

**Alpha Magnetic Spectrometer (STS-134)**

**HURRICANE PLANNING ADDENDUM**

**August 2, 2010**

**AMS-02 (STS-134)**

**HURRICANE PLANNING ADDENDUM**

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AMS-02, (STS134)  
Hurricane Planning Addendum

This plan is a supplement to the Spacecraft Services Hurricane Preparedness Plan and Procedures, BP 4095 Rev E. The standard hurricane preparedness plan will be used and unique requirements to protect the payload will be implemented. The Alpha Magnetic Spectrometer (AMS) payload has unique hurricane preparations and requirements. The customer will maintain cognizance of hurricane conditions, facility preparations affecting operations, GSE/flight hardware preparations and evacuation notifications. The customer is encouraged to pre-plan and make arrangement for hurricane evacuation locations. Hurricane season starts June 1 and ends November 30. The following guidelines will remain in this plan.

**HURRICANE PREPARATIONS:**

**Standard Hurricane Condition Definitions**

HURCON conditions are keyed to the forecasted time of arrival of 50 knot (58 mph) or greater winds related to a tropical cyclone.

**HURCON IV**

72 hours prior to the forecasted arrival of winds 50 knots or greater

The customer will review their upcoming scheduled activities and hurricane contingency plans. The customer will review their contact and call lists. The Boeing Florida Operations Emergency Preparedness Coordinator (BEPC) will assemble payload processing management, representatives, and appropriate payload customers to determine status, the forward plan, and a back-out plan.

**HURCON III**

48 hours prior to the forecasted arrival of winds 50 knots or greater

There will be no hazardous operation started, which cannot be safed and terminated prior to eight hours of entering HURCON II

**HURCON II**

24 hours prior to the forecasted arrival of winds 50 knots or greater

No hazardous operations will commence. Flight hardware hurricane preparation will be completed. All personnel will be evacuated from KSC. Only ride out crew members will be stationed on site.

**HURCON I**

12 hours prior to the forecasted arrival of winds 50 knots or greater

**Modified HURCON Conditions**

Modified HURCON conditions are sometimes called due to the unique nature, path, strength, or speed of a hurricane. Selected precautionary measures may be performed in advance of the Hurricane Condition for which the measures are prescribed.

The following are standard and unique guidelines:

## AMS Hurricane Ride-outs Objectives

AMS is a Space Station mounted atomic particle detector, which consists of a permanent magnet. AMS's scientific goals are to search for antimatter and dark matter in the Universe.

## Space Station Processing Facility

AMS will ride-out a hurricane in SSPF processing stands. At the SSPF, AMS will be covered, as much as possible, with approved film and secured as required. AMS and its GSE will be powered down for a center evacuation. AMS's GSE will be covered and raised off of floor level in case of water intrusion. The SSPF has redundant power feeds and in addition, a generator to supply facility backup power in order to maintain facility A/C. Generator maintenance and refueling of the generator will be on a best effort basis, depending on weather conditions and evacuation status. The SSPF will be monitored remotely and facility A/C will be restarted remotely if the SSPF ride-out crew is evacuated. AMS can remain unpowered indefinitely during a hurricane evacuation.

The SSPF Hurricane Ride Out Crew is stationed in the SSPF and consists of 2 Flight Technicians, 1 Access Control Monitor, 1 each Boeing Ride Out Lead and NASA Facility Manager Representation. Facility engineers and technicians for electrical, mechanical, HVAC, and Andover are with the EG&G ISC contract and will be located in a different ride out location.

The main function of the Ride Out Crew is to insure the integrity of flight hardware. The Boeing ride out lead will be the single focal point for information to and from the center EOC located in the LCC. AMS does not require representatives to be included in the Ride Out Crew.

## Canister Rotation Facility (CRF) and Payload Changeout Room (PCR)

AMS hurricane plans for the CRF and Pad PCR are no longer addressed in this hurricane plan. These operations will occur in February, very much outside of hurricane season. If a significant launch delay put these operations in hurricane season, this plan will be revised accordingly.

## Hurricane "All Clear" Activities

After the hurricane passes and a "Weather Safe Conditions" is declared, the Damage Assessment and Recovery Team (DART) is called up by the KSC Emergency Operations Center (EOC) to assess KSC grounds and facilities. AMS requires 2 persons to be included on the DART. They will make a general damage assessment of their hardware. The names of these individuals with their contact information will be provided to the Boeing Florida Operations Emergency Preparedness Coordinator at Hurcon IV. The CAPPS payload members of the DART team meet in room 1033/1035 of the SSPF. Their first responsibility is to insure that facilities are safe to enter. After the facilities have been deemed safe, this team assesses damage to facilities and payload flight hardware. AMS payload representatives will participate in this assessment.

Following the DART assessment and after any needed Center repairs and safings, an “All Clear” and a subsequent “Return to Work” will be announced.

SSPF

Payload protective hurricane covers will be removed, the AMS payload will be inspected and cleaned as required, and processing operations will continue.

Reference Documentation:

BP 4090, Revision G, Florida Operations Emergency Preparedness Plan and Procedures

BP 4095 Revision B, Florida Operations Hurricane Preparedness Plan and Procedures

KNPR 8715.2 Comprehensive Emergency Management Plan (CEMP)

DP-KSC-P-3006, Tropical Storm Hurricane Preparation and Recovery

DP-KSC-P-3005, Adverse Weather