



Hurricane Irma & Hurricane Harvey

Event Report (Update #23)

REPORT TIME & DATE:	4:00 PM EDT Friday, September 8, 2017
INCIDENT START DATE:	Friday, August 25, 2017
PRIMARY LOCATION(S):	Irma: Leeward Islands // Harvey: Gulf Coast (Texas and Louisiana)
REPORT DISTRIBUTION:	Public

EXECUTIVE SUMMARY

As of 2:00 PM EDT, Hurricane Irma was 380 miles southeast of Miami, FL, moving west-northwest at 14 MPH, with maximum sustained winds of 155 MPH (category 4). Irma moved across the Virgin Islands and near the northern coast of Puerto Rico on Wednesday, causing damage throughout the region. Southern Florida is likely to begin experiencing tropical storm-force winds early Saturday with the center of the storm potentially approaching Florida Sunday morning. Irma is expected to produce storm surges of 3 to 10 feet for Southern Florida. A hurricane warning is now in effect for Jupiter inlet southward around Florida the Florida peninsula to Bonita Beach, the Florida Keys, Lake Okeechobee, and Florida Bay.

Hurricane Irma

DOE is closely monitoring the storm and ESF #12 responders have been prepositioned with FEMA Incident Management Assistance Teams (IMAT) in Puerto Rico, St. Thomas, and St. Croix. ESF #12 responders are also deployed to both the FEMA Region II and IV Coordination Centers.

Irma Electricity Sector Summary (as of 11:15 AM EDT Friday)

- As of 11:15 AM EDT Friday, the Puerto Rico Electric Power Authority (PREPA) is reporting 870,403 customers (55.4% of total customers) are without power.
- DOE is working with Puerto Rico, the Electricity Sub-Sector, FEMA, and other interagency partners to help facilitate the movement of mutual aid crews to the island, if needed, after the storm has passed.
- U.S. Virgin Island Water and Power Authority (WAPA) reported that all customers on the islands of St. Thomas (19,581 customers) and St. John (2,893) are without power. These islands are interconnected and served by one electric grid.
- Damage assessments and restorations efforts have begun across the impacted areas.
- DOE remains in contact with the Nuclear Regulatory Commission (NRC) regarding nuclear generating facilities that may be impacted by Irma. The NRC is positioning additional on-site inspectors at the two plants in Florida and is considering sending inspectors to plants in Georgia and South Carolina should the track of the storm indicate they be needed.
- Mutual aid crews have begun staging resources closer to Florida and Georgia. Utilities in the storm path are monitoring the storm and activating their response plans in preparation for response and restoration efforts.

Irma Oil and Natural Gas Sector Summary (as of 2:30 PM EDT)

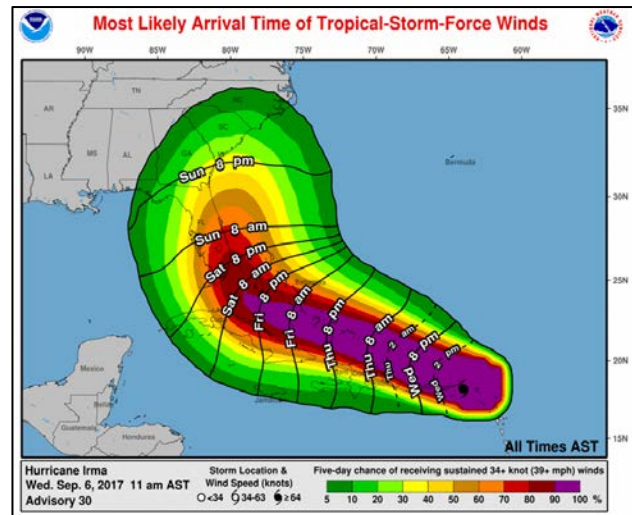
DOE is working with the Energy Information Administration to assess potential impacts to the oil and gas sector from Hurricane Irma. As of the August 25 Weekly Petroleum Status Report, stocks of gasoline in PADD 1 (East Coast) were near the top end of the 5-year range, including PADD 1C (Lower Atlantic).

Harvey Oil and Natural Gas Sector Summary (as of 2:30 PM EDT)

Six refineries in the Gulf Coast area remain shut down and five refineries are in the process or restarting. At least six refineries are operating at a reduced rate.

HURRICANE IRMA INCIDENT OVERVIEW

As of 2:00 PM EDT, Irma was 225 miles east of Caibarien, Cuba and 380 miles southeast of Miami, Florida moving west at 14 MPH, with maximum sustained winds of 155 MPH (category 4). Irma should resume a west-northwest motion later today. A turn toward the northwest is expected by late Saturday. Hurricane-force winds extend outward up to 70 miles and tropical storm-force winds extend up to 185 miles from the center. On the forecast track, the eye of Irma should continue to move near the north coast of Cuba and the central Bahamas for the rest of today and Saturday and be near the Florida Keys and the southern Florida Peninsula Sunday morning.



Irma is expected to produce storm surges of 3 to 12 feet in Southern and Central Florida on both sides of the peninsula.

A hurricane warning is now in effect for Jupiter inlet southward around Florida the Florida peninsula to Bonita Beach, the Florida Keys, Lake Okeechobee, Florida Bay, and parts of Cuba. Hurricane warnings remain in effect for most of the Bahamas. Hurricane watches and tropical storm warnings extend to outlying areas, including central Florida and Cuba.

Through Tuesday night, the upper Florida Keys into southeast Florida can expect 10 to 15 inches of rain accumulation, with isolated areas of up to 20 inches. Eastern Florida northward into coastal Georgia can expect 8 to 12 inches, with isolated areas of up to 16 inches. The lower Florida Keys can expect 8 to 12 inches. The western Florida peninsula can expect 4 to 8 inches, with isolated 12 inches. Much of Georgia, South Carolina, and western North Carolina can expect 3 to 6 inches of rain accumulation through Tuesday night.

HURRICANE HARVEY INCIDENT OVERVIEW

Hurricane Harvey made landfall around 11:00 PM EDT on Friday, August 25 between Port Aransas and Port O'Connor, Texas as a category 4 hurricane.

The National Weather Service reported peak river crests are expected to occur this weekend with a slow recession thereafter for upper TX and southwest LA coasts, including Houston and Beaumont.

Hurricane Irma

ELECTRICITY SECTOR

IMPACTS TO PUERTO RICO AND U.S. VIRGIN ISLANDS

- As of 11:15 AM EDT Friday, the Puerto Rico Electric Power Authority (PREPA) is reporting 870,403 customers (55.4% of total customers) are without power.
 - Damage assessment for transmission and distribution systems continue.
 - DOE is working closely with PREPA, the American Public Power Association, and FEMA on a plan to facilitate mutual aid for Puerto Rico.
- As of 10:15 AM EDT Friday, U.S. Virgin Islands Water and Power Authority (WAPA) reported that all customers on the islands of St. Thomas (19,581 customers) and St. John (2,893) remain without power. These islands are interconnected and served by one electric grid. Damage assessments on St. Thomas have begun to determine impacts to the generation and distribution systems.
- All underground feeders on the island of St. Croix are now operational. WAPA will continue restoration efforts until all customers are back online. A total outage number for St. Croix is unknown at this time, but as crews restore power, the number will continue to decrease.

ELECTRICITY OUTAGES AS OF 11:15 AM EDT 09/08/2017			
Impacted State	Current Confirmed Customer Outages	Percent of Confirmed State Customers without Power	24-hr Peak Customer Outages
Puerto Rico	870,403	55.4%	1,044,289
St. John	2,893	100%	2,893
St. Thomas	19,581	100%	19,581
Total	892,877	-	*

**There is no sum of the Peak Customer Outage column because peaks for individual utilities occur at different times; a total would not reflect peak outages.*

PREPAREDNESS EFFORTS FOR CONTINENTAL UNITED STATES

- Florida Power & Light (FPL) expects 4.1 million of their customers to lose power. FPL has 13,500 mutual aid personnel on standby to aid restoration efforts and is reaching out for more crews.
- Georgia Power will not be preemptively cutting power to any of their service areas, including those areas with evacuation orders.
- DOE remains in contact with the Nuclear Regulatory Commission (NRC) regarding nuclear generating facilities that may be impacted by Irma. The NRC is positioning additional on-site inspectors at the two plants in Florida and is considering sending inspectors to plants in Georgia and South Carolina should the track of the storm indicate they be needed.



- Florida Power & Light (FPL) reports that the Turkey Point and St. Lucie nuclear plants may remain offline for an extended period if access routes to the plants are impassable. All plant safety systems are normal and available.

OIL & GAS SECTOR

PORTS

- The U.S. Coast Guard has set the following conditions for ports and waterways in the South Atlantic and Caribbean as a result of Hurricane Irma. Ports in eight port sectors are either closed or open with restrictions. Listed in the table are ports that receive petroleum products

Status of Caribbean and Florida Ports as of 02:00 PM EDT 09/08/2017			
Port	Receipts (b/d)*	Status	Date Stamp
Sector San Juan			
Puerto Rico Ports	139,000**	Port Readiness Condition Four. <ul style="list-style-type: none"> Open with no restrictions: San Juan, Ponce, Guayanilla, Tallaboa, Guanica, Salinas, Vieques, Yabucoa Open with restrictions: Guayama, Mayaguez Port Readiness Condition Zulu. Closed: Culebra, Arecibo	09/07/17
U.S. Virgin Islands Ports	18,000**	Port Readiness Condition Four <ul style="list-style-type: none"> Open with no restrictions: Limetree Bay, St. Croix; Krause Lagoon, St. Croix Open with restrictions: Christiansted, St. Croix Port Readiness Condition Zulu. Closed: St. Thomas (All); Cruz Bay, St. John; Fredericksted, St. Croix.	09/07/17
Sector Miami			
Miami	1,500	Port Condition Yankee. Open with restrictions.	09/08/17
Port Everglades	298,000**	Port Condition Yankee. Closed to all inbound vessels.	09/08/17
Port of Palm Beach	500	Port Condition Yankee. Open with restrictions.	09/08/17
Sector Key West			
All Ports	--	Port Condition Zulu. Closed.	09/08/17
Sector St. Petersburg			
Port Manatee	700	Port Condition X-Ray. Open with restrictions. No vessel permitted to transit without authorization. Port Condition Yankee expected to be set 8pm 9/8.	09/08/17
Tampa	273,700	Port Condition X-Ray. Open with restrictions. Port Condition Yankee expected to be set 8pm 9/8.	09/08/17



Status of Caribbean and Florida Ports <i>as of 02:00 PM EDT 09/08/2017</i>			
Port	Receipts (b/d)*	Status	Date Stamp
Sector Jacksonville			
Port Canaveral	32,200	Port Condition Yankee. Open with restrictions	09/08/17
Port of Jacksonville	69,800	Port Condition X-Ray. Open with restrictions.	09/07/17
Sector Mobile			
Pensacola (FL)	11,400	Port Condition X-Ray. Open with restrictions. Port condition extends to include miles 170-375 of the Gulf Intracoastal Waterway.	09/08/17
Panama City (FL)	8,500	Port Condition X-Ray. Open with restrictions.	09/08/17
Sector Savannah			
Savannah	12,600	Port Condition X-Ray. Open with restrictions. COTP posted the following status expectations: PortCon Yankee to be set noon on 9/9 and PortCon Zulu to be set at 11:59pm on 9/9.	09/08/17
Sector Charleston			
Charleston	16,500	Open.	09/07/17
Sector North Carolina			
Wilmington	11,500	Port Condition Whiskey. Open with restrictions	09/07/17
Sector Hampton Roads			
Hampton Roads	7,400	Open.	09/06/17

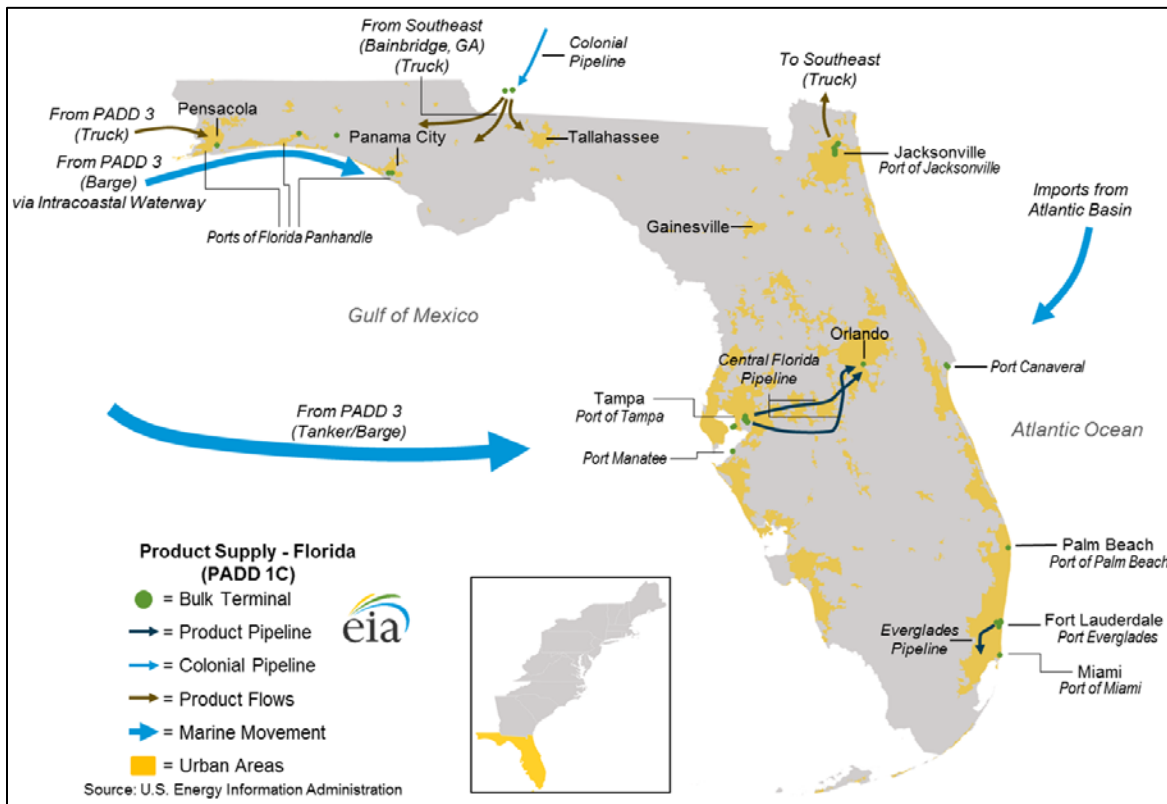
*Transportation fuels (gasoline, distillate, and jet fuel) unless otherwise noted.

**Includes bunker fuel and fuel oil and distillate for power generation.

Source: Receipt data from [U.S. EIA](#), USACE data (2013), EIA Company Level Imports



- Below is a map of key petroleum ports and petroleum product pipelines in Florida.



Source: EIA: <https://www.eia.gov/analysis/transportationfuels/padd1n3/>

EMERGENCY DECLARATIONS & WAIVERS

- On September 7, the U.S. EPA issued a waiver of the federal requirements for low volatility “summertime” gasoline requirements in all East Coast states located in PADD 1, all Midwestern states located in PADD 2, and all Gulf Coast states located in PADD 3, through the end of the high ozone season on September 15. In addition, EPA extended the Low Volatility SIP waiver in Texas and other federally-enforceable areas through September 16. EPA also extended the waiver for the Reformulated Gasoline (RFG) requirements in states in all three PADDs listed above until September 26. The waiver notes that all gasoline that is already in the distribution system on September 26 may be distributed and sold until depleted. Gasoline in the possession of parties other than retailers and purchaser-consumers must meet the RFG requirements no later than October 26. This multi-state fuel waiver covers Florida and other Southeast states threatened by Hurricane Irma. This waiver supersedes the August 31 multi-state fuel waiver of the gasoline requirements for PADDs 1-3.
- On September 6, EPA issued a limited waiver of highway diesel fuel red dye requirements in Florida through September 22. Under the waiver, the EPA will allow the sale, distribution, and use of red dye NRLM diesel fuel in the State of Florida for use in highway diesel vehicles, but the diesel fuel must meet the 15 ppm standard.
- On September 6, the Federal Motor Carrier Safety Administration (FMCSA) issued a Regional Emergency Declaration exempting FMCSRs in the States of Alabama, Florida, Georgia,

Mississippi, North Carolina, South Carolina, Tennessee, and in the Commonwealth of Puerto Rico and the territory of the U.S. Virgin Islands.

- The table below summarizes emergency declarations and Hours of Service (HOS) waivers issued by states in response to the impacts of Hurricane Harvey.

State Emergency Declarations and HOS Waivers as of 02:00 PM EDT 09/08/2017				
State	Details	Effective Dates		Status
		Start	End	
Regional (Multi-State)	Regional Emergency Declaration and FMCSR waiver issued by FMCSA. Applies to Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, and in the Commonwealth of Puerto Rico and the territory of the U.S. Virgin Islands.	09/06/17	10/05/17	Active
Puerto Rico	State of Emergency.	09/04/17	--	Active
U.S. Virgin Islands	State of Emergency.	09/04/17	--	Active
Florida	State of Emergency/HOS Waiver.	09/04/17	--	Active
Georgia	State of Emergency.	09/06/17	--	Active
South Carolina	State of Emergency/HOS Waiver.	09/06/17	--	Active
North Carolina	State of Emergency/HOS Waiver.	09/07/17	--	Active
Virginia	State of Emergency/ HOS Waiver. Also waived the RVP limit for gasoline ethanol blends prescribed by regulations. Extended waiver to apply through duration of Hurricane Irma impact on 9/8.	09/01/17, extended 09/08/17	Until further notice.	Active

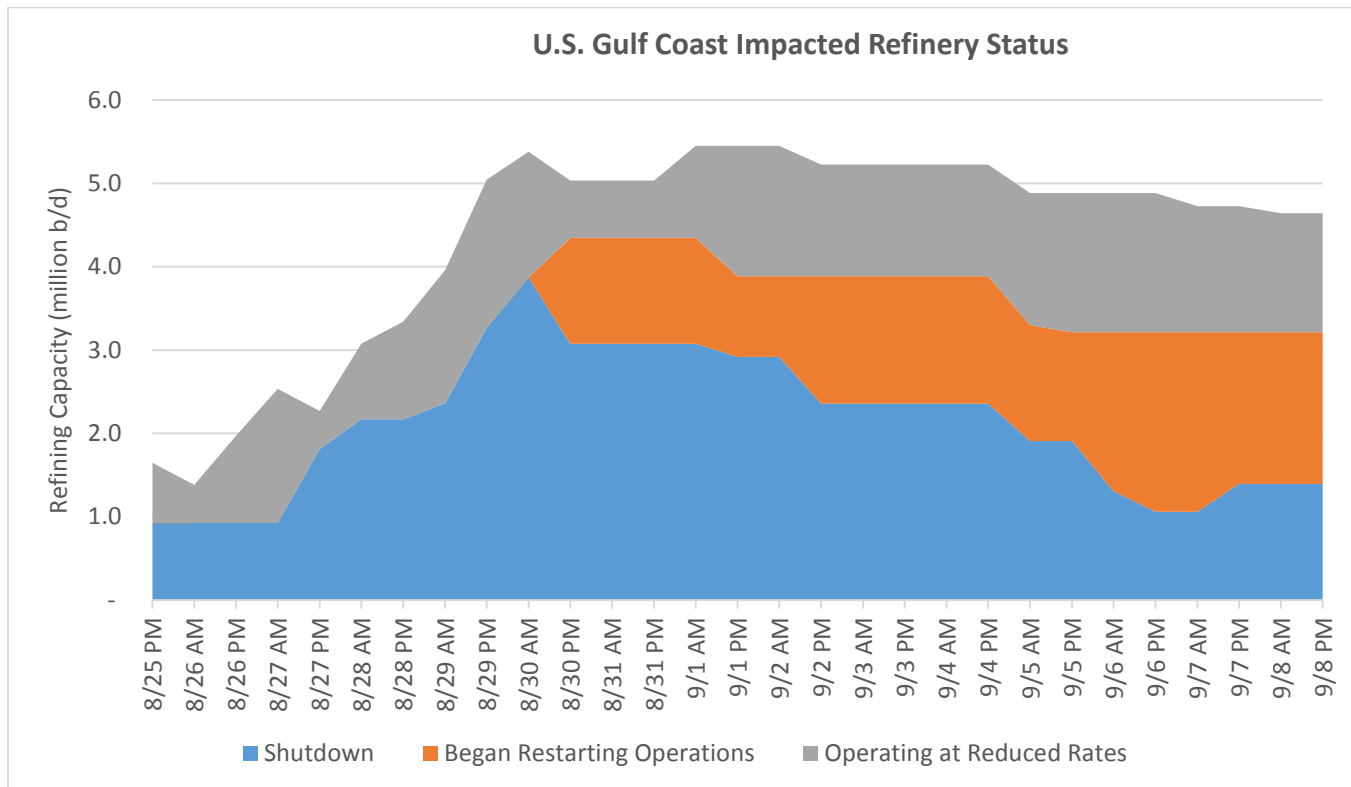


Hurricane Harvey

OIL & GAS SECTOR

PETROLEUM REFINERIES

- As of 02:00 PM EDT, September 8, six refineries in the Gulf Coast region were shut down, according to public reports. No shut refineries have changed their status since the last report. These refineries have a combined refining capacity of 1,395,000 b/d, equal to 14.4% of total Gulf Coast (PADD 3) refining capacity and 7.5% of total U.S. refining capacity.
- Five refineries are in the process of restarting after being shut down. This process may take several days or weeks to start producing product, depending whether any damage is found during restart. Production should be assumed to be minimal until restart is completed. These refineries have a combined capacity 1,819,199 b/d, equal to 18.8% of total Gulf Coast (PADD 3) refining capacity and 9.8% of total U.S. refining capacity. No restarting refineries have changed their status since the last report.
- At least five refineries in the Gulf Coast region were operating at reduced rates, according to public reports. These refineries have a combined total capacity of 1,427,776 b/d, equal to 14.7% of total Gulf Coast (PADD 3) refining capacity and 7.7% of total U.S. refining capacity. (NOTE: Actual crude throughput (production) reductions are lower than the total combined capacity). No refineries that were operating at reduced rates began operating at full rates since the last report.



The above chart summarizes impacts to Gulf Coast refining capacity as a result of Hurricane Harvey over time, as reported in DOE's Situation Reports. Impacted refining capacity is aggregated into three categories: 1) shutdown refineries (blue), 2) refineries that were



shut down and have begun restarting (orange), and refineries that are operating at reduced rates (gray). Refinery statuses are updated based on various news outlets and company websites.

PORTS

- The U.S. Coast Guard has set the following conditions for ports and waterways in the U.S. Gulf Coast region as a result of Harvey. Eleven ports are closed or open with restrictions. Crude imports at these ports averaged 2,077,000 b/d from January through May 2017.

Status of Texas and Louisiana Gulf Coast Ports as of 02:00 PM EDT 09/08/2017			
Port	Crude Imports Jan-May 2017 (b/d)	Status	Date Stamp
Sector Corpus Christi			
Brownsville	--	Open.	08/31/17
Corpus Christi	245,000	Port Condition Recovery. Open with restrictions. Allowing vessels up to 43' draft to transit during daytime hours only.	09/06/17
Sector Houston and Galveston			
Freeport	133,000	Open. 24/7. 38' max draft.	09/05/17
Galveston	114,000	Port Condition Recovery. Open with restrictions. Ship channel also open with restrictions. Galveston Bay Entrance Channel, Outer Bar Channel, Inner Bar Channel, Bolivar Roads Anchorages, Bolivar Roads Channel, and Galveston Harbor open, no restrictions, 24/7.	09/08/17
Houston	646,000	Port Condition Recovery. Open with restrictions. Houston Ship Channel open 24/7 below Sidney Sherman bridge with draft restrictions: <ul style="list-style-type: none"> • Entrance Channel to Houston Cement West – 40-foot max draft. • Houston Cement West to Sidney Sherman Bridge – 36-foot max draft. Intracoastal Waterway open 24/7.	09/05/17
Texas City	134,000	Open. 24/7.	09/05/17
Sector Port Arthur and Lake Charles			
Beaumont	33,000	Port Condition Recovery. Open with restrictions. 34' draft restriction from Light 56 to Port of Beaumont on the Sabine-Neches Waterway.	09/07/17
Lake Charles	218,000	Port Condition Recovery. Open with restrictions. 37 feet draft restrictions of the Calcasieu Ship Channel.	09/05/17
Nederland	--	Port Condition Recovery. Open with restrictions.	09/05/17
Orange	--	Port Condition Recovery. Open with restrictions.	09/07/17
Port Arthur	687,000	Port Condition Recovery. Open with restrictions. Daylight hours only.	09/07/17



Port Neches	--	Port Condition Recovery. Open with restrictions. <ul style="list-style-type: none"> Vessels > 500 gross tons limited to daylight hours above Texaco Island Intersection. Draft restriction of 34 feet in place for waters of Sabine-Neches Waterway below Neches River Intersection. 30-foot draft restriction for waters of Neches River. 	09/05/17
Sabine Pass	--	Port Condition Recovery. Open with restrictions.	09/05/17

Source: U.S. Coast Guard

WAIVERS:

- The table below lists fuel-related waivers issued by the U.S. Environmental Protection Agency (U.S. EPA) and State agencies.
- On August 30, U.S. EPA issued a multi-state (13 states) waiver for requirements of low-RVP conventional gasoline and reformulated gasoline (RFG). Later in the day, the waiver was expanded to include 38 states and Washington, DC.

State Fuel Waivers as of 02:00 PM EDT 09/08/2017					
State	Waiver	Issued By	Effective Dates		Status
			Start	End	
Multi-state waiver	<p>RVP standard waived for gasoline sold in affected counties where low-RVP gasoline is required (9.0 RVP or lower). Allows sale of gasoline up to 11.5 psi RVP in all states located in PADD 1, PADD 2, and PADD 3.</p> <p>RFG standard is also waived in the designated regions. Also waived are provisions prohibiting the blending of RFG blendstock with conventional gasolines or blendstocks.</p>	U.S. EPA	08/30/17 Expanded: 08/31/17 Extended: 09/07/17	10/26/17	Active
TX	RFG requirement waived in Houston-Galveston-Brazoria areas. Waiver expanded to four-county Dallas-Fort Worth RFG area 8/26. Allows the sale or distribution of conventional gasoline.	U.S. EPA	08/25/17	09/15/17	Active
TX	7.8 psi RVP standard waived for gasoline sold in 20 counties where low-RVP gasoline is required and are also under the Governor’s Disaster Declaration. Waiver expanded to 98 counties required to use low-RVP fuel 8/26. Allows sale of gasoline up to 9.0 psi RVP.	U.S. EPA	08/25/17	09/15/17	Active
LA	RVP requirements of 7.8 psi and 9.0 psi waived in applicable areas. Permits the sale or	State of Louisiana	08/29/17 Expanded:	09/15/17	Active



State Fuel Waivers as of 02:00 PM EDT 09/08/2017					
State	Waiver	Issued By	Effective Dates		Status
			Start	End	
	distribution of winter gasoline with an 11.5 psi RVP.		08/30/17		
MI	RVP regulations waived. Permits the transportation and sale of motor fuels 9.0 psi RVP in Wayne, Oakland, Macomb, St. Clair, Livingston, Washtenaw, Monroe, and Lenawee counties, and up to 11.5 psi RVP elsewhere in Michigan.	State of Michigan	08/31/17	09/15/17	Active
MS	RVP standards of 9.0 psi waived. Permits the sale or distribution of winter gasoline with an 11.5 psi RVP.	State of Mississippi	08/30/17	09/15/17	Active
SC	RVP standards of 9.0 psi waived. Permits the sale or distribution of winter gasoline with an 11.5 psi RVP. Allows the comingling of RFG with conventional gasoline. Waives butane blending and T V/L = 20 requirements.	State of South Carolina	09/07/17	10/31/17	Active
VA	Waived the RVP limit for gasoline ethanol blends prescribed by regulations.	State of Virginia	09/01/17	09/15/17	Active

Sources: [U.S. Department of Transportation](#); Governor Office Websites

- Nine states have declared state emergencies due to Harvey. Note that Kansas has not declared a State of Emergency, however is using its resources to assist other states. These declarations automatically waive select Federal Motor Carrier Safety Regulations (FMCSRs), including hours-of-service (HOS) regulations, for motor carriers hauling resources to aid in restoration efforts. The declarations exempt FCMSR in every state along the motor carrier’s route as long as the final destination is with the declared disaster areas in Texas or Louisiana.
- In addition, the Federal Motor Carrier Safety Administration (FMCSA) issued a Regional Emergency Declaration exempting FMCSRs in the States of Texas and Louisiana. On August 31, the FMCSA expanded the Regional Emergency Declaration to additional states and Washington, DC.
- The table below summarizes emergency declarations and HOS waivers issued by states in response to the impacts of Hurricane Harvey.

State Emergency Declarations and HOS Waivers as of 02:00 PM EDT 09/08/2017				
State	Details	Effective Dates		Status
		Start	End	
Regional (Multi-State)	Regional Emergency Declaration and FMCSR waiver issued by FMCSA. Applies to Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi,	08/25/17 Expanded 08/31/17	10/26/17	Active



State Emergency Declarations and HOS Waivers <i>as of 02:00 PM EDT 09/08/2017</i>				
State	Details	Effective Dates		Status
		Start	End	
	Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, South Carolina, Virginia, Washington, D.C. and West Virginia			
Texas	State of Disaster declared for 61 counties in Texas.	08/23/17 Expanded: 08/30/17 09/01/17	TBD	Active
Louisiana	State of Emergency.	08/23/17	TBD	Active
Kentucky	State of Emergency/HOS waiver issued for transporters of food, water, medicine, fuel and other commodities within the affected areas to aid in emergency response of affected areas. All economic requirements normally associated with interstate motor transportation for all vehicles providing relief supplies to affected areas.	08/28/17	09/27/17	Active
Alabama	State of Emergency/HOS waiver issued for petroleum products and petroleum-related supplies, goods, and services in the State.	08/30/17	09/29/17	Active
Georgia	State of Emergency/HOS waiver issued for petroleum products through the State.	08/30/17	09/20/17	Active
Kansas	Governor acknowledged state of emergency in Texas and declared that licensing rules, registration and fuel tax permits, and oversize vehicle permit fees are waived for motor carriers and persons operating motor vehicles directly participating in the relief and restoration effort.	08/30/17	09/20/17	Active
North Carolina	State of Emergency/HOS waiver issued for petroleum products, and emergency relief supplies and services through the state.	08/31/17	09/30/17	Active
South Carolina	State of Emergency/HOS waiver issued for petroleum products through the state.	08/31/17	09/30/17	Active
Michigan	State of Emergency/HOS waiver issued for petroleum products through the state.	08/31/17	09/15/17	Active
Virginia	State of Emergency/HOS waiver issued for petroleum products through the state.	09/01/17	09/15/17	Active



- On September 1, PHMSA issued an Emergency Stay of Enforcements for operators affected by Hurricane Harvey. The declaration states that PHMSA does not intend to take any enforcement action relating to their noncompliance with certain operator qualification requirements, or pre-employment and random drug testing requirements, arising from the use of personnel for pipeline activities related to response and recovery.
- On September 5, the Federal Energy Regulatory Commission (FERC) approved an emergency waiver tariff, effective immediately, allowing the pipeline system to accept 11.5 RVP gasoline (A3) to fill nominations for 7.8 RVP gasoline (A1) and 9.0 RVP gasoline (A2); and to ship conventional gasoline in lieu of reformulated gasoline. Colonial's tariffs and tariff practices would not normally permit it to accept product that does not conform to the specifications of the product that was nominated.

