar exercises, it marked the first time in nine years Seville medical evacuation personnel took part. It was one of the largest such exercises NASA and the military have ever done.

“This is a very large-scale exercise in the scheme of things,” said Tom Friers, a NASA ground operations manager.

The scenario involved the shuttle having a problem after blasting off from Kennedy Space Center in Florida and having to land at the base. During the landing, one of the tires blows and the nose gear collapses. The seven crew members are injured; three critically.

A 45-passenger Blue Bird bus served as the shuttle during the rehearsal and seven servicemembers played the roles of the injured cabin crew.

Firefighters dressed in bulky, silver suits rushed to the bus as soon as Navy and Air Force teams got the signal from the on-scene commander. Their job: pull the astronauts from the bus and take them to a safe area more than 1,000 feet away from the nose of the shuttle.

The Spanish firefighters wear the protective suits because of the hazardous chemicals that are in the orbiter’s thrusters.

One of the role-playing astronauts wore a heavy, orange space suit to give the practice run more realism. It proved to be a challenge for firefighters to transport him to waiting medical personnel. About 40 doctors, nurses and corpsmen from the Navy hospital in Rota treated the injured just as they would have in a real disaster.

The drill was not without its share of mistakes. There were language problems between the Americans and Spaniards, and teams struggled to figure out how to get the injured astronauts from one location to the other. Some of the people who participated had never been involved in such an exercise of this scale.

Although the shuttle support team has areas to improve, Air Force Col. Bob Pecoraro, commander of the 712th Air Base Group at Morón, said he has no doubts that the base will be ready for the next shuttle launch in May.

“We have no concerns about if a launch were to happen today, we’d be ready,” Pecoraro said.

Lt. Cmdr. Fred Lindsay, a doctor at Naval Station Rota, said it was important for the different groups of people to get out on the runway and see where they need to improve for the next launch.

“Medically trained, we’re fine,” he said after the drill. “It’s just the logistics of moving the astronauts from here, getting them medically treated and then leaving the area and going to Seville. Just that 10- and 15-minute part of how we’re going to do that [is what] we’re trying to figure out.”

Although shuttle crews have never had to make an emergency landing, such a tragedy is not so unthinkable. In 1999, it almost happened. The shuttle experienced a reduction in engine power after a part shook loose seconds after launch.

The 2003 Columbia explosion in which the seven astronauts were killed is a reminder that things can go tragically wrong in an instant.

“Hopefully, we’ll never have to use [an emergency-landing site], but it’s good to know that they’re here,” O’Brien said.

The New York Times- 4 September 2005- page 3- By Marc Lacey

Memories Linger Where NASA Lights Shone in Gambia

BAAFULOTO, Gambia, Aug. 29 - The foreigners who would descend on this village from time to time were an odd bunch indeed.

They set up giant lights in the middle of an overgrown field and pointed them toward the sky. They stood in front of electronic screens powered by generators and talked hurriedly into radios hanging from their hips.

But for the local residents who saw them come and go over the years, the visitors always behaved most strangely just before they packed up and left Baafuloto. They would bustle about and then suddenly clap their hands and shout.

Sanjaney Saidy, 29, was a night watchman for the foreigners, known as tubabou in the local Mandinka language, thrilled with the roughly $2 a night he was paid, and proud of his uniform: boots, dark pants and a light blue shirt with a shoulder patch bearing the name of his employer -- NASA.

"It's a company, but I don't know what they do," said Mr. Saidy, who was 14 when he first worked for the Americans. "They told me to guard the lights, but I didn't know the purpose."

The odd men tramping on the outskirts of the village were rocket scientists and support personnel. And Baafuloto, while not Cape Canaveral or Houston, was playing an important behind-the-scenes role in the complicated task of space exploration.

That role was actually one that the space agency hoped would be superfluous. After the explosion of the space shuttle Challenger in 1986, in which seven crew members died on liftoff, the space agency put in place safety measures to help astronauts escape

during problematic liftoffs or landings. The lights in Baafuloto, a mile or so from Banjul International Airport in Gambia, would help a shuttle in an aborted ascent find its way back to Earth.

Gambia became one of NASA's emergency landing sites in 1988. When the country's military staged a coup six years later, the space agency considered moving the site. But the relationship between the space agency and Gambia, one of Africa's tiniest countries, endured through 28 shuttle launchings, until 2001 when the shuttle began using a trajectory that made Gambia geographically undesirable.

Transoceanic abort landing sites, as NASA calls the alternative airports, are carefully selected. The chief criterion is geography, a spot that matches the shuttle's launching route. The landing strip must also be sufficiently long and the weather consistently clear. Gambia was perfect when the shuttle was launched with a low, 28-degree inclination, NASA officials say. But today, NASA sends shuttles up at 51.6 degrees to the International Space Station, making air bases in Spain and France better emergency landing spots.

Lasanna Saidy, the chief of Baafuloto, had a better understanding than his son Sanjaney of why the foreigners kept returning, although the fact that there seems to be no precise word in Mandinka for rocket was limiting.

"When I asked them about the lights, they pointed up in the sky," the 75-year-old chief said. "They said there was a door in the sky and that their big plane might come through the door. They said the lights would help the plane, but I never did see it."

It was good that the chief never saw the shuttle, because it would have been in distress if he had. NASA remained ready, though, just in case, flying a team of specialists to Gambia before almost every shuttle launching.

NASA built a parking area at Banjul's airport to isolate the shuttle in case it came down spewing hazardous substances. Before each launching, giant nets were stretched across each end of the runway to help slow an incoming craft. Specially trained Gambian police officers, firefighters and doctors stood ready to respond. The air traffic over Gambia would be stopped briefly around launching time.

At the airport, Sulayman Jabang, an air traffic controller, said a NASA employee sat next to him but with his own communications equipment. Then there was a countdown just like the one at mission control.

"They would say, 'Five, four, three, two, one,' and then they would say, 'Liftoff!"' Mr. Jabang said. "It was exciting for us. We certainly never wanted the shuttle to come here. But we liked being an emergency landing site."

The village that rented its land to NASA liked it, as well. And even though the foreigners have not come for several years now, the people of Baafuloto hold out hope that they will be back.

"That place is still for NASA," the chief said, motioning toward the plot on the outskirts of the village where the foreigners used to congregate. The only evidence that NASA left of its presence is some concrete where the lights used to be attached.

The mosque in Baafuloto is also a memorial of sorts to NASA's past association with the village. It used to be made of mud but was rebuilt with concrete, largely through the space agency's $2,505 payment to the village years ago for use of the land. Villagers wanted more than that in the late 1980's, but NASA bargained hard, saying at the time that it had already reached a separate agreement with the Gambian government.

Although Baafuloto is not needed for launchings to the space station, another low-inclination launching to the Hubble Space

Telescope might be on the horizon. But, alas, those foreigners would probably not return to Baafuloto because NASA has another emergency landing site in Africa, an abandoned Strategic Air Command base near Ben Guerir, Morocco.

Missileer- 11 February 2005- Page 12- By 1st Lt. Elizabeth Kreft

Speaking the Language of SPACE

Russian visitors welcomed to Space Coast

Though the language barrier remained, when six Russian visitors came to speak with 45th Space Wing officials, it was clear that cooperation and understanding was their main goal.

And while their missions take place more than 5,000 miles away, the cosmonaut rescue officers visiting the wing recently not only found a common ground about their similar life-saving operations, they also discovered the people driving the missions were just like their crews back home.

The group of seasoned foreign-military members came to Patrick and the Cape to get the wing mission overview and to tour the Department of Defense Manned Spaceflight Support Office facilities and operations. The trip coincided with the group's visit to the National Space Administration at Kennedy Space Center, and the entire visit was intended to improve understanding and cooperation of joint training and missions.

"We were excited to welcome the Russian guests to the base and show them how our operations relate to their own," said Col. John Cherniga, DDMS commander, "especially relating to our joint Soyuz landing support."

The visitors expressed sincere sentiments of gratefulness and enjoyment at being invited to the base and being able to view some day-to-day space operations. Through a translator and the interpretive efforts of the 45th SW vice commander, Col. Susan

Helms (who went through Russian language training while she studied to be an astronaut), the friendly guests told their Air Force hosts what they thought of the current working relationship between our two agencies.

“From the technical side, there really isn’t a big difference between our operations and yours,” said Gen. Major Vladimir Aleksandrovich Popov, chief of the Federal Aviation and Space Search and Rescue Department, Russian Federation Ministry of Defense.

“If we are talking about procedures, there are differences because we have very different things to work with; we have the Soyuz to work with while your shuttles land on a runway,” said Gen. Popv.

In reality, due to the nature of the Soyuz landing operations the Russian team actively participates in a rescue each time the spacecraft re-enters the atmosphere. In contrast, DDMS personnel conduct rescue operations only when something goes drastically wrong with either the launch or landing of the NASA shuttles.

“It was great to compare our two programs,” said Chris Malbon, DDMS deputy commander. “We continue to learn from each other as we seek to improve our joint operations in support of the International Space Station.”

Both the Air Force and the Russian military members also had some interesting anecdotes they shared about past and ongoing relationships and how the two countries have learned much from each other.

“Remember back in the early days of the space age when America spent hundreds of thousands of dollars developing a pen that could operate in the space environment,” laughed Col.

Gordie Elwell, 920th Rescue Wing Operations Group commander, "then we came to find out that cosmonauts were using pencils?"

The group chuckled at the memory, then Gen. Popov added "It is true, we learn sometimes that simple is better."

In light of the recent focus on the rejuvenation of the NASA manned spaceflight program, both the American hosts and the Russian guests had a desire to see training sessions continue between the two similar life-saving programs.

"There is a positive relationship here (between our two countries), but of course there is also room for improvement… especially with collaborative training and joint work," said Gen. Popov. "History has proven, both technically and economically, that it is prudent to work together and share the assets and knowledge that we have."

Florida Today- 11 April 2007- Page 15- By Todd Halvorson

NASA turns to past for ideas

Orion will use Apollo-style equipment for ocean recovery

Cape Canaveral- NASA's next piloted spaceship probably will parachute to the ground in the western United States at the end of its missions, but it also will be capable le of landing in the ocean after a launch failure.

So NASA and the military squadron that will be responsible for rescue operations is reaching out to veterans from the Apollo moon-landing project, trying to learn everything they can about capsule recovery operations.

"We want to get off on the right foot and make sure we're going to head down the right path. We want to learn from history and push forward and take it to the next level," said Brig. Gen. Susan Helms, commander of the Air Force's 45th Space Wing, which

coordinates Department of Defense emergency support for U.S. human spaceflight mission.

“The bottom line is that regardless of the end-of-mission landing mode, we must still re-establish and support a water-landing capability. That’s very important added Don Hammel, NASA’s lead landing and recovery engineer for Orion spacecraft.

NASA’s Mercury, Gemini and Apollo spacecraft all were designed to splash down in an ocean, where water provides enough of a cushion to obviate the need for breaking rockets like those used on Russian and Chinese spacecraft.

On NASA’s first two Mercury flights, helicopters dropped a cable to the spacecraft so it could be lifted out of the ocean and placed on the deck of an awaiting ship.

That practice was changed when NASA’s Liberty Bell 7 spacecraft sank. Its hatch was inadvertently jettisoned after splashdown with astronaut Gus Grissom aboard.

NASA then began equipping its spacecraft with floatation collars. They kept the craft afloat and also preceded a platform for recovery and rescue divers. The added buoyancy enabled the floating craft to be brought alongside ships, where cranes lifted them onto decks.

The new Orion spacecraft will be Apollo-style capsules that will employ parachutes, airbags and perhaps retrorockets to slow their descent.

Small rockets atop the capsules will be able to pull the spacecraft and crews away from the launch vehicle in the event of an emergency on the launch pad.

So NASA and the Air Force are calling on graybeards from the Apollo program to advise those planning Orion recovery

operations. The first in what is expected to be a series of meetings was held at Patrick Air Force Base earlier this month.

Retired Air Force Col. John Sniegowski, who headed up military support for Apollo recovery operations, said the best way to carry out the demanding job is to develop tight and effective coordination between NASA and the Department of Defense.

“I think that’s still an essential that you are going to need in the Constellation program,” Sniegowski said. “We used to sit around tables like this and figure out how we were going to do the job, and then we went out and did it. We got it all done, and I think we did it right.”

Missileer- 17 April 2007- By Ken Warren

DDMS inactivates

PATRICK AIR FORCE BASE, Fla. -- The DoD Manned Space Flight Support Office (DDMS) was inactivated in a ceremony April 3 here.

Immediately preceding the ceremony, alumni of NASA's Apollo program shared a working luncheon with current Air Force and NASA officials planning astronaut recovery operations for NASA's upcoming Constellation program. Constellation is set to fly to the moon and beyond as the follow-on human space flight program to the space shuttle.

"DDMS was inactivated, but its mission will go on. Its follow-on organization, Human Space Flight Support (HSFS), will continue to support NASA, including the Constellation program," said Lt. Col. Nick Seaward, HSFS chief. "That's what we discussed at the luncheon."

Under the 45th Operations Group, HSFS will handle most of the tactical/day-to-day operations previously handled by DDMS. The

strategic operations previously managed by DDMS will be primarily conducted by the Joint Force Component Command for Space at Vandenberg AFB, Calif.

"We're calling this an inactivation, but it's really more of a reorganization designed to place tactical and strategic responsibilities at the right levels," said Lt. Col. Seaward. HSFS will retain the old DDMS job of being a primary DoD liaison with NASA for coordinating support for astronaut rescue and recovery, contingency landing support, medical support, Soyuz landings and more.

"HSFS will continue to serve as an extremely essential coordinating office for contingency support as NASA transitions from the space shuttle to the new Orion crew exploration vehicle," said Brig. Gen. Susan Helms, 45th SW commander. "As a former astronaut, I fully recognize and appreciate DDMS's contributions to America's human space flight program."

Topics ranging from the preferred area for recovery after a nominal Apollo mission to the locations of DoD forces during Apollo launches and landings were covered at the luncheon.

Among the Apollo alumni present were Milt Heflin, former NASA Apollo Recovery Manager and current associated director of Johnson Space Center and retired Air Force Col. John Sniegowski, DDMS Director from 1975-1985.

"The technology of today - especially in communication and navigation -- is going to prevent us from needing to deploy a large force for Constellation recovery operations," said Mr. Heflin. "But just like back in the old days, the emphasis has got to be put on getting human beings back safely."

Col. Sniegowski encouraged lots of communication and joint operations between NASA and the DoD. "What we learned back in the Apollo days was how important it is to get together and

talk a lot," he said. "We developed and identified requirements together. We talked early and often."

Tuesday's luncheon was possibly the first of what could be a series of dialogues between the "old-timers" and current aerospace workers.

"Having these discussions on a recurring basis would be good. You can't prepare and train enough," said Mr. Heflin. "Talk about full circle. Here I am talking about (space capsule) recovery kinds of stuff, just like 40 years ago."

North American Aerospace Defense Command and USNORTHCOM PA-3 August 2007

DOD Support to manned space operations for STS-118

U.S. Northern Command is the focal point for military emergency support to the Space Shuttle. Support includes astronaut rescue and recovery and orbiter recovery. USNORTHCOM, established in 2002 and fully operational Sept. 11, 2003, coordinates U.S. military support for the Department of Defense efforts to assist the Space Shuttle astronauts in the event of an emergency. All information on DOD units and NORAD contained in this release is subject to change.

Launch Facts

The Space Transportation System (STS) -118 mission is the 22nd shuttle flight to the International Space Station. It will continue space station construction by delivering a third starboard truss segment. The mission will be Endeavour's 20th and its first flight in more than four years.

Launch Window: NASA announced August 7 as the planned launch date for STS-118.

Launch Slip Opportunities: 24- or 48-hour scrub possible

Landing: Duration of the STS-118 mission is 11 days after launch and may be extended.

NORAD Launch Support
Fighters from the U.S. Air Force, enforcing the FAA established Temporary Flight Restrictions (TFR) around the Kennedy Space Center.

Launch Contingency Support
USNORTHCOM provides a variety of support throughout launch, on-orbit and landing. In cooperation with NASA, U.S. Strategic Command and the DOD Human Space Flight Support Office (HSFSO), USNORTHCOM has developed plans to locate and retrieve the astronauts if they have a pad or launch emergency, are forced to bailout of the shuttle, or have to return for landing. Numerous Air Force, Marine Corps and Coast Guard aircraft and Coast Guard ships are pre-positioned or on standby to quickly launch to conduct search and rescue operations. For STS-118, the following DOD and DHS assets are supporting the mission:

20 US Air Force/Air National Guard Pararescue personnel (308th Rescue Squadron (RQS), Patrick Air Force Base, Fla.; 103rd RQS, Gabreski, NY)

4 HH-60s (301st RQS, Patrick AFB)

1 US Air Force Reserve/US Air National Guard HC-130 (39th RQS (AFRC), Patrick Air Force Base, Fla.; and 1 Air National Guard HC-130 (102nd RQS, F.S. Gabreski Airport N.Y.)

1 KC-130 (2d Marine Air Wing, Cherry Point N.C.)

6 Army HH-60s (Fort Irwin, CA)

5 Air Force UH-1 (White Sands Missile Range, NM)

The United States Navy's Fleet Area Control and Surveillance Center at Naval Air Station Jacksonville, Fla., and Naval Meteorology and Oceanography Center and Naval Air Station Norfolk, Va., and the United States Air Force's Rescue Coordination Center will also be in direct support to Commander, U.S. Northern Command.

Launch Abort Sites (LAS) and East Coast Launch Abort Landing Sites (ECALS)

Additionally U.S. military units at the following Shuttle Launch Abort Sites are on alert to support an emergency landing during the launch phase for STS-118. These bases lie near the intended flight path for STS-118:

Atlantic City International Airport, N.J.
Oceana Naval Air Station, Va.
Dover Air Force Base, Del.
Otis Air National Guard Base, Mass.
F. S. Gabreski Airport, N.Y.
Pease Air National Guard Base, N.H.
Marine Corps Air Station Cherry Point, N.C.

DOD Augmented/Emergency Landing Sites

If the shuttle experiences an on-orbit emergency and has to land immediately, NASA has established several civilian and military landing sites around the world. US military personnel at the following locations are prepared to support an emergency landing of the shuttle:

Augmented Sites: While the Primary Landing Site is Kennedy Space Center, Fla., alternate DOD Augmented Landing Sites Edwards AFB, Calif., and White Sands Space Harbor, N.M., can be quickly readied to support a shuttle landing with an on-scene

commander, fire/crash/rescue forces, and medical evacuation capabilities.

Emergency Landing Sites: These locations are strategically located around the world in the flight path of STS-118. They have runways long enough for the shuttle and have compatible navigation aids. The following Emergency Landing Sites are located within the United States:

Atlantic City International Airport, N.J. (ECALS)

Cape Canaveral Air Force Station, Fla.

China Lake Naval Air Weapons Station, Calif.

Dover Air Force Base, Del. (ECALS)

Dyess Air Force Base, Texas

Ellsworth Air Force Base, S.D.

Elmendorf Air Force Base, Alaska

F.S. Gabreski Airport, N.Y. (ECALS)

Kennedy Space Center

MCAS Cherry Point, N.C. (ECALS)

McDill Air Force Base, Fla.

Mountain Home Air Force Base, Idaho

Oceana Naval Air Station, Va. (ECALS)

Otis Air National Guard Base, Mass. (ECALS)

Pease Air National Guard Base, N.H. (ECALS)

Vandenberg Air Force Base, Calif.

White Sands Space Harbor NM

Edwards AFB, Calif.

The emergency recovery sites only have the minimum number of people needed to assist the astronauts, and will respond to a

shuttle landing as they would for any large aircraft emergency landing.

Alternate Landing Sites

The shuttle is expected to return to Kennedy Space Center on or about 11 days after launch and DOD support will be provided from Patrick AFB, Fla., Cape Canaveral Air Force Station, Fla., Kennedy Space Center, Fla. and USNORTHCOM Headquarters at Peterson AFB, Colo. However, alternate landing sites at Edwards Air Force Base, Calif., and Holloman AFB/White Sands Space Harbor, N.M., can be quickly readied to support a shuttle landing.

Additional USNORTHCOM Support

Air Forces Northern serves as the operational level focal point for situational understanding and crisis response to space shuttle mission contingencies. Additionally AFNORTH will work in concert with Deputy DOD Manager (DDOD Mgr), DoD Human Space Flight Office, Joint Forces Land Component Commander, Joint Forces Maritime Component Commander, Joint Forces Air Component Commander and the United States Coast Guard, as necessary, to execute CDR USNORTHCOM's role supporting CDR USSTRATCOM's mission of Defense Support for Manned Space Flight Operations. AFNORTH's Joint Task Force (JTF) -STS leadership includes:

16 AFNORTH personnel
One 301st RQS Liaison Officer (LNO) (Air Ops)
One U.S. Army North (Defense Coordinating Officer) LNO
One USN SAR LNO
One 2ND FLEET LNO
One USCG LNO
One FLIGHT SURGEON LNO

For additional information about DOD and/or NORAD/ USNORTHCOM or AFNORTH support to STS-118, contact Lt Col Don Arias (850-624-4293), or Master Sgt Jerry Harlan (850-774-4061), or contact the KSC Media Center, 321-853-2181.

Air Force Space Command PA- 30 April 2009- By Maj. Tom Cross

Detachment 3 marks 50 years of supporting NASA

PATRICK AIR FORCE BASE, Fla. -- It's amazing what has been accomplished in our country's space program in just 50 years. As NASA prepares to retire the space shuttle, Air Force personnel at Patrick Air Force Base who are part of Human Space Flight Support are celebrating 50 years of Department of Defense support of manned space flight. From the dry test beds at Edwards AFB in the 1940s to the launch pads at Cape Canaveral today, the Department of Defense has provided vital support to NASA in both research and development of spacecraft and in real world mission execution. Fifty years of dedicated support is absolutely a milestone worth celebrating.

To honor and thank those who served before, the Human Space Flight Support Office or Detachment 3 of the 45th Operations Group hosted a 50th Anniversary celebrating the organization's support to NASA. Detachment 3 has had a key role for five decades since the onset of our country's pursuit of human space flight. Festivities included a reunion dinner, a Kennedy Space Center Tour, an astronaut panel discussion, and a golf tournament. The celebration drew three shuttle astronauts and former workers who were part of the early support team decades ago. Lt. Col. (Dr.) Melinda Screws who works at the detachment organized the event. She said," it was truly a pleasure to work on an event that brought together our predecessors, prior DDMS'ers, with the individuals that our mission is all about, the Astronauts. Our way forward is rooted in the rich legacy of our past."

Back in the day, Detachment 3 was called DDMS, which stood for Department of Defense Mercury Support. Detachment 3 hosted a reunion dinner for former "DDMSers" including some from the 1960s who supported Mercury and Apollo missions. The Detachment hosted over 100 people including six former DDMS

commanders. The night culminated with NASA's Dave Phillips presenting the Detachment a beautiful framed piece with collector's pins from every manned launch. Col. Michael Tillema, the current Det 3 commander said, "It was an honor accepting the gift and representing those who worked for the organization in the past."

Detachment 3 is the only full time staff that coordinates and trains personnel worldwide at 35 locations to support Space Shuttle contingencies. This includes military and civilian hospital personnel, fire fighters and airfield managers. As NASA moves toward retirement of the space shuttle, the detachment is again at the grass roots of the Constellation program testing/validating water recovery procedures of the Orion capsule.

Part of the commemoration of the 50th anniversary included a visit to the base by current astronaut AF Col. Greg Johnson, and former astronauts Navy Capt. (ret) Jon McBride and Marine Col.(ret) Bob Springer, who shared some of the excitement about their flights with an audience of Airmen and families gathered at the base's theater.

Former astronaut Captain McBride thanked Detachment 3 for setting up the panel. "We salute the Air Force and everything they do to support us," he said. "And I hope we can work together for the next 50 years." Detachment 3 has already established a lasting legacy and will continue to provide support of our country's space program for decades to come.

Armed with Science: The Official US Defense Department Science Blog- 8 July 2011

End of an Era: Detachment 3 Provides Human Space Flight Support

Detachment 3, 45 Operations Group is the office that coordinates DOD contingency support to our nation's human space flight programs. Chartered in 1959 by the Secretary of Defense, the DOD Mercury Support Office and renamed later that year, the DOD Manned Space Flight Support Office (DDMS) was formed with the express purpose of providing DOD support to this nation's manned space flight effort . . . putting people into space and returning them safely to Earth. Since those early days, the office has continued to be the focal point for all DOD contingency support to Projects Mercury, Gemini, Apollo, the Apollo/Soyuz Test Project; the Space Shuttle Program, the International Space Station (ISS)/Soyuz Program; NASA's new Multi-Purpose Crew Vehicle Program and commercial spacecraft that will transport NASA astronauts to the ISS. This support includes astronaut and space vehicle recovery, worldwide communications, logistics and medical support.

The Commander of U.S. Strategic Command (USSTRATCOM) is the DOD Manager for Human Space Flight Support Operations. In 2007, the DDMS staff became part of the 45th Operations Group (45 OG) and was redesignated as Human Space Flight Support (HSFS). In 2008, HSFS was redesignated as Detachment 3, 45 OG. It remains the DOD Manager's primary staff for support coordination to NASA's human space flight programs. Additionally, Det 3 maintains a liaison officer at the Johnson Space Center in Houston and HQ USSTRATCOM. Detachment 3 (Det 3) has the responsibility for coordinating astronaut rescue and recovery, contingency landing site support, payload security, medical support, coordination of airlift/sealift for contingency operations, as well as other support services required in the

event of a spacecraft emergency. To carry out these responsibilities, Det 3 receives and validates NASA requests for DOD support. The office then works with STRATCOM/JFCC Space to task combatant commands for supporting forces, and assists JFCC Space in monitoring the status of those forces during missions. Det 3 also provides liaison officers to both NORTHCOM and EUCOM during launch operations.

In the Kennedy Space Center area, USAF air-refuelable H-60 helicopters, HC-130 tanker aircraft, Pararescue and medical personnel are deployed to support launch contingencies and astronaut recovery. Additionally, the Marine Corps provides a KC-130 tanker for helicopter air refueling. To support the potential for a Transoceanic Abort Landing (TAL), NASA has selected three TAL sites in Spain and France. These sites are Moron and Zaragoza Air Bases in Spain; and Istres AB (FAF) in France. All three of these TAL sites are activated for each shuttle launch. EUCOM supports these TAL sites with Operational Support Airlift aircraft for on-scene weather reconnaissance and in-flight checks of Space Shuttle unique landing aids, C-130 aircraft with pararescue and medical support personnel, and DOD fire/crash/rescue equipment / personnel.

Detachment 3 activates the Support Operations Center (SOC) at Patrick starting the day prior to a Space Shuttle launch and continues to operate through orbiter landing. The SOC maintains 24-hour contact with NASA and the Joint Space Operations Center (JSpOC) at Vandenberg AFB. The SOC is the only DOD facility that maintains a 24/7 watch from Space Shuttle launch to landing. The center, for example, played a key role in providing support to NASA in response to the Space Shuttle Challenger accident in 1986 and the Columbia disaster in 2003. While a shuttle is on orbit, designated DOD sites worldwide are ready to support a shuttle contingency landing. As the forward operating element of and in coordination with the JSpOC, the SOC receives

status from these locations during mission support periods. On landing day, the SOC monitors the DOD fire/crash/rescue support and medevac helicopters at Kennedy Space Center, Edwards Air Force Base CA, and Holloman Air Force Base NM.

After landing at locations other than Kennedy Space Center, the shuttle is ferried back to Florida on a modified Boeing 747 Shuttle Carrier Aircraft. Det 3 coordinates a USAF KC-135 / C-17 "Pathfinder" aircraft to transport NASA personnel and equipment supporting ferry flight operations. Office personnel fly with the NASA team on these ferry flights, providing specialized support en route at DOD installation stops. Due to the unique weather sensitivities of ferry flights, a dedicated weather support team is also assembled to monitor en route weather. This includes a DOD meteorologist to monitor weather conditions from the Cape Canaveral Forecast Facility in Florida, as well as a team of DOD meteorologists that travel with the ferry flight team, providing direct en route weather support.

The ISS uses Russian Soyuz spacecraft as the lifeboat on the ISS and as a vehicle to transport astronauts to and from the station. When US astronauts return to Earth via a Soyuz capsule, NASA has requested a standby aeromedical evacuation capability to be postured at Ramstein AB, GE. Det 3 personnel deploy to Ramstein for each landing to function as liaison officers with NASA, EUCOM, CENTCOM, the Kazakhstan Defense Attaché Office and as the command and control element for deployed forces should an aeromedical evacuation be required.

Det 3 is also fully engaged in supporting NASA's Multi-Purpose Crew Vehicle Program and Commercial spacecraft that will deliver NASA crew to the ISS with the DOD interface to rescue / recovery operations. The MPCV Program is designed to provide the United States access to deep space exploration.

Florida Today- 29 September 2011- pages 1B & 3B- By R. Norman Moody

After 63 years, she still finds it 'hard to leave'

Service spanned entire space shuttle program

Patrick Air Force Base- When Bettye Krieter reached the 50-year mark of working as a civil servant, Air Force personnel weren't quite sure how she would be honored.

Her boss at the time asked the personnel office what was normally done for someone with five decades of service. The answer: "I don't know, I've never had anybody with 50 years."

Krieter continued working another 13 years.

Military and civilian personnel will gather for a ceremony to honor Krieter as she retires from Patrick Air Force Base after working in civilian government service for 63 years, "eight months and a few days." She spent 42 of those years at Patrick Air Force Base.

"When people think of this unit, they think of Bettye," said Dennis "Chris" Malbon, deputy commander of the Department of Defense Human Space Flight Support Office. "Bettye is the only person in DDMS that was here for the entire shuttle program. She will be missed."

Krieter, an administrative assistant in the Manned Space Flight Office at Patrick, said even though she could have stayed longer, she realized it was time to retire.

"I've always said, 'When I feel like I can't contribute, it's time to leave,' she said. "I feel like I can still contribute, but it's time to leave."

The former Bettye Morris began working for the Veterans Administration immediately after graduating from Marietta High School in Georgia.

She joined a reserve wing thought the Women in the Air Force program and was activated during the Korean War. She was sent to Barksdale AFB in Louisiana, where she met and married Jack Krieter, an Air Force bomber pilot.

The couple was transferred to Homestead AFB, Minot AFB (N.D.) and Andersen AFB in Guam. Bettye Krieter worked as a civilian at all three. Then, in 1969, when her husband went to Vietnam, she came to Satellite Beach.

“I was just going to be a beach bum while he was gone,” she said.

Instead, she tried to continue her civil service at McCoy AFB in Orlando.

“I was hoping I would get on at McCoy,” she said. “There was a hiring freeze, so I tried Patrick.”

She’s been there ever since.

“I’m 82 years old,” she said. “I’ve got to get out of here.”

Lt. Col. Dacid Hamby has been commander of Detachment 3 of the 45th Operations Group at Patrick for a few months, but he quickly learned the value of having Krieter’s experience and knowledge in the unit.

“Instead of me asking her for things, she already has it ready,” Hamby said. “She is such a big part of this unit.”

Hamby is presiding over the retirement ceremony today at The Tides at Patrick AFB.

“It’s honestly a bittersweet moment for the unit,” he said. “That’s a lot of experience walking out the door.”

Leaving is bittersweet for Krieter, whose husband spent 28 years in the Air Force before retiring. He died four years ago.

“That’s going to be the hard part,” she said. “This has been my whole life. It’s very hard to leave.”

Krieter, who does not have any children, said the people she has worked with over the years at the base have been very supportive when she faced difficulties, like when her husband died. She has drawn close to them.

“The people in this office are like family,” she said. “This group of people is my family.

Author’s note.

Mrs. Bettye still resides in Satellite Beach, and can periodically be found at the Patrick AFB Marina. She can still remember every detail of the unit, from names to dates to birthdays. She is exceptional to speak with and a wealth of knowledge.

AmericaSpace: For a nation that explores-November 27th, 2014- By Mike Killian

45th Space Wing Detachment 3 Outlines Orion EFT-1 Recovery Training and Preparations for Return of US Human Spaceflight

When NASA's Orion crew capsule takes flight for the first time on Dec. 4, 2014, several agencies will be supporting what is, without a doubt, one of the most important missions of this decade for the next generation of America's Human Spaceflight Program. The NAVY, Lockheed Martin, United Launch Alliance (ULA), Air Force Reserve 920th Rescue Wing, and others will be playing key roles in the overall success of the orbital flight test, and earlier this week the Air Force 45th Space Wing 45th Operations Group invited AmericaSpace to Patrick Air Force Base and Detachment 3, also knows as the Dept. of Defense (DoD) Human Spaceflight Division, for a tour and discussion about their role in supporting Orion's first mission, as well as their plans for supporting human spaceflight launch and recovery ops from U.S. shores again in the coming years.

Commanded by Brig. Gen. Nina Armagno, the 45th commands both Patrick Air Force Base and Cape Canaveral Air Force Station, and their army of nearly 15,000 personnel support everything from rocket and spacecraft processing (from flight hardware arrival through launch) to operating and maintaining assets across 15 million square miles of the Eastern Range (including airfield operations, weather, and communication support) to providing mission and medical support.

The Wing is broken down into four groups; Launch, Operations, Mission Support, and the Medical Group, and they are ultimately in charge of launching all East Coast missions for NASA, the DoD, and commercial companies. ULA's Atlas-V and Delta-IV rockets, as well as SpaceX's Falcon-9 and Orbital's Antares (and formerly

NASA's space shuttle fleet)—none fly without the 45th SW giving the GO first.

But there's one Detachment of the 45th Operations Group who is specifically responsible for supporting U.S. human spaceflight for NASA and NASA-sponsored crewed missions (SpaceX and Boeing Space Station crews soon), and that is Detachment 3, who is responsible for coordinating the DoD's nominal and contingency support for U.S. human space flight programs. They coordinate astronaut rescue and recovery and provide landing site support, payload security, medical airlift / sealift support, and other services. They also develop plans for U.S Strategic Command (USSTRATCOM) and coordinate with various military departments and other DoD agencies.

During manned missions, such as those Orion will fly at the turn of the next decade atop NASA's mammoth Space Launch System (SLS), Detachment 3 activates their Support Operations Center (SOC) to maintain contact with NASA and the Joint Space Operations Center, and it will go into action again for EFT-1 on Dec. 4.

"Our unit is really for human spaceflight / manned launches, but Orion EFT-1 is setting the stage for our support later with NASA's Exploration Mission-2 (EM-2)," said Jay Summers (Maj., USAF ret.), a Communications Specialist at Detachment 3. "Our SOC can monitor not just our DoD unique channels to the USS Anchorage, which is supporting recovery of Orion for EFT-1, but we're also tied into our higher headquarters at Vandenberg AFB and USSRATCOM headquarters in Nebraska. We are also tied into all of the mission loops that NASA is using for EFT-1, everything from the Flight Director to Directory Control to the engineering loops, all of that is available to our controllers at the SOC to monitor, and make inputs if necessary."

"On the ship itself we are going to have a smaller subset of those; we are only going to be able to have two of those loops up at any one time, which we will cycle through depending on where we are in the evolution of the mission," added Summers. "We'll have four folks in the SOC that will be reporting back to Orion's recovery ship and USSTRATCOM, the SOC is really the hub."

When Orion launches crews on SLS the 45th's SOC at Detachment 3 will be manned with a full support team, and should something go wrong on EM-2 (and the following missions) that would require a contingency—such as if something went wrong at launch, or the capsule landed short or landed long—then Detachment 3 would be able to organize the support for NASA.

"On the recovery ship for EFT-1 we are just there to support the nominal operations," stated Summers. "I'll be there for the DoD communications, and we will also have Air Force logistics and safety folks onboard, as well as a Naval officer to serve as a liaison between the NASA team and the actual recovery ship team. We speak both NASA and DoD, so we can translate what each of the parties' wants or needs, we're the broker between NASA's wants and desires versus what the DoD can provide."

Although it's the NAVY who will be recovering Orion from the Pacific Ocean at the end of its EFT-1 mission, it was the 45th's Detachment 3 who trained them for the recovery operations, and they serve as the bridge between NASA and whatever support / assets the space agency needs for the mission.

Currently, Detachment 3 operations focus on the International Space Station (ISS) and the three-man Russian Soyuz spacecraft U.S. astronauts are forced to buy $70 million tickets on for transport to and from the ISS. When astronauts return to Earth on Soyuz, NASA requires an aeromedical evacuation C-17 aircraft, and so Detachment 3 personnel deploy for each Soyuz landing to coordinate with NASA, U.S. European Command, U.S.

Central Command, and the Kazakhstan Defense Attaché Office. If an astronaut aeromedical evacuation is required, Detachment 3 personnel become the command and control (C2) element for deployed forces.

“When NASA needs something from the DOD that they can’t provide themselves or secure affordably through commercial means they come to us for that capability,” said Lt. Col. Michael “Tank” McClure, Commander of the 45th Operations Group Detachment 3. “We then go and scour aircraft and ship manuals to find the right capability to meet NASA’s requirement, then we coordinate the scheduling process for that asset or unit, then we train those forces for whatever the unique mission is that NASA needs them to do.”

In the case of Orion and the EFT-1 mission, NASA needed a ship to provide a recovery capability of a human spaceflight vehicle from hundreds of miles offshore, something that hasn’t been done since the Apollo-Soyuz program of the 1970s, so they knocked on the door of Detachment 3 for help. Because the space shuttle landed on a runway, NASA always tasked the DoD with alert support, such as employing the 920th Rescue Wing and their search and rescue “Guardian Angel Airmen” to secure the area around the launch site and be ready to rescue a crew if needed. But with the new face of American human spaceflight taking the form of capsules, NASA will need DoD to provide an actual recovery capability, not just alert support, and that’s where Detachment 3 comes in.

“Our unit, over the past several years, has been engaged with the NAVY and other services to find that capability to do exactly that mission,” said Lt. Col. McClure. “We settled on a San Antonio-class amphibious assault ship, the USS Anchorage (LPD-23). Its mission is ship-to-shore delivery of Marines and combat capability, so it’s like a giant pick-up truck. It ballasts down into

the water and opens up its stern gate, and it delivers LCAC, or Landing Craft Air Cushion, which are giant hovercraft loaded with tanks and trucks and other equipment for delivery to shore during wartime or military operations."

Orion's recovery operations are based on what McClure calls a "dead LCAC recovery," which, simplistically, means a cable is attached to the vehicle (in this case, Orion) and then they winch it into the well deck of the ship. One of the first things the NAVY divers will do upon recovery is assess the hazardous materials to make sure it's safe to operate on or around Orion, and the dive crew in charge of doing so was trained for EFT-1 recovery ops by a Detachment 3 "Space Hazmat Specialist."

Training for the recovery of Orion has been going on for the past 18 months, both in San Diego and at NASA's Neutral Buoyancy Laboratory (NBL) in Houston, and just last week Detachment 3 gave a very high level briefing to senior NAVY leaders about the spacecraft, the hazardous materials, and the procedures that will be employed for Orion's safe recovery.

But training for hazardous materials and recovery operations is one thing, doing the real thing in rough seas or unfavorable weather is another. Orion won't launch from Florida if the weather at the splashdown zone off southern California is bad, but if the seas decide to get rough while Orion is in-flight the NAVY will be ready, thanks in part to training by Detachment 3.

"We've trained the divers, the small boats, the ship and the recovery crew to operate in seas of up to 2.5 meters (8 feet), those are the conditions they have rehearsed the recovery procedure in," added McClure. "If the weather exceeds that then it will be a day of launch determination on the part of NASA, Lockheed and the recovery team. We will have all the com channels open and relay to the launch team to make a decision."

At the end of the day Orion's EFT-1 mission is practice, a warm-up for when the spacecraft conducts missions with human beings to destinations farther out in space than anyone has ever been, and Detachment 3 is already preparing for the first Orion missions EM-1 and EM-2 on the SLS in 2018 and 2021. Although EM-1 will not be crewed, it will put Orion's launch abort system (LAS) into action, and—being that the LAS is meant to send crews away from a problem rocket safely—Detachment 3 will be standing by to provide some type of launch abort coverage.

"Nothing happens without the paperwork in place, so we have a liaison officer at USSTRATCOM that is currently working on the orders portion of the paperwork that will task the DoD to support EM-1," said Lt. Col. Jason Havel, Chief of the Commercial Crew Division at Detachment 3.

Readying For the Next Generation of U.S. Human Spaceflight After EFT-1

It will be at least seven years before the first crew flies on Orion / SLS for EM-2, but SpaceX and Boeing will be doing so much sooner, flying crews starting in late 2016 or early 2017 under a recently awarded multi-billion dollar Commercial Crew contract to transport NASA's astronauts to and from the ISS, and Detachment 3 is getting ready to support those NASA-sponsored missions as well.

"Detachment 3 is in the process of coordinating with those two manufacturers (SpaceX and Boeing) and NASA's Commercial Crew Program office," said Havel. "NASA's in charge of the commercial providers, and we are in charge of providing support for those commercial providers, so it's a unique relationship in the fact that we're working through NASA with SpaceX and Boeing to make sure DoD is up to speed with what is expected of our expertise."

When that capsule (SpaceX Dragon and Boeing CST-100) is in flight, and prior to docking with the ISS, we'll have DoD forces on alert to support any kind of a contingency where they either don't make it to orbit, or they are forced to come back from orbit before they dock; either way our forces will be ready to go," added Havel. "Once the capsule undocks from the ISS, and all the way down to landing, we'll have forces on alert as well for that. So SpaceX and Boeing are responsible for the nominal recovery, but we'll be ready if there is some kind of contingency."

Some of that support can be seen patrolling the skies over the Cape for each launch, courtesy of the search and rescue airmen and Pararescuemen (PJ's) of the 920th Rescue Wing (read the exclusive story flying with the 920th for the historic first commercial spacecraft launch to ISS). They were the primary rescue force serving as "guardians of the astronauts" for 50 years, providing contingency response for a variety of emergencies that could potentially come up during a shuttle launch or landing, and their expertise will again be employed for the next generation of U.S. human spaceflight. However, according to Detachment 3, it doesn't HAVE to be the PJ's of the 920th, if needed Detachment 3 can task any number of other rescue personnel to get the job done when crews start flying from America's shores again.

"I expect that our standard footprint would be a C-17 with a PJ alert team and all of the equipment that's required, such as zodiac boats and other equipment they would need to deploy in an air-drop scenario to support a capsule that splashes down during a launch abort or descent contingency landing," said Commander McClure. "But it doesn't necessarily have to be a PJ team. If for some reason the guardian angel teams are extremely tasked, say due to contingency operations overseas, then we can secure other DoD capabilities that are similar, such as NAVY SEALS or NAVY divers, as long as they have the water and land

capability matched with some medical capability. The PJ's are the best force for that, but it doesn't have to be them."

The PJ's served shuttle well, and their "Superman" training makes them the best for the job of providing search and rescue, but Detachment 3 does not want to limit their options, so they are in the very early planning process of looking into alternative forces capable of securing capsules that can get to crews quickly in the event of an emergency. Two possibilities, according to Havel, are the Dept. of Homeland Security and the U.S. Coast Guard.

As for EFT-1, both McClure and Havel understand better than many the significance of the mission and offered their personal thoughts on what it feels like to be a part of it all.

"It's pretty exciting, I'd like to think we are offering the level of support that's expected of the DoD, and I think we'll come through," said Havel. "I'm personally very excited about the mission."

"I think at some point every kid thinks about, dreams about, being an astronaut or being a part of the space program," added McClure. "I think, without being an astronaut this is the next best thing, being involved with the recovery of their spacecraft. All the training, briefings and meetings leading up to that really get us where we need to be. It's been a lot of work, it's been a long time coming, and I'm really proud of the men and women of Detachment 3, they've done a really great job in preparation for this mission."

45th Space Wing, Public Affairs – 5 December 2014

45th Space Wing supports NASA's Orion EFT-1 mission atop Delta IV Heavy

CAPE CANAVERAL AIR FORCE STATION, Fla. -- The U.S. Air Force's 45th Space Wing provided Eastern Range support for NASA's successful launch of their Exploration Flight Test-1 mission as a United Launch Alliance Delta IV rocket roared into space with the Orion spacecraft atop it from Launch Complex 37 at 7:05 a.m. Dec. 5, 2014.

The largest of the Delta IV family, the heavy version features three Common Booster Cores mounted together to form a triple-body rocket.

Airmen, Air Force civilians and contractors from throughout the 45th Space Wing provided vital support, including weather forecasts, launch and range operations, security, safety, infrastructure, medical and public affairs. The wing also provided its vast network of radar and communications instrumentation to facilitate a safe launch on the Eastern Range.

According to NASA, the Orion spacecraft, built by Lockheed Martin, is designed to take humans farther than they've ever gone before. Orion will serve as the exploration vehicle that will carry the crew to space, provide emergency abort capability, sustain the crew during the space travel, and provide safe re-entry from deep space return velocities.

The Orion Flight Test will evaluate launch and high speed re-entry systems such as avionics, attitude control, parachutes and the heat shield.

In the future, Orion will launch on NASA's new heavy-lift rocket, the Space Launch System.

More powerful than any rocket ever built, SLS will be capable of sending humans to deep space destinations such as an asteroid and eventually Mars. Exploration Mission-1 will be the first mission to integrate Orion and the Space Launch System.

"What a thrill and tremendous opportunity for all members of Team Patrick-Cape to play a very active -- and vitally important role -- in this historic mission," said Brig. Gen. Nina Armagno, 45th Space Wing commander.

"The 45th Space Wing is proud to participate with NASA and our mission partners on a successful mission from our storied Cape Canaveral Air Force Station," she said. "Here at the 45th Space Wing, we assure access to space, and this mission is a testament to all the hard work and teamwork that culminated in a safe, successful launch. Congratulations to all on a job well done."

This Delta IV Heavy mission will take the Orion spacecraft to the highest orbit for a spacecraft designed for humans since the Apollo Program, then deliver it to a re-entry location for splashdown and recovery off the California Coast, where members of Detachment 3, Human Space Flight Support Directorate, located at Patrick Air Force Base, will help with the recovery of the Orion capsule.

Among the missions, Detachment 3 is responsible for (now and in the future) are astronaut rescue and recovery, landing site support, payload security, medical, airlift/sealift, and other support services as required.

"There are probably a lot of people who aren't aware the Air Force is involved in the capsule recovery process, but that's been one of our unit's major missions for years, especially during the Apollo years," said Lt. Col. Mike McClure, HSFS Detachment 3 commander.

"We will have members of our team in the Human Space Flight Support Operations Center here at Patrick, and also have our people on the ship -- the USS ANCHORAGE -- that is conducting the recovery of the Orion Crew Module. We are very much engaged in the recovery process and have been training for this mission for the past 18 months."

The Commander of U.S. Strategic Command (CDRUSSTRATCOM) is the DOD Manager for Human Space Flight Support (HSFS) Operations and has responsibilities and authorities to validate operational support resources requested by NASA. As the DOD Manager's primary staff, Detachment 3 is the principle DOD interface for NASA's HSFS programs.

But, for McClure, there is something personal about leading his team members and being a part of such a historic mission.

"I think at some point every kid looks to the sky and dreams about being an astronaut, or being involved in the space program. That's what we are doing here, and I could not be more proud of our team or their ability to do this mission," he said. "We're living the dream."

Spokane Journal of Business- 19 May 2016- By LeAnn Bjerken

Astronauts review Fairchild's water survival training

NASA interest tied to new ocean-landing capsules

The National Aeronautics and Space Administration sent three astronauts to Fairchild Air Force Base last month to review the U.S Air Force's Survival, Evasion, Resistance, and Escape Water Survival Course, known as SERE.

A recent article in the Fairchild Flyer, the base's newspaper, says NASA's interest in the program relates to its development of a new rocket capsule called the Orion. Because Orion's reentry into

the Earth's atmosphere likely will involve landing in the ocean, astronaut crews will need to be trained for water landing and for interaction with rescue personnel sent to retrieve them.
"The NASA astronauts visited because they are currently reviewing their own water survival program, and wanted to see and evaluate how we conduct our water survival training. The best way to do that is by participating," says Lt. Col. Erik Haynes.

Haynes is the operations officer for the 66th Training Squadron at Fairchild, which is responsible for all SERE training.

"The Air Force has been conducting these courses for 60 years or more at several locations," he says. "However, last August, we consolidated training, so that Fairchild is the sole location for all such Air Force training."

Haynes says the 66th Training Squadron conducts three survival courses: basic water survival, ejection/bailout survival, and a helicopter survival course. The majority of course participants are Air Force aircrew members, and each week a total of about 150 people participate in the three courses.

He says basic water survival is a two-day course, while the ejection/bailout and helicopter survival courses run for one full day. Participants normally only need to go through one course, but depending on the type of aircraft they operate, may need to go through two of the three.

Haynes says the three visiting astronauts, Col. Michael Fincke, Maj. Anne McClain, and Dr. Michael Barrett, participated in all three SERE courses, and hosted a professional development event for the base's airmen.

"We don't often get visits from astronauts so it was kind of a neat presentation, very interesting and educational," he says.

During their visit, the three astronauts also made a stop at the Michael Anderson Elementary School on base, named for the Spokane astronaut who perished on the space shuttle Columbia in 2003.

Lt. Col. Christopher C. Tacheny, chief human space flight support for NASA at Johnson Space Center in Houston, confirmed the organization is interested in the potential of the program to train astronauts in water landings.

“Within the next several years, the U.S. will be launching commercial space vehicles into space from U.S. soil,” says Tacheny. “Most of these missions will have a water landing recovery, which facilitates our purpose for coming to Fairchild.”

Tacheny, who was formerly a 66th Training Squadron Commander at Fairchild and designed the base’s training pool, says he is putting that experience to work for NASA.

“My experience in survival training has proven to be very beneficial to NASA as they reevaluate their astronaut training program,” he says.

According to Tacheny, NASA has sent several astronauts to participate in the SERE program, but generally the organization sends engineers working in its landing-and-recovery office or other training development offices.

He says the visiting astronauts might make a return visit to Fairchild for a follow-up event this summer, although plans for second visit haven’t been finalized.

DACM Corner- July 2016- Page 10- By Anthony Devino

2015 DON T&E awards ceremony honors Navy & Marine Corps testers

The DON T&E Working Integrated Product Team (WIPT) Award was presented to the Amphibious Combat Vehicle (ACV) 1.1 T&E WIPT, PEO Land Systems. The ACV T&E WIPT distinguished itself through the conscientious participation of all stakeholders and aggressive management of a Test Evaluation Master Plan (TEMP) development schedule. The open communications and collaborative environment established by team leadership resulted in the early identification and adjudication of risks and issues. The team's diligence and dedication resulted in the conclusion of TEMP activities in less than a year and achieving service approval in less than 39 days. The T&E WIPT's efforts support the timely delivery of expeditionary protected mobility and support lift to the Marine Corps as part of a Ground Combat Element Task Force.

Presented to the members of the Amphibious Combat Vehicle Survivability T&E WIPT: Lou Ferguson, Peter Ostrom, Mitch Gallant, Albert Hanneman, MGySgt Chris Banus, Ken Lardie, Col Wendell Leimbach, LtCol Brian Strack.

Parabolic Arc.com- 18 February 2017- By A1C Ryan Lackey

NASA Astronauts Take Water Survival Training With U.S. Air Force

FAIRCHILD AIR FORCE BASE, Wash. (AFNS) — Four NASA astronauts trained with U.S. Air Force Survival School instructors in water survival and recovery Feb. 10, at the base fitness center pool here.

The astronauts underwent the training in preparation for anticipated test flights of the new commercially made American rockets, the Boeing CST-100 Starliner and the SpaceX Dragon.

“It’s a different space program now,” said Sunita Williams, a NASA astronaut. “We’re flying in capsules instead of shuttles, and they can land anywhere. You never know when an emergency situation may happen, so we’re grateful to get this training.”

The astronauts were put through the paces of bailing out from a simulated crash landing in water. They learned to deploy and secure a life raft, rescue endangered crewmembers, avoid hostile forces and experience being hoisted into a rescue vehicle.

“This is the first time we’ve gotten a complete environmental training experience, lots of wind, waves and rain,” said Doug Hurley, a NASA astronaut. “This is a great way to experience how bad it can get and how important it is to be prepared.”

The astronauts opted to join in with more than 20 water survival course students, despite being given the option to train alone.

“They didn’t want to train on their own,” said Lt. Col. Chas Tacheny, the chief of NASA Human Space Flight Support-Houston. “They wanted to train with the group because some of these people may one day be preforming search and rescue for them.”

Other NASA astronauts visited the survival school last year in an effort to research and test the viability of its training course and facilities. The astronauts liked what they experienced and NASA has since developed its training partnership with the schoolhouse.

“The SERE instructors are advising us in water recovery,” Behnken said. “These experts are the most experienced I’ve ever seen. They are able to spot holes in our training and fill the gaps.”

NASA's Neutral Buoyancy Laboratory in Houston possesses a large water training facility built to simulate weightless conditions during space walks, but it's not properly equipped to simulate water surface conditions for recovery training.

This training is vital for future NASA mission recovery operations, said Behnken. We are working with the experts here to eventually replicate the survival school water survival training equipment at the NBL facility in Houston.

"I'm impressed by the use of the facilities here," Williams said. "It's a small space, but they really manage to simulate all kinds of weather conditions and situations we might experience during a water landing."

The survival school originally had a separate detachment at the Naval Air Station Pensacola, Florida, where it conducted water survival training in open ocean waters. The training was brought to Fairchild Air Force Base in August 2015 in an effort to save time and money by consolidating training at one location.

"It was a good decision for the Air Force to streamline our training efforts by moving all portions of water survival training here," said Col. John Groves, the 336th Training Group commander. "However, the fitness center pool was designed for recreational use and isn't suited to the ever increasing demands placed on it by our training programs. Bottom line, we owe it to our Airmen and mission partners such as NASA, who rely on our unique training capabilities, to have a purpose built water survival training facility."

NASA astronauts bail out of a crash simulator during water survival training. The survival school used a crane apparatus to simulate an aircraft and is equipped with water, sound and light effects. (A1C Ryan Lackey)

106th Rescue Wing Public Affairs – 24 March 2017
- By Capt. Michael O'Hagan

Det. 3 supports NY ANG pararescuemen test of Orion spacecraft rescue support equipment

MARINE CORPS BASE HAWAII -- When NASA's Orion spacecraft returns from its missions beyond the moon, the crew module will splash down in the ocean just like the Apollo capsules that took men to the moon and back in the 1970s.

The space agency needs to make sure the rescue support equipment for the Orion crew module is practical, so NASA's Neutral Buoyancy Laboratory and the Department of Defense Human Space Flight Support Office turned to the New York National Guard's 106th Rescue Wing to help test it out.

From February 27 - March 10, 43 members of the wing teamed up with the Hawaii Air National Guard's 204th Airlift Squadron to practice using the equipment NASA designed to support the crew following deep space missions.

Pararescuemen from the 106th Rescue Wing's, 103rd Rescue Squadron jumped from the C-17s flown by the Hawaiian Air Guard with the NASA gear configured on a rescue boat and practiced inflating it and working with it while floating in the Pacific Ocean.

"That's the major objective; how do we get that stuff into that boat and make it fly out of the plane and land on the target appropriately?" said Brent Maney, a former Air Force pararescueman who now works with DoD's Human Space Flight Support office.

The Human Space Flight Support office, known as Detachment 3 of the 45th Operations Group at Patrick AFB, Fla., coordinates military support to the space program.

A key piece of the "stuff" on the rescue boat is an inflatable platform known as a "front porch". The front porch is designed to attach to the capsule and provide a stable area where astronauts can shelter and receive medical attention if necessary following the splashdown of their spacecraft when pararescuemen are called in.

NASA has one prototype front porch platform which the New York Air Guardsmen tested in the waters off Marine Corps Base Hawaii.

The New York and Hawaii Air National Guard conducted nine jumps during three flights to test out the NASA support equipment.

Two boats—known as a "hard duck" to pararescuemen because they are dropped inflated and fully loaded—were accompanied out of the Hawaiian Air Guard C-17 by six jumpers. Each team included 103rd Rescue Squadron pararescuemen and Combat Rescue Officers, as well as pararescuemen of 88th Test and Evaluation Squadron, a unit which tests and develops rescue systems and equipment.

Each boat was fully loaded with rescue gear and a motor. The front porch itself weighed in at about 350 pounds. That boat was first out of the plane on each flight.

The 106th Rescue Wing had already planned to send a team from the 103rd Rescue Squadron to Hawaii to participate in the Hawaii National Guard's annual Sentry Aloha air defense exercise. NASA took advantage of the scheduled event to use the Airmen's expertise to test the rescue gear, said Tim Goddard, the flight lead for NASA's Neutral Buoyancy Lab, who designed the equipment.

The Neutral Buoyancy Lab trains astronauts in spacewalking procedures in a 6.2 million gallon swimming pool where they

simulate a weightless environment. Training on employing the Orion capsule floatation systems was done there as well.

Initial tests of Orion recovery systems were conducted by Navy divers and ships. But the spacecraft might have to land someplace where the recovery ships aren't, so NASA also needed to test the ability of the equipment to be dropped from a plane during a "contingency" rescue, Goddard explained.

"It's the first time we have ever done it air dropping," Maney said. "Because of its size and weight, we need to see how it handles."

"The PJs (pararescue jumpers) drop these boats all the time, but they haven't dropped these boats with this equipment in them. So they've got to figure out how this large front porch fits into that boat along with all the gear the guys normally carry on a rescue mission," he explained.

During an actual mission, the pararescuemen and the C-17 crew would work together to drop the team near the floating Orion crew module, which looks like a larger version of the gum-dropped shaped Apollo capsule.

For these missions the Airmen aimed at a float made up of Crew Module Uprighting System floatation bags. Five of these airbags, which look like beachballs, inflate when the Orion crew module splashes down to keep the capsule from floating nose down in the ocean.

To make the target easier to find, a Jetski circled the target floats.

Once the jumpers hit the water they manned their boats, approached the target and inflated and deployed the front porch. Goddard and Maney observed and evaluated each mission.

For the 103rd Rescue Squadron Airmen, the mission in Hawaii was a return to manned spaceflight support missions like those

the 106th Rescue Wing conducted during the years NASA flew the Space Shuttle.

The New York Air Guardsmen provided on call rescue support during 109 Space Shuttle launches from the Kennedy Space Center.

'It's great to be here making history, with NASA returning to the manned space program," said Lt. Col. Kerry McCauley, the commander of the 103rd Rescue Squadron.

"We are excited to be part of it, to build the tactics, techniques and procedures that are going to return us to manned spaceflight personnel rescue in the future,' McCauley added.

Major Sean Boughal, of the 103rd Rescue Squadron, saw the opportunity for the pararescuemen to turn their scheduled Sentry Aloha training into a joint training opportunity with NASA, the Det. 3 and the 88th.

This was a great way to accomplish already scheduled training and at the same time take first steps in building relationships with NASA and Det. 3, Boughal said.

But it's not just NASA's Orion spacecraft that could require help from Air Force pararescue teams.

Both Boeing and the SpaceX company are developing their own, commercially launched space vehicles. The hope is that the equipment tested in Hawaii could be used to support those space vehicles as well, said Major Christopher Slauson, the Chief of Det. 3's commercial crew division.

"We're practicing worldwide contingency rescue… what we're doing right now is building blocks not only for commercial crew but for any human spaceflight program that requires worldwide contingency rescue," he explained.

Air Force pararescue teams have been involved in spacecraft rescue since the early days of the Mercury program starting in 1958, Maney said. Pararescue jumpers are trained in survival, medical procedures and even infiltration so they had the skills needed to rescue an astronaut.

In March 1966 the Air Force pararescuemen were called into action when the Gemini 8 spacecraft, piloted by moonwalker Neil Armstrong, experienced a critical failure and had to make an emergency reentry near Okinawa. The original recovery zone was in the Atlantic.

Three pararescuemen jumped into the ocean from a C-54 just after the spacecraft splashed down, affixed a floatation collar and stayed with the two astronauts on board Gemini 8 until a Navy ship arrived.

The fact that astronauts may have to land in the open ocean and not where planned, is what required the Det. 3 and 88th Test and Evaluation Squadron to get NASA and pararescuemen involved in the testing and evaluation process Goddard said.

“The key thing I am looking to get from this operation, from the New York Air National Guard, is their expertise in rescue in open water environment,” explained Goddard. “NASA doesn’t currently have a lot of that expertise.”

He wanted the pararescuemen to work with the prototype equipment so he can take their suggestions and incorporate them into them into the final design of the gear, Goddard added.

“So when they get the real hardware, on the actual day, it’s the hardware they’ve helped develop, they’ve tested and they’ve practiced on, “Goddard said.

Story by Capt. Michael O'Hagan, 106th Rescue Wing and Eric Durr, New York State Division of Military and Naval Affairs

America's NAVY: Forged by the sea- 25 January 2018- By Petty Officer 3rd Class Natalie Byers

Navy and NASA Complete Underway Recovery Test

SAN DIEGO (NNS) -- San Antonio-class amphibious transport dock USS Anchorage (LPD 23) successfully completed test recovery operations of NASA's Orion test article, Jan. 23.

The Underway Recovery Test-6 (URT-6) is part of a U.S. government interagency effort to safely retrieve the Orion crew module, which is capable of carrying humans into deep space.

This marks the fourth completion of a URT aboard Anchorage. NASA engineers worked alongside Sailors from the Anchorage, the San Antonio-class amphibious transport dock USS New Orleans (LPD 18), Special Boat Team 12 and Navy divers from Explosive Ordinance Disposal Mobile Unit 3 to test recovery operations of the Orion test article. Tests were conducted in varying sea states, during the day and at night.

"Our crew has actually been training for several months closely with NASA on everything from planning conferences to onsite training to be ready for the mission," said Capt. Dennis Jacko, Anchorage commanding officer. "I think the ship and the crew are doing a great job for a historic tasking we have added to a very busy schedule as we prepare for deployment. Everybody stepped up and provided the best support with our NASA partners for a very successful test."

With their main role of conducting amphibious operations, San Antonio-class ships have unique capabilities that make them an ideal partner to support NASA's mission. One of the more important capabilities is the ship's ability to recover the test capsule using the ship's well deck, which was designed to launch and recover amphibious craft. Anchorage also has the ability to carry and deploy multiple small boats to aid in the recovery

process of the capsule and contains an advanced medical facility ideal for treating the returning astronauts.

URT-6 consisted of releasing the test capsule from the well deck, then carefully maneuvering the ship alongside the capsule at slow speed. Once the test article was far enough from the ship, the lines attaching the capsule to the ship were released. Then, divers attached a stabilization ring designed by NASA that would help in sustaining the astronauts in the capsule for up to three days. Divers then removed the collar, attached lines from the small boats to steady and guide the capsule toward Anchorage, where Rigid Hull Inflatable Boats (RHIB) would then assist in attaching lines from a NASA-designed winch which then hauled the capsule into the well deck.

The whole recovery is a high risk evolution, especially when the capsule is being towed closely behind the ship, but NASA took our inputs and modified the equipment for this URT mission," said Chief Petty Officer Beau Lontine, a Navy diver assigned to Explosive Ordnance Disposal Mobile Unit 3. "There are so many things that could go wrong if just one person isn't paying attention. We've conducted training with the hardware and rigging to allow for a safe recovery of the capsule. It might seem like a basic recovery, but it is far from a simple evolution."

The tests allowed NASA and the Navy to continue to demonstrate and evaluate the recovery processes, procedures, hardware and personnel in real, open-ocean environment before conducting actual recovery operations.

Also aboard Anchorage to observe the URT for the first time is NASA Astronaut Stephen Bowen, who is also a retired Navy captain.

"I'm very pleased with what I've seen so far," said Bowen. "The reason you do this is to better understand. You realize you don't

have all the answers right now. There will be changes made; things are going to evolve, and they should get better over time."

URTs have been conducted since 2014 and will continue to be until NASA engineers believe the recovery process is without error. The next URT, URT-7, is scheduled to be on the San Antonio-class amphibious transport dock USS Somerset (LPD 25) in October 2018 when NASA will conduct the validation and verification of the recovery hardware.

According to NASA's Recovery Director Melissa Jones, future tests will ensure NASA and the Navy arrive at a safe and more efficient way to recover the capsule for an early 2020's mission involving a flying crew.

"Testing this week went very well," said Jones. "We've actually shaved about 15 minutes off our timeline already with one run, which is important to us because when we recover crew, we have to get them out as quickly as possible."

The Orion spacecraft is designed to meet the evolving needs of our nation's deep space exploration program for decades to come. It will serve as the exploration vehicle that will carry the crew to space, provide emergency abort capability, sustain the crew during the space travel and provide safe re-entry from deep space return velocities.

Anchorage is homeported in San Diego and is part of U.S. 3rd Fleet. Third Fleet leads naval forces in the Pacific and provides realistic, relevant training necessary for an effective global Navy.

Air Force Space Command PA- 29 October 2018- By TSgt. Kelly Goonan

920th RQW Airmen prepare for human spaceflight

PATRICK AIR FORCE BASE, Fla. (AFNS) -- To prepare for the arrival of human space flight tests next year, the 920th Rescue Wing along with the DoD Human Space Flight Support Office, NASA and SpaceX personnel joined forces to plan and execute a realistic medical evacuation exercise at Kennedy Space Center in Florida, Oct. 25.

Their mission was to respond to a simulated emergency incident that required DoD support and expertise. The exercise included twelve participants role-playing various injuries after a launch pad emergency. The DoD HSFS Office planned and coordinated 920th RQW assets which included two HH-60G helicopters from the 301st Rescue Squadron, four pararescuemen from the 308th RQS and two flight surgeons from the DoD HSFS Office.

This exercise revalidated the response time of the Airmen and aircraft from Patrick Air Force Base, to Kennedy Space Center in the event of a catastrophic, life-threatening occurrence within the capsule of a human spaceflight launch. This was also the first time the DoD, NASA and commercial providers have exercised this type of event utilizing live patients and the full array of air assets, according to HSFS.

“With our partners at NASA, these exercises are important in developing a foundational understanding of our capabilities and integrating our procedures to better the mission. While today’s exercise was generic, we will continue to build into more advanced rescue scenarios,” said Staff Sgt. Gregg Forshaw, 308th Rescue Squadron pararescueman. “Today is a great example of how we, as Citizen Airmen, provide our expertise, while reflecting on our long history of supporting the NASA.”

Pararescuemen hold a unique position in combat-search-and-rescue missions. Each pararescueman is trained and equipped to

conduct both conventional and unconventional recovery missions. Their motto, “That others may live,” and their trauma medicine capabilities combined with battlefield skills make them unique within the special operations community.

Since the inception of the National Aeronautics and Space Act of 1958, the DoD has provided Human Space Flight Support to NASA.

“The HSFS Office has provided support to NASA's Mercury, Gemini, Apollo, and Space Shuttle programs,” explained Brent Maney, HSFS Space Medical Contingency Specialist. “It continues to provide support for Soyuz, Orion, and commercial crew programs (CCPs) because we’re the principle liaison for human spaceflight support operations.”

Maney explained that the DoD HSFS Office assists CCPs with unique DoD capabilities ensuring the global rescue and recovery of NASA and NASA-sponsored astronauts.

“It’s a unique orchestra between NASA, the Air Force Reserve and active duty; to see everything come together,” Lt. Col. Dave Mahan, DoD HSFS CCP division chief said. “The 920th has supported human spaceflight for the last 50 years and we look forward to continuing those trusted relationships long into the future.”

For every human mission launching from Kennedy Space Center for the next fiscal year, 920th RQW Airmen will be present to not only clear the range, but also remain on standby in the event of a mishap.

“Our hope is to not ever be needed,” said Lt. Col. Paul Carpenter, 301st Rescue Squadron pilot. “But we’re ready to respond if something were to happen during any launch.”

Carpenter explained that aircraft and crews as well as teams of pararescuemen will be pre-positioned, ready and waiting should something happen that necessitates rescue operations.

“I know that NASA has had a long relationship with the 920th and 45th Space Wing when we were operating shuttles here and we’re looking forward to working with them again,” said Kjell Lindgren, NASA astronaut. “Being able to rely on their assets, people and professionalism really puts our minds at ease that we are all on the same team as we are continuing to march forward with human space exploration.”

When the final mission of the American Space Shuttle Program, Space Transportation System - 135, launched in July 2011, it marked the end of an era not only for NASA but also for the 920th Rescue Wing Reserve Citizen Airmen who had served as guardians of the NASA astronauts for five decades. That seven-year hiatus will come to an end next summer.

Patrick is being used as the primary staging location due to its vicinity to Kennedy Space Center and the support provided by Patrick AFB. While rescue is the primary mission of the rescue forces, they can be called on for medevac if the need arises. The exercise was proof of concept.

With highly trained rescue personnel, the 920th RQW remains ready to support the next era of human space flight, willing to meet the needs of NASA’s unique, evolving missions.

Commander United States Pacific Fleet PA- 6 November 2018
- By U.S. 3rd Fleet PA

Navy and NASA complete Underway Recovery Test 7

SAN DIEGO - The San Antonio-class amphibious transport dock ship USS John P. Murtha (LPD 26) successfully completed test recovery operations of NASA's mock Orion capsule, Nov. 5.

The Underway Recovery Test-7 (URT-7) is part of a U.S. government interagency effort to safely retrieve the Orion crew module, which is capable of carrying humans into deep space.

This marks the first completion of a URT aboard John P. Murtha. NASA engineers worked alongside Sailors from the John P. Murtha, Special Boat Team 12, and Navy divers from Mobile Diving and Salvage Unit 11 and Explosive Ordnance Disposal Mobile Unit 3 to test recovery operations of the Orion test article. Tests were conducted throughout the day and night in varying sea states.

"John P. Murtha was tasked to assist NASA with their seventh Underway Recovery Test. Our crew executed of every assignment given to them flawlessly and their recovery-at-sea experience and dedication directly contributed to our overall mission success," said Capt. Tony Roach, commanding officer USS John P. Murtha. "I am continually impressed and proud of the outstanding efforts of my crew members during each and every evolution."

San Antonio-class ships have distinctive capabilities essential to NASA's mission. One of the more important capabilities is the ship's ability to recover the test capsule using the ship's well deck, designed to launch and recover amphibious craft. John P. Murtha also has the ability to carry and deploy multiple small boats to assist in the recovery process of the capsule, and an advanced medical facility ideal for treating returning astronauts.

The tests allowed NASA and the Navy to continue to demonstrate and evaluate the recovery processes, procedures, hardware and personnel in a realistic open-ocean environment before conducting actual recovery operations.

“All test objectives were accomplished as planned,” said Melissa Jones, NASA Landing and Recovery director. “The success of this week would not have been possible without the positivity and experience of the John P. Murtha crew.”

John P. Murtha is homeported in San Diego and is part of U.S. 3rd Fleet.

Commander, U.S. Third Fleet leads naval forces in the Pacific and provides realistic, relevant training necessary for an effective global Navy. They coordinate with Commander, U.S. Seventh Fleet to plan and execute missions based on their complementary strengths to promote ongoing peace, security, and stability.

45th Space Wing Public Affairs – 20 December 2018- By A1C Zoe Thacker

45 OG Det 3 prepares for human spaceflight return

CAPE CANAVERAL AIR FORCE STATION, Fla. -- When space shuttle Atlantis' STS-135 mission lifted off from Kennedy Space Center on July 8, 2011, emotions were high. A history book, penned by NASA, spanning 30-years of manned space shuttles was now closed. Few were certain when the United States would send an astronaut into space again, if ever.

Years have passed and American astronauts have been sent to the International Space Station onboard Russia's Soyuz spacecraft, the current human spaceflight transportation vehicle, but the U.S. is gearing up to bring human spaceflight back to American soil. Human spaceflight could return to the U.S. as early as 2019 and a unit within the 45th Space Wing at Patrick Air Force Base, Fla., will play a direct role in the recovery and rescue of landing astronauts.

As astronauts prepare to land back on Earth from space, one unit is responsible for their recovery and rescue, Detachment 3 from the 45th Operations Group. Det 3 is the Department of Defense's office of primary responsibility for all aspects of human spaceflight recovery. This includes the development of rescue tactics, training and equipping of forces, real world execution, and overall command and control rescue aspects of the human spaceflight missions.

"We work with NASA and the commercial crew providers, Boeing and SpaceX, to develop procedures for how to respond to and rescue NASA-sponsored astronauts," said Lt. Col. Michael Thompson, Det 3 commander. "For the last four years we've been working hand-in-hand with the providers to ensure that we can rescue astronauts anywhere in the world at any time."

Det 3 is comprised of pilots, combat systems officers, Pararescuemen, combat rescue officers and survival, evasion,

resistance and escape specialists. They work hand-in-hand with various rescue squadrons nationwide to assure Pararescuemen, also known as Guardian Angels, are always available to recover astronauts from space capsules in the event of a contingency during a launch or landing, and all phases in between.

“When it comes to the rescuing of American astronauts, there is no commercial force available that can go anywhere in the world to rescue astronauts and provide medical aid within 24 hours,” said Brandon Daugherty, Space Medical Contingency Specialist at Det 3. “There is only one force that is able to rescue our astronauts whether they be in the deepest oceans or the highest mountains and that’s the Guardian Angel forces and Detachment 3. If you couple that with our aircraft that can reach anywhere in the world, you have a team that’s really hard to beat.”

As technology has progressed through the years, astronauts are no longer going to space in shuttles – but in space capsules. While exiting Earth in a space shuttle was almost like flying a plane directly into the atmosphere, landing back on Earth in a capsule is much different. For example, re-entry for a Soyuz capsule, according to some astronauts, is often described like a series of car crashes.

Once the capsule re-enters Earth’s atmosphere, it lands in the ocean. Det 3 is not alerted for normal recovery operations. However, if there is a contingency, Det 3 is alerted and their team rallies to recover the astronauts, who are potentially incapacitated from the atmospheric changes and force of the landing.

Det 3, alongside NASA, SpaceX and 920th Rescue Wing personnel, held an exercise on Dec. 12, 2018 at Patrick AFB and Cape Canaveral Air Force Station. It included a full simulation of a rescue and recovery effort that rehearsed astronaut recovery operations from start to finish.

“For this exercise we simulated a rocket launch that would result in a return of astronauts to Earth,” said Daugherty. “We gathered our Det 3 personnel, the 920th’s HH-60 Pave Hawk helicopter pilots and HC-130 Hercules pilots as well as their Guardian Angels and, briefed them on the simulated launch, the astronaut information and the schedule for the day.”

Next, the simulation began. A group of Det 3 personnel gathered in the Support Operations Center, essentially a command and control center, and sent word to the crew participating in the exercise that astronauts landed off the coast of the Cape. The postured forces then went to determine how to rescue the astronauts, Daugherty explained.

“Our Pararescuemen boarded the HC-130’s here at Patrick and flew to the designated exercise area at the Cape,” said Daugherty. “They jumped from the aircraft into the water, along with several bundles of rescue supplies that were sent down from the plane as well. One of the bundles included what we call a ‘front porch’, which is an inflatable device, similar to a 20 man life raft, designed to provide a platform for medical response that is attached to the capsule.”

According to Daugherty, once all Pararescuemen and supplies landed safely in the water, the main objective of the exercise was to stabilize the capsule. The capsule was rigged with rescue materials dropped from a HC-130 and then pulled into the wind and waves to stabilize it so that the team was able to simulate pulling the astronauts out.

Exercises like these help test the rescue equipment, stabilization and recovery procedures, as well as how the team will operate in the event an astronaut is injured or incapacitated. With talk of a return to human spaceflight occurring soon – Det 3’s services will soon be needed more than ever.

"The next six to eight months will be very busy for us," said Thompson. "We have many other exercises planned with both Boeing and SpaceX and we're continuing to support the Soyuz mission. We have two or three more Soyuz returns prior to our own first crewed launches scheduled for next summer."

As the United States progresses further on its path toward a return to human spaceflight, it seems that the history books have reopened and a new chapter is being written. A chapter penned by Detachment 3, NASA and various commercial launch providers that are on the cusp of making human spaceflight on American soil possible again.

NASA Spaceflight.com - 23 April 2019 - By Chris Gebhardt

DoD practices Starliner at sea recovery for first time

In a critical first for Boeing's CST-100 Starliner capsule, the crew transportation vehicle is putting DoD and Air Force rescue teams through their paces as they seek to understand and refine what will be needed to rescue a Starliner crew from the capsule should an off-nominal landing in the water occur.

Starliner at sea rescue practice/process:

The test is a critical part of Starliner's certification to carry astronauts to and from the International Space Station.

SpaceX's Dragon capsule went through similar tests last year, and NASA has conducted similar exercises with its Orion spacecraft.

Starliner itself will nominally land on land in the American southwest, but in-flight aborts/off-nominal emergency returns from orbit will/could result in Starliner splashing down in the ocean.

Despite the planned difference in an off-nominal vs. nominal landing of Starliner, the equipment sea rescue personnel would use for Starliner is the same as it is for Dragon and Orion.
After Starliner splashes down in the ocean and members of the 304th Rescue Squadron reach the spacecraft, the first thing the team will assess is the orientation of the craft.

If Starliner has landed upside down or tipped upside down after landing, the first and foremost action will be the right the spacecraft.

This process was not described in detail, but Air Force Major Marcus Maris, DoD (Department of Defense) Human Space Flight Support Office Rescue Division Chief, and Captain Paul Fry, 304th RQS Assistant Director of Operations, iterated that the team – while novices for such a practice on Starliner – have practiced the basics of the procedure on both Orion and Dragon.

Moreover, part of today's test – this afternoon – will be purposefully capsizing the Starliner mockup so teams can practice the righting process.

Once the capsule is righted, or if it lands in the correct upright orientation, the next order of business would be for rescue teams to gauge the stability of the craft in the given sea states (wave heights, winds, etc.).

If warranted, the rescue team will deploy a stabilization collar around the base of Starliner to help control the craft during rescue operations.

The collar would be deployed by divers, wrapped around the base of Starliner, the orange cords/lines on the collar attached to the spaceship, and the collar then inflated using scuba tanks.
The rescue divers/team would use the same stabilization collard for Starliner as they will for Dragon.

The collars have differently colored cords/lines, with orange being used for Starliner and blue being used for SpaceX.

This was built into the design so that the rescue equipment is as standardized as possible between the three U.S. crew spacecraft.

Only Orion has a different stabilization collar simply because of how much larger its base is then Dragon's and Starliner's.

After the stabilization collar is attached, rescue teams will deploy and inflate the "Front Porch", a specially-built life raft that will deploy in front of Starliner's side hatch.

The Front Porch has enough room and can carry enough supplies (food, water, medical) to support 4 Starliner crewmembers and the 9-person rescue dive team for up to 72 hours.

Like the stabilization collar, the Front Porch for Starliner is the same as the one that would be used for Dragon and Orion off-nominal water landing rescues.
Once the Front Porch is deployed, crews will then open Starliner's side hatch and begin assessing and extracting the crew.

If for some reason the side hatch cannot be physically opened or cannot be safely opened to due water intrusion concerns from high seas, rescue teams can open the top hatch to reach and extract the crew.

The crew would then take refuge in the Front Porch life raft with the 9-member dive team to await evacuation back to a ship or land.

The first part of the test today went well and was conducted inside the middle basin at Port Canaveral on the Air Force-controlled side of the port.

Based on lessons learned from today's first test, Major Marcus Maris and Captain Paul Fry hope to proceed to open ocean tests by the end of this week.

Those open ocean tests will occur roughly 10 miles off shore of Cape Canaveral.

NASA at sea rescue requirements for Starliner, Dragon, and Orion:

While today's test was the first in-water practice run for Starliner at sea rescue, it represents a much larger DoD commitment to space crew rescue operations – universal procedures that would be followed for Starliner, Dragon, and Orion.

During ascent for Starliner, Dragon, and Orion, the 304th Rescue Squadron will have two teams stationed along the east coast of the United States, one at Patrick Air Force Base (just South of the Cape) and the other in Charleston, South Carolina.

The Patrick team, Rescue 1, will be responsible for on-pad aborts that place a capsule in the water or for aborts in the first couple minutes of flight that place the capsule within a 200 nautical mile zone from the Cape.

After that distance is exceeded, the Charleston crew (Rescue 2) would be responsible for rescue of a launch-aborting crew vehicle anywhere else across the Atlantic.

The third team, stationed in Hawai'i, (also part of Rescue 2) would be responsible for any after-launch immediate landing need or off-nominal Station return contingency that places a Starliner or Dragon in the Pacific.

If an off-nominal from orbit return occurred with splashdown in the Atlantic, an emergency ocean return within 200 nautical miles of Cape Canaveral would fall to Rescue 1.

Any other Atlantic splashdown would fall to Rescue 2 from Charleston because they have more powerful aircraft that could reach Starliner or Dragon or Orion quicker than the Patrick support craft.

Rescue 1 carries a requirement to have a crew en route back to land within 6 hours of splashdown.

Rescue 2 carries a requirement to have the hatch on a capsule opened within 24 hours of splashdown and a crew evacuated (via helicopter or ship) from the sea landing area within 72 hours of hatch open.

These sea rescue operations are led by the 45th Ops Group Detachment 3 – Human Spaceflight Support Office – at Cape Canaveral, in coordination with NASA.

The main diving rescue force is the 304th Rescue Squadron based in Portland, Oregon – which is part of the 920th Rescue Wing based at Patrick Air Force Base, FL.

Florida Today - 23 April 2019 - By Antonia Jaramillo

Boeing Starliner takes a dip near Port Canaveral for emergency team training

As the race to get astronauts to the International Space Station intensifies, so does the training required to safely get them back home – and the Space Coast is hosting much of that right here.

On Tuesday, a group of 15 rescue divers from the Air Force's 304th Rescue Squadron, part of the 920th Rescue Wing based at Patrick Air Force Base, gathered around a Boeing CST-100 Starliner capsule in the water near Port Canaveral. Several water-based exercises have been conducted, and more are planned in the Atlantic Ocean.

The exercises come during a tense period for progress toward the first launch of humans from U.S. soil since 2011. A SpaceX Crew Dragon capsule, the one that successfully launched to the ISS in March, was lost due to an explosion at the Cape. Teams were conducting test fires of its Super Draco engines at the time.

SpaceX and NASA are investigating the incident, and delays to its inaugural flight with crews are expected.

Though designed to land on land with astronauts after a run to the International Space Station, Starliner is undergoing the tests in the event of an emergency that would require an ocean splashdown. The Depart of Defense's Human Spaceflight Support Office is in charge of emergency recovery operations.

"What we're doing today is figuring out exactly how in the open ocean we're going to get all of our equipment there, how we're going to stabilize the capsule, get the astronauts out and then provide long-care treatment," Air Force Capt. Paul Fry, a 920th member, said.

Starliner recovery will be the subject of exercises off the Space Coast until April 27. NASA astronauts will eventually join, but currently, DoD members are being extracted from the capsule.

Boeing is currently targeting no earlier than November to launch astronauts on a United Launch Alliance Atlas V rocket to the ISS. The Cape's Launch Complex 41 will host the mission.

In the event of an emergency splashdown, astronauts will need to be retrieved from the capsule as soon as possible. Teams will use two NASA-developed pieces of equipment for the recovery: A stabilization collar and a "front porch."

The stabilization collar is a large, round orange ring similar to the ones used during the Apollo program. It serves as a flotation device for the capsule and helps ensure it stays upright. The "front porch" is similar to a lifeboat that sits near Starliner and provides immediate medical attention, if necessary.

Rescue divers and recovery teams will continue testing the equipment here for the next week or so.

"We're trying to figure out everything we're going to need," Fry said.

One of the main concerns for Starliner in the event of a splashdown is making sure the side door is above water, Maney said. The first thing teams will do is figure out how to raise the capsule, which can be done with the stabilization collar or lift bags.

In the event of an actual emergency, teams from Patrick AFB, Charleston, South Carolina, and Hawaii will be on-call regardless of weather conditions. The latter would be used for Pacific Ocean splashdowns.

On the launch front, meanwhile, SpaceX is still targeting next Tuesday, April 30, for the launch of a Falcon 9 rocket from the

Cape. An uncrewed Dragon capsule, which physically differs from Crew Dragon, will take thousands of pounds of science experiments and supplies to the ISS at 4:22 a.m.

NASA Spaceflight.com- 27 April 2019- By Chris Gebhardt

How to rescue Dragon, Starliner, and Orion crews at sea

In preparation for the return of crew launches from the United States, the Department of Defense, in coordination with the U.S. Air Force and rescue dive teams, have outlined how they would rescue the crews of a Dragon, Starliner, and/or Orion spacecraft should they abort into the sea or perform an off-nominal ocean landing.

The procedures are only in regard to rescuing a crew, with the recovery of the individual capsules being left to the respective agencies.

Generic procedures:

The outline of this plan came earlier this week while crews performed the first open water test of rescue operations for

Boeing's Starliner capsule in the middle basin of Port Canaveral, Florida.
That test was specifically to determine how the various rescue equipment would be connected to the Starliner and how the overall generic rescue procedures need to be modified or tweaked for Starliner as compared to Dragon and Orion.

Starliner was the third of the new vehicles to undergo such testing, which was carried out this week ahead of Starliner's anticipated flights later this year on an uncrewed Orbital Flight Test and a Crew Flight Test.

Per the generic rescue plan across all three U.S. crew vehicles, the practice and trainings – like the one this week – are meant to familiarize the Air Force and DoD rescue divers with how to "stabilize the capsule, get astronauts out, and then perform immediate care and treatment until [they can get] to a higher level of care." said Captain Paul Fry, 304th RQS Assistant Director of Operations based in Portland, Oregon.

The rescue procedures were developed between NASA and the DoD, with capsule-specific input from SpaceX for Dragon, Boeing for Starliner, and NASA for Orion.

While minor elements will need to be tweaked here and there for each capsule, the overall procedures are the same, as is the equipment that will be used.

As previously reported, the stabilization collar for Starliner and Dragon will be the same, with different colored cords noting which hookups go to which vehicle; however, the stabilization collar for Orion has to be different due to the larger size of Orion's base compared to the commercial capsules.

The front porch, conversely, will be the same for all vehicles.

The main difference, though, with the generic rescue plan has to do with Starliner – which is the only one of the vehicles with nominal land landings at the end of its mission.

Because of this, Starliner's hatch will ride lower to the waterline compared to Dragon and Orion. Thus, rescue of a Starliner crew will first and foremost involve assessing how the capsule is riding in the water and attaching lifting bags or airbags to the craft to help raise it higher in the water.

This would particularly be needed for inclement weather conditions during a potential Starliner crew rescue, as opening the hatch while the capsule is in its natural height above the waterline could permit water intrusion into the capsule – which needs to be avoided whenever possible.

Attaching these lifting bags and raising the Starliner further out of the water than how it naturally lands will, however, not always be a necessity. Should the capsule land in very calm conditions, it might not be necessary to raise the capsule higher in the water before opening the side hatch.

Day of launch process:
For launch abort and rescue operations, the 304th RQS will have three teams stationed around the world, a six-person team at Patrick Air Force Base, FL, just south of Cape Canaveral; a nine-person team in Charleston, South Carolina; and a nine-person team in Hawai'i.
The Patrick Air Force Base team will be tasked with abort rescues that occur within 200 nautical miles of Cape Canaveral – be it a pad abort or an In-Flight Abort in the first couple minutes of flight.

Under this scenario, the Patrick Air Force Base six-person team will have to reach the capsule, get the crew out, and have started back to land within 6 hours of the abort.

“For launch, we’ll be stationed and all our equipment will be on the aircraft and ready to go. We’re going to be in a 15-minute alert, sitting there ready to take off,” said Captain Fry.

“We’ll take off, and then as far as our actual deployment, once we get over sea and we can confirm that we’re actually looking at the capsule, then we’ll start throwing all our boats out and jump to it.”

The Patrick Air Force Base team will use either an HH-60 helicopter or a C-130 aircraft for their deployment to the rescue zone.

But for an aborting capsule that lands outside of the 200 nautical mile zone around Cape Canaveral, the Charleston, South Carolina, deployment would then be the primary response team.

The Charleston team will use a C-17 aircraft, faster and larger than the C-130, enabling them to reach downrange aborting capsules faster than the Cape Canaveral team once the 200 nm line is crossed.

The Hawai’i team will also use a C-17.

The Charleston team would be responsible for reaching a spacecraft anywhere beyond the 200 nautical mile limit of Cape Canaveral Air Force Station all the way across the Atlantic on a northeasterly Space Station launch trajectory to just off the coast of Ireland.

For Orion missions launching on much more easterly trajectories for lunar missions, the same 200 nautical mile rescue line would be observed, but it is important to note that the 200 nautical mile line is not a hard and fast limit.

Should a capsule abort and actually land 202 or 210 nautical miles downrange in the Atlantic, the Patrick team might still be the

ones to deploy as opposed to the Charleston team based on day-of assessments of how quickly a team could reach the capsule.

Based on where Starliner, Dragon, and Orion will enter their preliminary orbits, the next likely emergency landing location should an emergency occur in the first few moments after orbit insertion would be in the Pacific Ocean, at which point the Hawai'i team would be the responsible unit for rescue and recovery of a crew.

For the Charleston and Hawai'i teams, their rescue plan calls for them to be on site with the hatch to the capsule opened within 24 hours of splashdown.

"The 24-hour requirement is that these guys need to be there … and open the hatch within 24 hours," related Brent Maney, Space Medical Contingency Specialist for the Human Space Flight Support Medical/Rescue Division of the Department of Defense stationed with the 45th Operations Group, Detachment 3.

"The rationale for having the hatch open within 24 hours is because of the way the life support is set up. If the crew has to stay in the vehicle and can't get themselves out before [the rescue guys] get there, they only have a life cycle of about 24 hours."

For the Hawai'i rescue team, analysis shows that they could take anywhere between 4 to 12 hours to reach a capsule splashing down in the Pacific.

Right now, the Indian Ocean is not planned as an emergency landing location, but should that need to happen, the Hawai'i team would be the responsible rescue party.

Moreover, Captain Fry related that it is actually more efficient for the rescue teams to be stationed on land than it would be for them to be pre-positioned at certain locations in the ocean.

“We would not be quicker out in the ocean because the capsule could land anywhere. So if we’re in the ocean, it would take us significantly longer [to reach the capsule] than flying there,” related Captain Fry.

“You can only go maybe 20 knots with big ships, and we don’t own any of those. But the aircraft that we’re flying can go 300 to 400 miles per hour and just fly right to the capsule.”

Regardless of what team is deployed, the worst case scenario is if a capsule lands and flips upside down in the water, known as the Stable II configuration.

Stable I is when the capsule splashes down and remains upright.

Stable II happened twice during the Apollo program, after the Apollo 7 and Apollo Skylab 4 capsules splashed down and flipped upside down in the ocean.

The extra stress this puts on the crew is one of the first and foremost reasons to quickly right the capsule.

For the 304th rescue divers, the same lift bags they would use to raise a Starliner capsule farther out of the water to prevent water intrusion into its side hatch are the same devices they would use to right an Orion, Dragon, or Starliner capsule.

After this, the stabilization collar would be attached to the bottom of a capsule and then the front porch deployed in front of the side hatch.

The front porch is a specially built life raft for the new U.S. crew vehicle emergency rescue operations; it can support a 9-person team with a 4-person crew for up to 72 hours as they await a rescue ship or rescue helicopter for transport back to land.

It can also serve as a medical triage facility for any injured crewmember.

More so, an interesting element to these at sea rescues is the role weather could play.

For on-pad aborts or aborts shortly after liftoff, odds are the weather would be perfectly acceptable or at sea rescues or at least would clear quickly enough to meet the safety standards set by NASA, the DoD, and the various crew capsule programs.

But farther down range aborts along the ground track could result in a capsule splashing down in the middle of weather systems over the Atlantic.

In this particular case, pre-launch day-of considerations would have to be made by the Department of Defense and NASA as to what risk they are willing to accept should a crew capsule splashdown in one of these inclement weather areas during an abort.

These considerations range from a delay to launch to a delay to rescue for the safety of the rescue teams to sending the rescue teams out in potentially hazardous weather conditions.

The 304th rescue squadron itself also has the ability to make a call on weather conditions they believe are too dangerous for their teams to operate in.

“I’ve been in 15-20 foot seas doing training missions,” said Captain Fry. “But there are some weather constraints. For our parachute systems, we can’t parachute through lightning, and if it’s pouring down rain that would also affect our parachutes.

“Sea states [are also a concern]. If [they] get real big, we have to start weighing that risk and reward of ‘are we going to be able to survive going into that situation.’”

Brent Maney added, “There’s a whole risk mitigation process, and NASA and the DoD accept that risk. So one of the things our team goes through is that the day of launch, day of landing,

there's an entire process of looking at the global weather along the landing track and analyzing whether it's worth the risk.

"If the north Atlantic has a really nasty storm but here it's beautiful, the powers-that-be … might decide it's worth the risk to go ahead and do the launch, accepting that it could land in the north Atlantic and accepting that these guys might make a call that it's too rough.

"So it's just a risk mitigation process. It's all coordinated in advance."

Regardless of the weather, the team did make clear that their only concern is the rescue of the crew, not the recovery of the capsule.

This means that if a Starliner, Dragon, or Orion vehicle lands hundreds or thousands of kilometers downrange from its launch site, the rescue team would leave it floating by itself once their mission of recovering the crew is complete.

Recovery of the capsule would then fall to NASA for Orion, SpaceX for Dragon, and Boeing for Starliner.

45th Space Wing PA- 16 July 2019- By A1C Dalton Williams

45 OG Det 3 and Apollo 11: 50 years later

PATRICK AIR FORCE BASE, Fla. -- On July 24, 1969 at 11:49 a.m., astronauts Neil Armstrong, Buzz Aldrin and Michael Collins, landed in the Pacific Ocean after setting a milestone in human history.

After splashdown, personnel from the Department of Defense Manned Spaceflight Support Office (DDMS) swarmed the landing area and were able to safely recover all astronauts aboard the

Apollo 11 Command Module Columbia and transport them onto the aircraft carrier USS Hornet (CVS-12).

The successful recovery of crew, research and equipment was a result of hard work, planning and training accomplished by DDMS, which is now the 45th Operations Group, Detachment 3.

On August 10, 1959, a memorandum was signed establishing the DDMS and its duties to NASA. The office's responsibilities were to provide worldwide rescue and recovery of astronauts. They were also responsible for planning resources and personnel leading up to recovery missions.

"It was a logical marriage between the Department of Defense and NASA," said Brent Maney, 45 OG, Det 3 contingency specialist. "The DoD had the capability and experience to provide worldwide rescue and recovery of astronauts assisting with NASA operations."

In the lead up to the Apollo 11 mission, numerous training exercises were performed including U.S. Navy divers and U.S. Air Force pararescuemen.

Practicing astronaut recovery came with challenges. Fears of possible biohazards acquired during the Apollo 11 mission required both the recovery teams and astronauts to wear Biological Isolation Garments (BIGS) for protection. For further biohazard protection, all equipment and personnel were scrubbed down with a bleach solution making it hard to grasp anything, let alone rescue it.

Besides training, there was a significant logistical situation to tackle. How do you acquire and organize all the people and equipment to support Apollo 11? Two lifeguards in a paddle boat would not cut it. A mountainous amount of resources needed to be in place before July 24, 1969.

DDMS got to work preparing plans, orders, documents and recommendations. These would detail: the who, what, where, when and how to safely recover three American heroes in the Pacific Ocean.

Their personnel also had to decide on the number of ships needed for recovery operations, number of search and recovery aircraft needed, requirements for intricate worldwide communications systems and placement of medical teams.

Despite these challenges and because of how DDMS was established, they were able to easily access different branches of services to acquire the necessary personnel and resources for the mission.

DDMS traveled to NASA Mission Control in Houston, 24 hours prior to the launch to assume operational control of recovery forces and support the mission.

Because of DDMS's coordination and hard work, 6,927 personnel, 54 aircraft and 9 ships were able to support Apollo 11 operations and successfully recover the Apollo 11 crew.

"It's amazing to think that 50 years later we are still here providing worldwide recovery and support for human spaceflight operations," said Lt Col Michael Thompson, 45 OG, Det 3 commander. "50 years later, our office runs on the same grit and determination that got man on the moon."

Authors Note:

The above information was not entirely correct. The information/ answers compiled by Brent Maney and myself, then sent into the 45th PA office are as follows:

DDMS did not “Swarm” anything upon landing. DDMS/HSFS is the main facilitator in gathering all the forces/assets required to

support these missions. NASA tells us what they want to accomplish, and we set up everything in order to make it happen; like an event coordinator.

The chlorine solution did not making rescuing difficult. Everyone was in the raft when the solution was sprayed; however, the flotation collar and footing on the raft became quite slippery. The hatch issue was something completely unrelated. Furthermore, the spray was NOT used during rehearsals.

The famous photo of the USS Hornet, Helicopter 60, and the capsule was taken during a rehearsal with a mock capsule. Much like today's URTs, DDMS had the ships practice rescues while awaiting splashdown.

60 Years of Command

1959: Lt. General Donald Yates
1964: Lt. General Leighton I Davis
1965: Colonel Royce G Olson
1970: Colonel Robert A VanArsdall
1970: Colonel Kenneth J Mask
1972: Colonel Alan R. Vette
1975: Colonel John Sniegowski
1985: Colonel John Shults
1987: Colonel George D. Phillips
1992: Colonel Michael Shilkitus
1995: Colonel Ronald Dietz
1997: Colonel Tom Friers
2000: Colonel David Dingley
2004: Colonel John “JC” Cherniga
2006: Lt. Colonel James Nick Seaward
2008: Lt. Colonel Mike Tillema
2009: Lt. Colonel Sammy Pierce
2011: Lt. Colonel David Hamby
2013: Lt. Colonel Michael “Tank” McClure
2016: Lt. Colonel Jason Havel
2018: Lt. Colonel Michael Thompson