

Procedure	Facility Management - Hurricane Plan			Number: FAM-P-0061	
Unit Issuing: FSEU-ENG	Approved by: FSEU	Initial Issue Date: 05/19/09	Page: 1 of 13	Revision: 5 Eff Date: 06/01/19	

SUBJECT

DRAWBRIDGE HURRICANE PLAN

PURPOSE

To establish direction and detailed instructions for Kennedy Space Center (KSC) Drawbridges during hurricane and/or tropical disturbance conditions.

It is the policy of the Base Operations Support & Services contract (BOSS) to protect personnel, facilities, systems, equipment, and ensure work areas falling under their responsibility are adequately covered regarding hurricane/tropical disturbance preparedness measures. This BOSS Procedure is to ensure the safeguarding and protection of related equipment and personnel in event of an approaching hurricane. The intent is to minimize permanent damage and facilitate rapid system recovery in the event of wind and water intrusion.

SCOPE AND APPLICABILITY

This procedure provides BOSS contract Bridge Tenders and Maintenance personnel with a summary of actions to be carried out to protect personnel and assigned bridge facilities from the effects of a hurricane/tropical storm. This document supports [EMP-P-0001](#), Hurricane Preparation and Ride-Out.

KSC Drawbridges:

- Roy D. Bridges Bridge (aka Banana River Bridge) – located on NASA Causeway between Cape Canaveral and KSC Industrial Area
- Haulover Canal Bridge– located on SR 3 North, 7.5 miles north KSC Gate 4
- Indian River Bridge (aka Addison Point) – located on NASA Causeway(SR 405) west of KSC Gate 3
- Jay Jay Railroad – located US 1 North of Titusville off Parrish Road

PROCESS

1. HURRICANE PREPARATIONS

Refer to [EMP-P-0001](#) for Hurricane Conditions and Categories.

Prior to hurricane season, organizational elements are required to accomplish pre-determined tasks. The BOSS Tech Ops Manager shall delegate personnel to implement and be responsible for complying with this procedure; appoint a primary Department 3100 Department Action Coordinator (DAC); and assure that the DAC attend Hurricane

Coordinator Training as requested by the Kennedy Space Center (KSC) Emergency Operations Center (EOC).

PREPARATIONS

The following preparations should be started prior to hurricane season to ensure all policies and personnel are updated for the upcoming hurricane season.

Supervisor

- ✓ The BOSS Tech Ops Manager shall appoint the Department Action Coordinator (DAC) to handle all department hurricane planning activities.
- ✓ The DAC shall provide the names of those who are selected for the Damage Assessment and Recovery Team (DART) and/or Ride Out Team (ROT) to the Department Hurricane Coordinator (DHC)
- ✓ Supervisors to review Hurricane supplies to verify current stock is appropriate and available for use for both Ride Out crew and DART members.
- ✓ Employees will not be released from duty during evacuation at HURCON II until directed by the MAT and confirmed by their immediate supervisor before departing to ensure complete accountability.
- ✓ Pre-hurricane security preparations are the joint responsibility of Operations and Maintenance (O&M) and Bridge/Fixed Cranes personnel. Specific actions to be taken for each facility in the event of a hurricane alert are included in the various Hurricane Control Data Sheets appended in the [KDP-KSC-P-3006](#) (as revised) and Hurricane Operations [EMP-P-0001](#).
- ✓ Begin hurricane security preparations in accordance with [EMP-P-0001](#), Tropical Storm And Hurricane Preparation And Ride-Out. BOSS Hurricane Operations and supplemental data are provided in this plan, for all BOSS facilities and exterior storage areas.
- ✓ Initiate the proper forms for assistance in securing trailers or for other assistance required of the hurricane preparedness plan.
- ✓ Release employees, as directed by the BOSS Management Action Team (MAT) and EOC announcements.

Bridge System Engineer

- ✓ SE to review current hurricane procedures to verify up to date versus NASA and Emergency Management policies.
- ✓ Coordinate lock down and re-open efforts of KSC Bridges with Brevard County Roads and Bridge Division.
- ✓ Notify and provide periodic updates to the DAC/BOSS MAT, EOC, Brevard County Roads and Bridge division and USCG, via email and/or telephone.

Checklists of Actions Required

Checklists of actions required during officially announced hurricane conditions are provided in document, FAM-F-0061A and in the Hurricane Operations Procedure ([EMP-P-0001](#)). Supervisors will report completion of required tasks to the Bridge DAC as soon as the tasks have been completed. The DAC will report completion of hurricane preparations to the DHC.

Points of Contact (POC's)

- United States Coast Guard
District POC: Michael Lieberum
Telephone: 305.415.6744
E-Mail: Michael.B.Lieberum@USCG.MIL
Port Canaveral: 321.868.4200
- KSC Emergency Operations Center (EOC)
Telephone: 321.867.9200
- Indian River Bridge
Telephone: 321.867.7200
- Haulover Canal Bridge
Telephone: 321.867.4859

2. HURCON IV (50-KNOT/58 MPH WINDS WITHIN 72 HOURS)

Commence hurricane preparations when HURCON IV is declared. Upon declaration of HURCON IV, Bridges DAC shall implement specific checklists and shall be prepared to implement 24 hour work schedules if directed. P&PS Branch Management shall review the hurricane plan.

Preliminary Tag-up:

The Tech Ops Manager shall hold a tag up meeting with supervisors and SE leads to discuss the following:

- ✓ Ride-Out Team (ROT) membership.
- ✓ DART membership

Discuss implementation of Hurricane plans for the following systems:

- ✓ Facility walk downs to secure for the onset of hurricane winds.
- ✓ Portable generator placement plans if needed
- ✓ Bridge tender operations.
- ✓ KSC "Return To Work" Access protocol

- ✓ Hotline phone #s 861-7900 (Local) or 1-866-572-4877) (NASA Toll Free)

3.1 Log of Events

The DAC will maintain a HURCON Log of Events to record actions taken concerning areas of responsibility. A hardbound book will be used and identified by the hurricane name, as designated by the U. S. Weather Bureau. A Log of Events for KSC will be maintained by the applicable supervisor. The Log of Events will include the following entries:

- Coordinator's name
- Organization
- Information / Instructions Received
- Information / Instructions Forwarded
- Current status
- Actions taken

Each entry will be identified by the date and the 24-hour clock time. Prior to relinquishing responsibility for his operations location, the Bridge DAC will sign and note the date/time in the log. The Log of Events will be retained for inspection by the EOC Hurricane Coordinator.

3.2 Staffing

In order to provide full support to hurricane preparations, non-prime shift staffing will be provided as the Hurricane Condition warrants and as directed by the Bridge Hurricane Coordinator or his designee. The bridge tenders are NOT essential personnel and shall be released by Supervision or EOC at forecasted 28 knot or 32.2 mph sustained winds.

3.3 Telephone Communications

Normal telephone communications will be used during pre-hurricane preparation. Radio equipment may be used in an emergency.

3.4 Shop actions

- 3.4.1 All objects subject to displacement by high winds are extremely dangerous and must be secured or moved inside. The security preparation of outside areas is generally covered in [KDP-KSC-P-3006](#) (as advised) and [EMP-P-0001](#).
- 3.4.2 All company vehicles will have fuel tanks filled and will be kept in excess of $\frac{3}{4}$ tank until the hurricane activity is over.
- 3.4.3 Verify all necessary hurricane supplies on hand and stored properly.

3.4.4 Request sand bag delivery if needed to secure facilities or equipment.

3.6 Bridge Operations

Upon approval of Management, bridge System Engineering or EOC notification, the operation of KSC Draw Bridges will not be required in sustained winds of greater than 28 knots or 32.2 mph regardless of HURCON status.

Jay Jay R/R Bridge shall be lowered and locked down 8 hours prior to forecasted 28 knots or 32.2 mph sustained winds.

****NOTE****: *Discretion must be used when forecasting the Jay Jay bridge closure. A 1000' wooden walkway is the only access to the control tower. This walkway is NOT illuminated and is located off-shore.*

Notify Division Hurricane Coordinator (DHC) via the DAC after all HURCON IV actions are completed

3. HURCON III (50-KNOT/58 MPH WINDS WITHIN 48 HOURS)

HURCON III is the phase when most preparation activities shall be completed and evacuation of non-essential personnel may be directed. KSC shall initiate hurricane securing (i.e., safeguarding) of facilities, property, and equipment when HURCON III is announced. The DAC shall provide updated lists of their ROT to the DHC including name, functional area, work phone, and home phone number of each member. ROT members will assemble and be briefed at the KSC Auditorium. Any equipment, vehicle, or manpower shortages will be reported immediately to the DHC.

Actions:

- 3.1.1. Continue work on any HURCON IV work not yet completed.
- 3.1.2. The DAC provides status reports as required to the DHC
- 3.1.3. Send Ride-Out Team roster to the DHC.
- 3.1.4. GSA vehicles will be turned in on a phased basis, in accordance with KHB 1040.2 (as revised). All GSA or company vehicles not required for hurricane preparations or support will be parked in a designated area.
- 3.1.5. Issue hurricane supplies (plastic bags, sheeting, tape, etc.) to employees.
- 3.1.6. Back up computer hard drives as necessary.
- 3.1.7. Power down computers and electronic equipment.
- 3.1.8. Cover electronic equipment with plastic
- 3.1.9. Where practical, raise equipment at least sixteen (16) inches off the ground.

- 3.1.10. Disconnect all unnecessary electrical equipment and turn off unnecessary lighting
- 3.1.11. Notify DHC via DAC after all HURCON III and IV actions are completed

4. HURCON II (50-KNOT/58 MPH WINDS WITHIN 24 HOURS)

HURCON II is the phase when all securing actions shall be completed or terminated. The remainder of KSC and contractor personnel shall be released effective at HURCON II when directed by the Center Director (CD) through the NASA Emergency Management Officer (NEMO).

- 4.1.1. Ensure all HURCON IV/III actions are complete.
- 4.1.2. Upon announcement of HURCON II, GSA vehicles will be parked with the windows closed, air vent open, lights off, automatic transmissions placed in “park”, manual transmissions placed in lowest forward speed gear, emergency brakes applied, doors un-locked and ignition keys left in the switch.
- 4.1.3. Meet with DHC and advise O&M personnel of Storm Category and subsequent changes.
- 4.1.4. Personnel shall secure all IT equipment (PC and associated hardware) and wrap in plastic bag prior to exiting KSC as directed in the next step.
- 4.1.5. Personnel not required for execution of hurricane preparations and/or Ride-Out Team shall be released from duty when directed by the BOSS O&M Division Manager.
- 4.1.6. Ride-Out Team members shall report to assigned stations when notified (take vehicles, heavy equipment and tools).
- 4.1.7. Notify the DHC via the DAC when all shop personnel have evacuated.
- 4.1.8. Notify DHC via the DAC when all HURCON actions are completed.

5. HURCON I (50-KNOT/58 MPH WINDS WITHIN 12 HOURS)

HURCON I is the phase when KSC shall remain secured and the ROT shall be sheltered or evacuated. ROT personnel shall be directed to shelter prior to the arrival of 50 knot/58 MPH winds

Actions:

- 5.1.1. Release all personnel not required for Ride-Out team.
- 5.1.2. Communications – shall ensure Ride-Out Team has mobile phones and radios.
- 5.1.3. Ride-Out Team if required shall remain on site at location provided by DHC.
- 5.1.4.

6. POST HURRICANE OPERATIONS – RETURN TO NORMAL OPERATIONS

6.1. Return to work activities

- 6.1.1. After the storm passes the notification to report to work will be broadcast over the local media stations (See next section). Depending upon the post-storm conditions, the broadcast will direct:
 - ✓ The Ride-Out/DART members reporting instructions (emergency work crews)
 - ✓ Report to work at a certain hour (general populace)
 - ✓ Not report to work until further notice (general populace)
- 6.1.2. If the Center was evacuated under Category 2 or higher storm, listen to radio and television announcements or call the Hurricane Center for status. Reentry may require the issuance of County Road Block Passes.
- 6.1.3. If we encounter a severe storm and communications are totally destroyed to the point broadcasts can't be made over local media, DART Team members should report to their workstation to augment the Ride-Out Team when roadways are safe. The general populace should stay at home until either contacted by phone, or receive notification over the local media stations.
- 6.1.4. Post hurricane activities shall be per EMP-P-0003, Damage Assessment and Recovery. Personnel shall start restoring systems to pre-hurricane configuration and normal operation as directed by the DHC and DAC.

6.2. DART and DAT member activities

- 6.2.1. Damage Assessment and Recovery Team (DART) and Damage Assessment Team (DAT) activities are covered under EMP-P-003, Damage Assessment and Recovery and KDP-KSC-P-3007, Damage Assessment and Recovery.
- 6.2.2. Normal DART call-in is initiated as per section 6.0 above. The first bridge crew inspections will be requested earlier and usually are called in as soon as the Center Director (CD) through the NASA Emergency Management Officer (NEMO) issues a "Weather Safe" call. These personnel will need to contact the EOC at (321) 867-9200 or the DAC for directions to report.
- 6.2.3. All DART team members will attend a NASA safety briefing prior to entering any area other than the safety briefing site.
- 6.2.4. Bridges supervision to form up the DART groups for recovery effort first to address bridge inspection/restoration activities and then to assess damage to areas prior to general occupancy. See EMP-P-003 to delineate differences in activities between DART and DAT.
- 6.2.5. Primary responsibility of the shops and DAC is DART team support. SE support is primarily for DART team but can transition to DAT support if the DAC no longer requires the SE support.

- 6.2.6. Distribute Hurricane Damage Documentation Form, FAM-F-0001A and Hurricane Damage Assessment Form FAM-F-001B to each DART to record all damage found and safeing activities performed for use by the MAT and RTC later.
- 6.2.7. Communications from the field shall be to the Bridge crew DAC for all activities.
- 6.2.8. The bridge crew DAC will keep the HURCON log up to date with all activities and record/receive all Damage Forms, FAM-F-0001A or FAM-F-0001B. These forms will be forwarded to the MAT or RTC as time permits to complete the damage assessment as required by EMP-P-0003

6.3. Shop Actions

- 6.3.1. Inspect bridges prior to open use for any damage and report to DAC and DHC any damage immediately that require the bridge to be taken out of service or cause limitations to use.
- 6.3.2. If possible, restore all bridges to normal support. Notify DAC and DHC as each is placed back to normal support.
- 6.3.3. Document any damage found on Hurricane Damage Documentation Form, FAM-F-0001A or Hurricane Damage Assessment Form FAM-F-001B.
- 6.3.4. Forward all forms to DAC to send forward to DHC and MAT/RTC.

6.4. Return Equipment to original locations

- 6.4.1. If supplied, request temporary generators be removed from service.
- 6.4.2. Notify Roads and Grounds to pick up sandbags.

7. POST HURRICANE INFORMATION

Local radio and television stations (excluding cable television), in coordination with the Public Information Officers, will broadcast official "ALL CLEAR" announcements. Return of personnel to normal work schedules will be governed by official announcements that normal work activity resumes at KSC. After such announcements, personnel will report to work at the commencement of their assigned shift.

POST HURRICANE KEY PHONE NUMBERS

	KSC	CCAFS
Duty Office	(321) 861-5050	(321) 853-5211
EOC	(321) 867-9200	(321) 853-9155
Fire Protection	(321) 867-7627	
Coast Guard (Port Canaveral)	(321) 868-4200	

Public Affairs Announcements

The following local television stations are sources for announcements from [KDP-KSC-P-3006](#): Television Station Announcements

Station	Channel	Telephone No.
NASA TV	Cable-15/177/Direct TV-376	Live streaming message bottom of the screen
WFTV	Channel 9	(321) 784-4999
WKMG	Channel 6	(321) 784-5484 / 291-2141
WESH	Channel 2	(800) 493-7488 / (321) 784-3911
WOFL	Channel 35	(321) 333-0074 after 1700/ (321) 644-3535 W/E
WKCF	Channel 18	(321) 645-1818
WMFE	Channel 24	(321) 273-2300
WBCC	Channel 68	(321) 433-7111
WOPX (PAX)	Channel 56	(407) 370-5600

The following local radio stations are sources / monitored for official announcements per [KDP-KSC-P-3006](#): Radio Stations Announcements

Station	Location	Frequency	Telephone No.
WGNE	Titusville/Daytona Bch.	99.9 FM	(904) 239-9836
WA1A	Melbourne	107.1 FM	(321)984-1000/ (321) 799-9212
WMMB	Melbourne	1240 / 1350 AM	(321) 733-1000
WHKR	Melbourne	102.7 FM	(321) 984-1000
WLRQ	Melbourne	99.3 FM	(321)733-1000/(321)632-5483
WFLA	Orlando	740 AM	(407) 293-6397
WDBO	Orlando	850 AM	(407) 297-6397
WMFE	Orlando	90.7 FM	(407) 282-6562
WIXC	Titusville	1060 AM	(321) 264-1060
WMEL	Melbourne	920 AM	(321) 254-2282
WKMG	TV 6 Simulcast	87.7 FM	(321) 784-9271

8. REFERENCE CALL LIST

Hurricane Alert Notification List

In the event a hurricane alert is received from the EOC or the BOSS Duty Officer personnel will notify the following Bridge Department Action Coordinator (DAC) or alternate:

<u>NAME</u>	<u>DUTY TELEPHONE</u>	<u>HOME</u>
Earl L Jarrett (Primary)	321-867-8247	321-514-9827
Ralph Gordon (SE)	321-867-0372	321-289-8996

10. HURRICANE DEPLOYMENT SUPPLY KIT / KSC

<u>ITEM</u>	<u>UNIT</u>	<u>QUANTITY</u>
Rope, 3/8"	RL	2
Cargo Tie-Down Straps	EA	20
Tape, Duct 2" wide	RL	10
Visqueen	RL	4

RECORDS

The following records are retained by the organizations listed below:

Record	Responsible Organization
Checklist of Actions Required During Hurricane Conditions	Each Supervisor
Log of Events	Hurricane Coordinator
Support Requests	Each Supervisor
FAM-F-0001A, Hurricane Damage Documentation Form	Hurricane Response team
FAM-F-0001B, Hurricane Damage Assessment Form	Hurricane Response team
FAM-F-0061A, HURCON Contact List and Checklist	Each Supervisor
FAM-I-2020, Haulover Canal Bridge, Operating Instructions	Systems Engineering
FAM-I-2027, JAY-JAY RAILROAD BRIDGE, OPERATING INSTRUCTIONS, MIMS, FLORIDA	Systems Engineering
FAM-I-2025, INDIAN RIVER BRIDGE, OPERATING INSTRUCTIONS	Systems Engineering
FAM-I-2026, BANANA RIVER BRIDGE, OPERATING INSTRUCTIONS	Systems Engineering

AFFECTED DIVISIONS/OFFICES

Engineering Services
FSEU OM&E
Project Integration Office
Safety & Mission Assurance
Work Control Center

ROLES AND RESPONSIBILITIES

BOSS Program Manager: Ensures BOSS compliance to the requirements stated in this procedure. Reviews and approves or disapproves waiver requests written against this standard.

Division Manager: Ensures compliance within the Division to the requirements stated in this procedure.

Branch Manager: Ensures compliance at the branch level to the requirements stated in this procedure.

Approver: The identified approval authority and OPR who approves publication of a document in its final form

Author: Creates documents using the appropriate templates.

Engineering: Generates the OPEN MEE Documentation Report.

REFERENCE DOCUMENTS

The following documents are referenced in this procedure:

Document Number	Title
EMP-P-0001	Tropical Storm And Hurricane Preparation And Ride-Out
EMP-P-0003	Damage Assessment and Recovery
FAM-F-0061A	HURCON CONTACTS LIST and CHECKLIST
KDP-KSC-P-3006	Tropical Storm and Hurricane Preparation and Recovery
KDP-KSC-P-3007	Damage Assessment and Recovery

ACRONYMS

KSC	Kennedy Space Center
DART	Damage Assessment Recovery Team
DAT	Damage Assessment Team
EOC	Emergency Operations Center
O&M	Operations and Maintenance
GSA	General Services Administrations
USCG	United States Coast Guard
PLC	Programmable Logic Center
MAT	BOSS Management Action Team
MCC	Motor Control Center
R/R	Railroad
ROT	Ride Out Team
SE	System Engineer

DEFINITIONS

Pre-Hurricane Warnings: Official notification of pre-hurricane warnings are relayed to the Department Action Coordinator (DAC) by the Department Hurricane Coordinator (DHC). The DAC will notify responsible personnel under their supervision.

Hurricane Condition: In the event official notification of a hurricane alert is received during other than normal working hours, the Bridge DAC will provide instructions as to the requirement for further notification and/or personnel recalls, depending on the current "Hurricane Condition".

All Clear: Upon official notification from the Emergency Operations Center (EOC) of "Weather Safe" and Dart Team is recalled, personnel will assist in providing required support for immediate post-hurricane recovery requirements. Appropriate supervisors will provide relief for the ride-out crew as rapidly as possible, consistent with the condition of access roads to KSC.

Hurricane Conditions: The extent of implementation of this plan will be governed by the hurricane condition that exists. Hurricane conditions, as defined in KDP-KSC-P-3006 Hurricane Preparation and Recovery (as revised) are as follows:

HURCON V: HURCON V is declared automatically on June 1 and ends on November 30 of each year. During this time, BOSS Divisions shall ensure that their personnel and work areas are ready and prepared should a tropical storm or hurricane approach and HURCON IV is declared or tropical storm preparations are deemed necessary.

HURCON IV: Announced 72 hours prior to the forecast arrival of 50 knots or greater winds. Personnel are to report to their normally assigned duties, but remain available for hurricane preparation tasks, as outlined in KDP-KSC-P-3006 (as revised), Pre-Hurricane Tasks.

HURCON III: Announced 48 hours prior to the forecast arrival of 50 knots or greater winds. All personnel are to be available for hurricane security preparations. Specific actions, as directed by KDP-KSC-P-3006 (as revised).

HURCON II: Announced 24 hours prior to the forecast arrival of 50 knots or greater winds. Final preparations for high winds and water are to be completed. Specific actions, as directed by KDP-KSC-P-3006 (as revised) will be accomplished. Personnel not essential for hurricane preparations may be released or instructed not to report for work, based on official announcements released by the Bridge Supervisor, Hurricane Coordinator and Aural Warning Systems.

HURCON I: Announced 12 hours prior to the forecast arrival of 50 knots or greater winds. All normal duties are curtailed for the protection of personnel and property. Personnel not essential for hurricane preparation will be released or instructed not to report for work, based on official announcements released by the Bridge Supervisor or Hurricane Coordinator. Personnel designated as members of the ride-out crew will report to their

designated locations and remain at KSC until officially relieved by the Hurricane Control Center or official announcement from the Center Director.

- **Storm Characteristics (According to the Saffir/Simpson Scale)**

Storm Type	Winds (MPH)	Winds (KT)	Storm Surge	Damage
Category 1	74 – 95	64 – 82	4 – 5 feet	Minimal
Category 2	96 – 110	83 – 95	6 – 8 feet	Moderate
Category 3	111 – 130	96 – 113	9 – 12 feet	Extensive
Category 4	131 – 155	114 – 134	13 – 18 feet	Extreme
Category 5	> 155	> 135	> 18 feet	Catastrophic

REVISION RECORD

The following revisions have been applied to this document:

Revision Number	Change Description	Date
0	No History	
1	Updated to include ISC Contract Changes	5-19-2009
2	Updated to include POC Information	9-23-2010
3	Updated to include Gale Force Wind description	6-17-2014
4	Complete Procedure Revision to reflect ISC Hurricane Operation Changes, EMP-P-0001	2-20-2017
5	Updated to BOSS format	06/01/2019

DOCUMENT APPROVALS

6/2/2020

X Melquiades Lopez

Melquiades Lopez
Tech Operations Manager, O&M systems
Signed by: Melquiades Lopez (affiliate)

