

## Antares Rocket Launch recorded on 44 1 Beyond HD DDR recorders Controlled by 61 1 Beyond Systems total

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The 1 Beyond ultra-reliable Event DDR and Storage design won the NASA contract to supply the world's largest HD-DDR event recorder which is critical to the new Antares Rocket countdown and launch control and safety.



**NASA Wallops Island VA Pad 0A.** Points of interest: the 4 tall poles in each corner of the launch pad are lightning arresters; the tall water tower is to dump cooling water with great force after the launch. The Control Center and 1 Beyond recording systems are off-island a safe distance from the launch site.

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### **NASA Recorder Project Requirements Overview:**

- **Record up to 44 HD Cameras simultaneously frame synchronized**
  - **Choice to select from several record video formats**
  - **Record countdown continuously for up to 36 hrs**
  - **Quickly select and playback any 10 cameras at any speed without stopping record**
  - **Access video for playback, editing immediately after Launch**
  - **Move all recorded video to a Storage Area Network (SAN)**
  - **Be ready to record again in 24 hours**
  - **Dual 24 tape LTO-5 LTFS Library archive capability added**
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### **Test Launch Update:**

The first Antares rocket test launch into space orbit was successfully completed on April 21, 2013 at 5PM. All rocket systems performed as planned and there was much celebration in the Control Room as the program will now move forward toward the goal of taking supplies to the International Space Station replacing the now retired Space Shuttle. The 1 Beyond systems (pictured below) also performed perfectly and there was much celebration at 1 Beyond!!!

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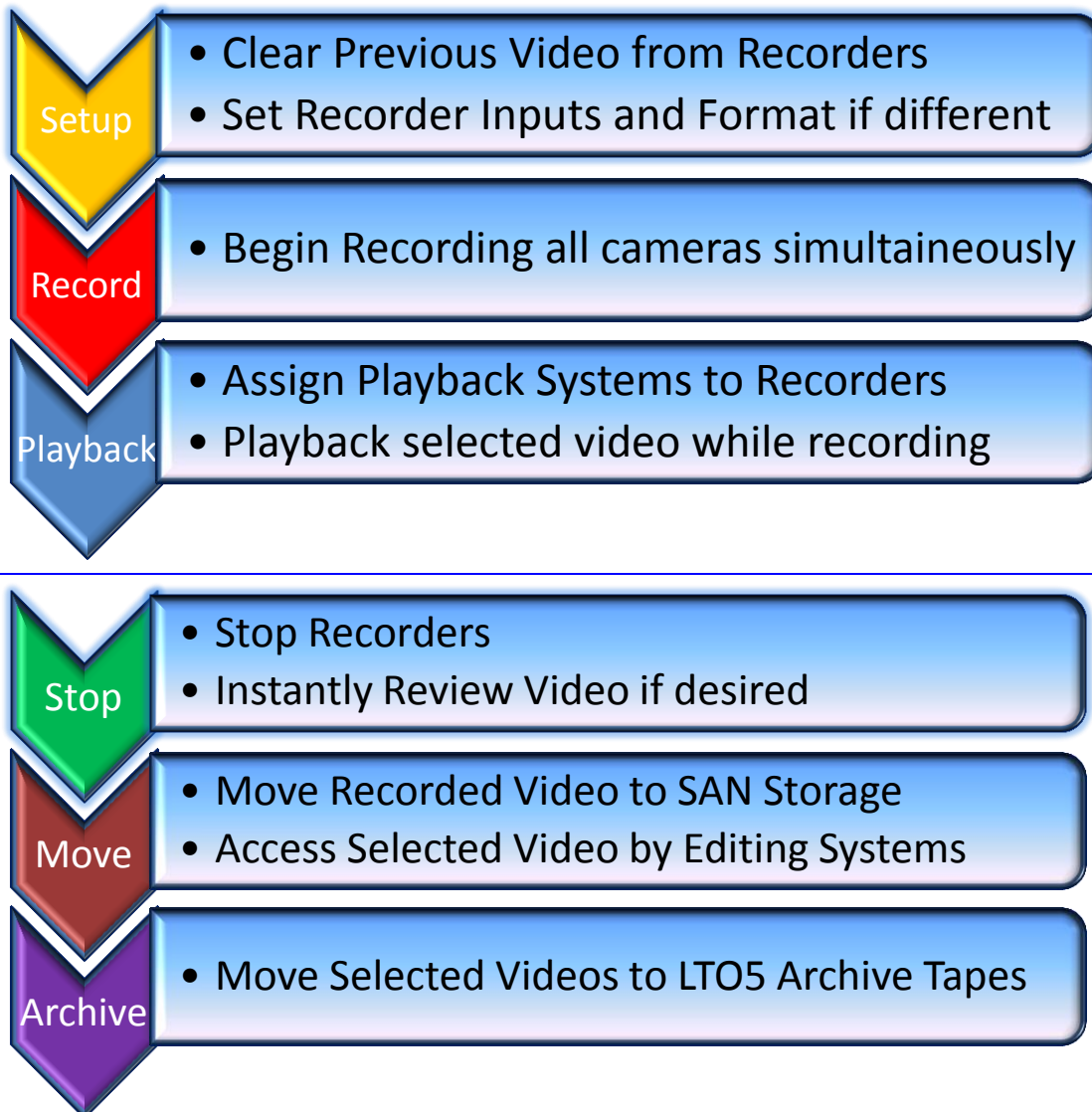


**Rony Sebok with the Installed 1 Beyond DDR systems.** Points of interest: Main DDR Systems include: 6 Racks: 44 DDRs, 10 Players, 144TBs EzHDSAN Shared Storage and 2 LTO5 LTFS 24 tape Robotic Libraries.

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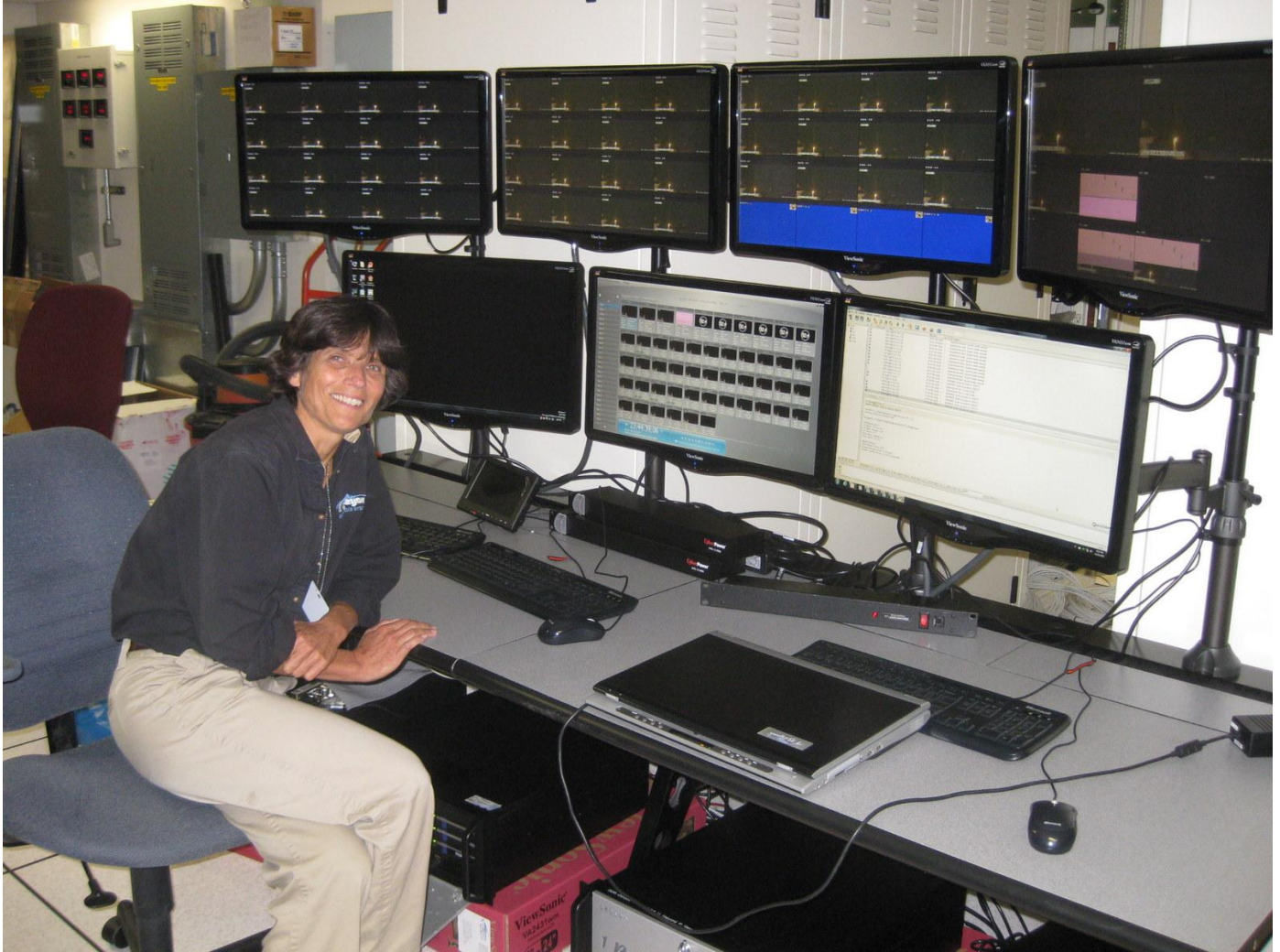
## 1 Beyond Recording Workflow:





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**Rony at the 1 Beyond Control Console during final checkout.** Points of interest: The 3 monitors on the upper left show the Launch Camera inputs live. The upper right monitor is the 10 camera review / playback monitor. These video feeds are also piped upstairs to the Launch / Rocket Control Center (RCC) shown below.

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**NASA Wallops Island Rocket Control Center: Points of interest: To the left and middle are the rows of Control Consoles. In front of the Consoles are the large video screens (see below).**

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**NASA Wallops Island Rocket Control Center. Points of interest: All eyes are looking forward and the excitement is focused on the Large Video Screens during the test launch. The local views are piped up to the control room from the 1 Beyond systems one floor below.**

**Check out the replay of the test launch that is causing the excitement:**

**[Antares Test Launch April 21, 2013](#)**

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### **Background:**

The Antares Program is the first public-private partnership between NASA and Orbital Sciences, in which NASA is investing \$288 million to help the Virginia-based company develop the Antares launcher and a resupply craft named Cygnus to service the space station.

The Antares first stage will propel the rocket to more than 9,800 mph in less than four minutes. A solid-fueled second stage will fire a few minutes later to accelerate the launcher into orbit more than 150 miles above Earth.

"We will lift off with approximately 750,000 pounds of thrust and weighing about 600,000 pounds," said Frank Culbertson, executive vice president and general manager of Orbital's advanced programs group. "It will not race off the pad, but it will accelerate very quickly once it gets going."

The sensors will measure data as the Antares booster rockets through the speed of sound and arcs southeast from NASA's Wallops Flight Facility on Virginia's Eastern Shore. The data recorders will monitor the conditions encountered as the rocket jettisons its liquid-fueled first stage and ignites an upper stage motor several minutes after liftoff.

The 8,377-pound mass simulator, which contains no propulsion or power systems, will be released from the Antares rocket's solid-fueled second stage about 10 minutes after liftoff, verifying the launcher's payload separation system functions as envisioned.

Officials view the test flight as a learning exercise.

"That first word is test, so if things don't go exactly as planned, we will learn what we need to learn," Culbertson said. "And we will press on and continue to improve as we go forward."



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The Antares rocket on the launch pad at Wallops Island, Va. Credit: Stephen Clark/Spaceflight Now

The space agency selected two companies for cargo services to have a backup in case one system runs into trouble. NASA's space station partners, including Russia, Japan and the European Space Agency, each operate their own cargo vehicles.

"We don't have the shuttle anymore," said Culbertson, a former astronaut who commanded space shuttle and space station missions. "The shuttle, with all its cargo capability and lift capability, was able to keep the space station very well-supplied with things of any size, from the largest battery requirement to the smallest instrument. But without the shuttle, we need other means of doing that, and it's going to be a multi-faceted solution."

Orbital Sciences started working on the Antares rocket in April 2007, according to Kurt Eberly, deputy Antares project director.

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"It's very gratifying to me to see this capability. When we started this program six years ago, none of this existed. There was no building, there was no pad, and there was certainly no rocket," said Phil McAlister, director of commercial spaceflight development at NASA, in remarks at the Antares launch pad.

The Virginia Commercial Space Flight Authority, an economic development agency run by the government of Virginia, paid for construction of the launch pad, which is run by Mid-Atlantic Regional Spaceport, a partnership between Virginia and Maryland.



Artist's concept of a Cygnus spacecraft approaching the International Space Station. Credit: Orbital Sciences Corp.

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If successful, the test flight Wednesday will give Orbital Sciences the confidence to proceed into the next phase of its cargo resupply program - a demonstration mission to the space station this summer.

Equipped with a voluminous cargo container, the Cygnus spacecraft due to launch on the summer mission is already assembled at Wallops, and engineers are fueling the vehicle with propellant this week, Culbertson said.

Orbital's first operational launch of Antares and Cygnus could come before the end of 2013, assuming the test missions go well without significant delays.

"I am very much looking forward to the day when the Antares/Cygnus system is making regular cargo resupply runs to the International Space Station, so that we can make sure that international lab is well-supplied," McAlister said.

Each flight will deliver more than two tons of supplies. At the end of the mission, the Cygnus spacecraft will burn up in Earth's atmosphere, disposing of the space station's garbage in a method similar to the one employed by Russian, Japanese and European spaceships.