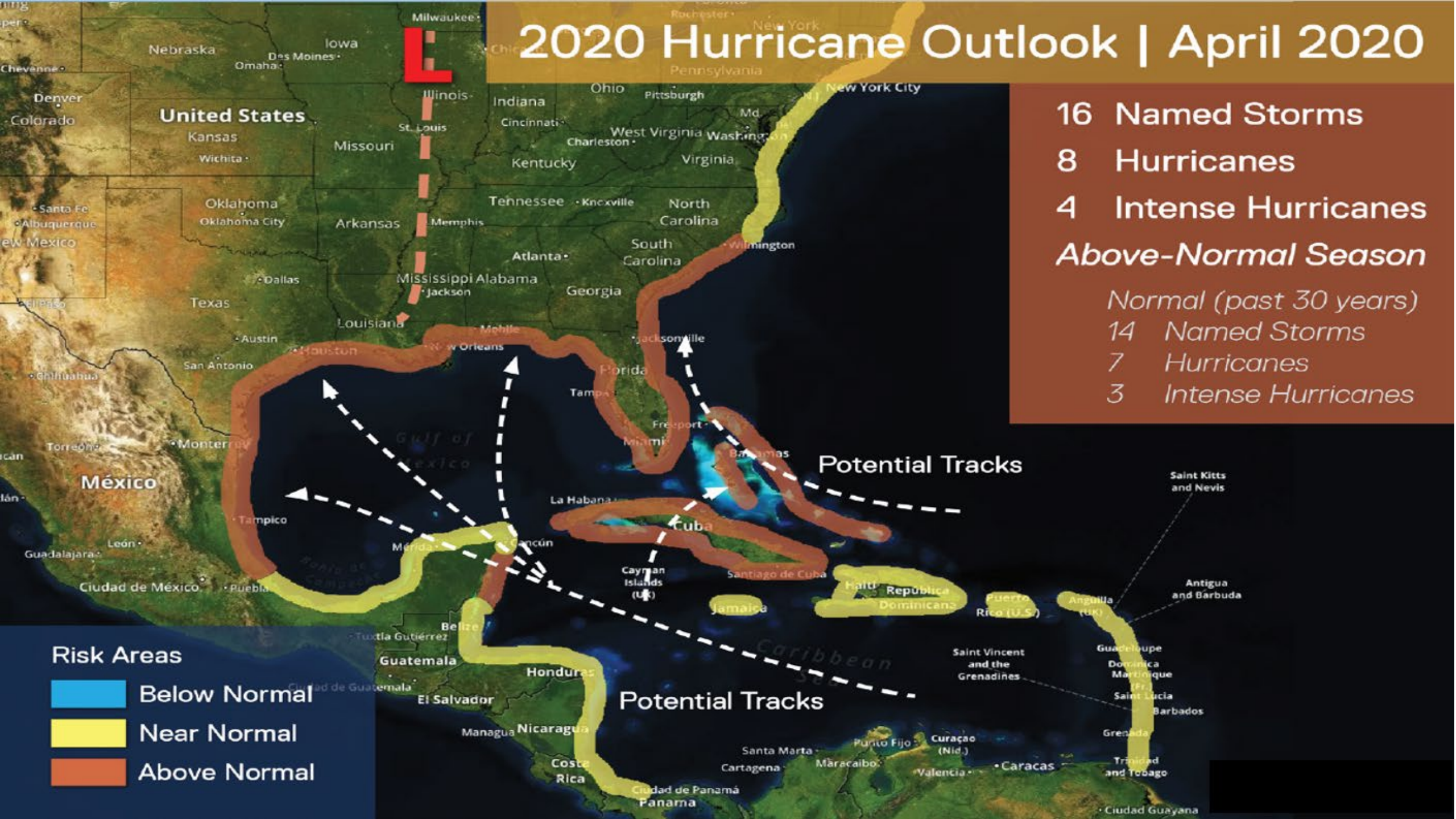
Chemical Industry Hurricane Preparedness

Pasadena CAC

April 2020


2020 Hurricane Outlook | April 2020
16 Named Storms
8 Hurricanes
4 Intense Hurricanes
Above-Normal Season
Normal (past 30 years)
14 Named Storms
7 Hurricanes
3 Intense Hurricanes
Potential Tracks
Potential Tracks
Risk Areas
Below Normal
Near Normal
Above Normal
United States
México
Cuba
Jamaica
Haiti
República Dominicana
Puerto Rico (U.S.)
Caribbean Sea
Gulf of Mexico
Milwaukee
Iowa
Nebraska
Des Moines
Omaha
Chicago
Rochester
New York
Pennsylvania
Ohio
Pittsburgh
New York City
Illinois
Indiana
Cincinnati
West Virginia
Charleston
Md.
Washington
Kentucky
Virginia
St. Louis
Missouri
Kansas
Wichita
Denver
Colorado
Chevenne
Oklahoma
Oklahoma City
Arkansas
Memphis
Tennessee
Knoxville
North Carolina
South Carolina
Wilmington
Atlanta
Georgia
Mississippi
Alabama
Jackson
Dallas
Texas
Louisiana
Mobile
New Orleans
Houston
Austin
San Antonio
Jacksonville
Florida
Tampa
Miami
Freeport
Bahamas
La Habana
Santiago de Cuba
Cayman Islands (UK)
Cancún
Mérida
Tampico
Monterrey
Torreón
Chihuahua
Santa Fe
Albuquerque
New Mexico
El Paso
Guadalajara
León
Ciudad de México
Puebla
Belize
Tuxtla Gutiérrez
Guatemala
Ciudad de Guatemala
Honduras
El Salvador
Managua
Nicaragua
Costa Rica
Ciudad de Panamá
Panama
Santa Marta
Cartagena
Maracaibo
Punto Fijo
Curaçao (Nid.)
Valencia
Caracas
Ciudad Guayana
Trinidad and Tobago
Grenada
Barbados
Saint Lucia
Martinique (Fr.)
Dominica
Guadeloupe
Saint Vincent and the Grenadines
Antigua and Barbuda
Anguilla (UK)
Saint Kitts and Nevis

Preparedness Priorities

Preparation is the key to addressing the potential dangers of hurricanes. For that reason, chemical facilities take steps well in advance of a storm's arrival with the following priorities in mind:

- Protect employees and surround community
- Prevent the release of chemicals
- Restore operations and production essential to producing vital everyday items

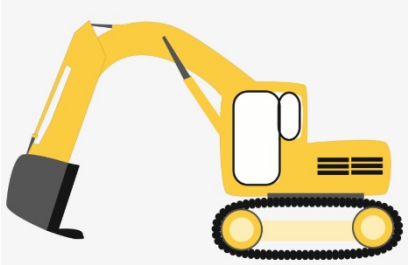
Hurricane Hazards

Each hurricane is unique but there are three common hazards that chemical facilities address through a wide-range of protective measures:

- High Winds
- Storm Surge
- Excessive Rain

Facility Protective Measures

- Construction
- Planning
- Preparation
- Operations
- Monitoring
- Communications
- Personnel
- Inspections



Construction

Chemical facilities are designed and built to withstand major storms. Specific construction elements can include:

- Hardening operations to withstand damaging winds
- Building dikes/levees to contain spills
- Elevating equipment and key operations to avoid flooding
- Constructing barriers to hold back storm surge

Planning

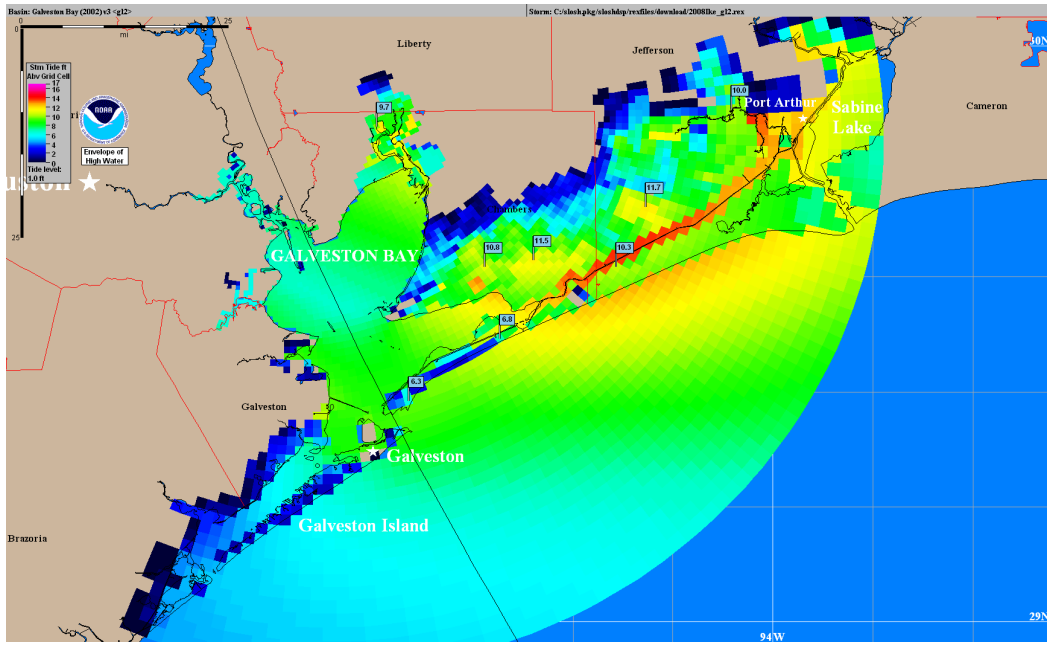
Chemical facilities maintain a set of comprehensive emergency plans for various weather events including hurricanes. These plans are tested and drilled regularly. The plans address a variety of emergency scenarios and outline criteria that would trigger different actions.

Example: When the wind gets to X miles per hour or the water gets to Y feet above normal level, the facility will shut down.

Storm Modeling

Chemical facilities utilize the **S**ea, **L**ake and **O**verland **S**urges from **H**urricanes (SLOSH) model, a computerized numerical model developed by the National Weather Service (NWS), to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes by taking into account the atmospheric pressure, size, forward speed, and track data. These parameters are used to create a model of the wind field which drives the storm surge.

The SLOSH model consists of a set of physics equations which are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads, levees and other physical features.



Preparation – Before Hurricane Season

Chemical facilities take a wide range of steps to safeguard their facility well in advance of June 1st hurricane season including:

- Review and update facility Hurricane Plan
- Inventory and restock hurricane supplies (for storm ride out crew)
- Obtain Essential Personnel Credentials from Harris County Office of Emergency Mgt
- Solicit storm ride out crew volunteers
- Conduct hurricane specific safety training
- Review and update rental equipment needs (generators, pumps, etc.)
- Verify employee emergency contact information
- Distribute hurricane communication information to employees

Preparation – Storm in Gulf

When a tropical storm or hurricane enters or forms in the Gulf of Mexico, chemical facilities begin tracking and start preparations including:

- Track the storm's predicted path
- Confirm availability of rental equipment

Preparation – Predicted Landfall

48-72 hours prior to a predicted landfall impacting LaPorte, chemical facilities will determine if they will continue operating or shutdown. Preparations continue including:

- Confirm availability of ride out crew members
- Test backup generators and pumps
- Fill equipment and vehicles with fuel
- Secure tanks and cooling towers
- Secure equipment, buildings and loose objects
- Move materials to higher ground or inside buildings
- Couple railcars together and apply brakes
- Stage rental equipment
- Begin orderly shutdown of facility (if determined to be appropriate)

Storm Forecasting

Chemical facilities utilize professional weather services to provide custom actionable forecasts for each tropical storm or hurricane that allows them to make the best decisions.

Trigger Report – Tropical Storm Imelda Adv #1

Issued: 12:00PM CDT Tuesday, September 17, 2019

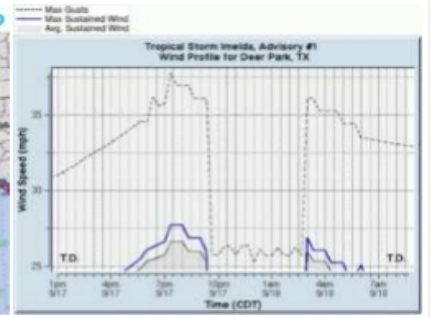
Current Conditions	
Location	28.7N / 95.4W - 73 miles SSW
Movement	N @ 6 mph
RPA Status	Negative
Winds	40 mph gusting 50 mph (TS)
Current HSI	2 (1 size / 1 intensity)
Current Indicated Phase	N/A

Forecast Conditions	
Max Forecast Winds	40 mph gusting 50 mph (TS)
Max Forecast HSI	2 (1 size / 1 intensity)
Hours to Next Trigger Point	N/A
Estimated Next Trigger Point Reached	N/A

Forecast Track

Scope of Winds

Wind Profile

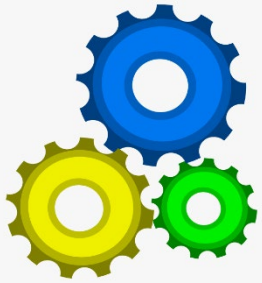


Note: *Hours remaining is calculated from the above issue time.*

Wind Field Forecast and Worst-Case Arrival Times at Deer Park, TX							
	Forecast ETA			Worst-Case ETA		Probability of Wind Impact	
Wind Field	Hrs. Until Arrival	Arrival Time/Date	Duration	Hrs. Until Arrival	Arrival Time/Date	Value	Trend
39mph	N/A	N/A	N/A	4	4PM Tue Sep 17	20%	N/A
58mph	N/A	N/A	N/A	N/A	N/A	<1%	N/A

Phase	Trigger Parameter	Trigger Reached?	Estimated Hours Remaining and Time
I	RPA+	No	Trigger not forecast to be met
II	WCS39 < 72 *and* PWI58 > 15%	No	Trigger not fully met
III	WCS39 < 48 *and* PWI58 > 25%	No	Trigger not fully met
IV	FTA39 < 24 *and* PWI58 > 50%	No	Trigger not forecast to be met
V	Sustained winds fall below 39mph	No	Trigger not forecast to be met

Predicted Conditions for Your Deer Park, TX facility	
Discussion	Imelda is predicted to track inland near Freeport over the next several hours then track across the greater Houston area tonight and on Wednesday. The main threat inland across southeast Texas will be from heavy rainfall over the next 48 hours as bands of squalls stream inland mainly east of the depression's track across southeast Texas.
Rain	General rainfall amounts of 6-12 inches over the next 48 hours as bands of squalls stream inland into the greater Houston/Galveston area. Some locations could receive over 18 inches of rain between now and Friday morning.
Storm Surge	Tides along the upper Texas coast are running 1-2 feet above normal today due to moderate onshore winds. Tides will slowly diminish on Wednesday as onshore winds decrease.

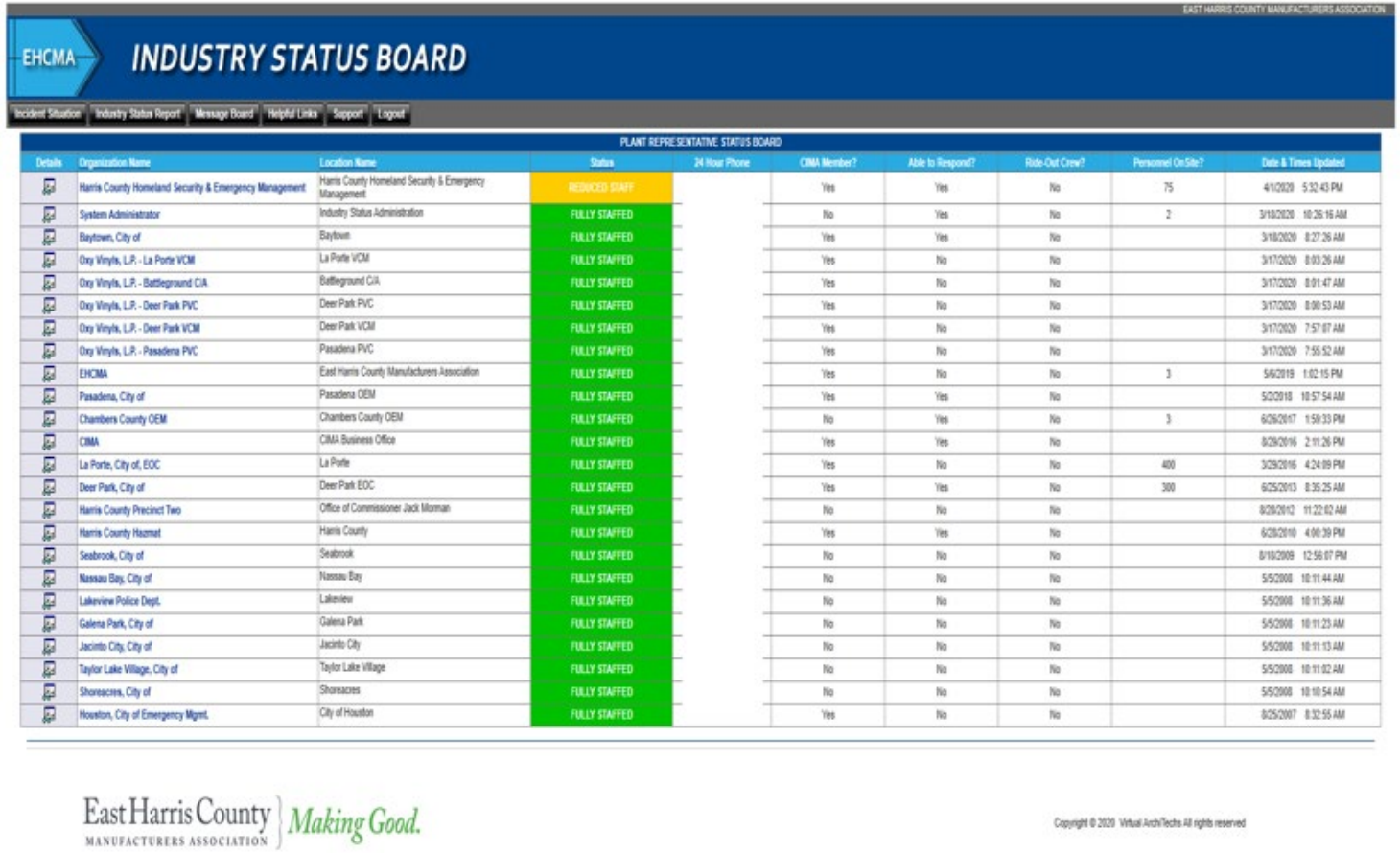


Operations

Companies may reduce operations, shut down a facility, and/or evacuate personnel in advance of a hurricane. Shutting down and restarting a chemical facility is a complicated and time consuming process that must be done carefully to ensure the safety of employees and minimize emissions. To ensure that this is done as safely as possible, special regulations and emissions limits apply to periods of startup and shutdown. Facilities have plans for safe shutdown and restart of processes, as well as safety and security plans for securing the premises during a shutdown.

Industry Status Board

East Harris County Manufacturers Association (EHCMA) maintains an Industry Status Board in conjunction with Local Emergency Planning Committees (LEPCs) to keep emergency officials abreast of facility status, number of personnel onsite and emergency contact information.



EAST HARRIS COUNTY MANUFACTURERS ASSOCIATION

EHCMA **INDUSTRY STATUS BOARD**

Incident Situation | Industry Status Report | Message Board | Helpful Links | Support | Logout

PLANT REPRESENTATIVE STATUS BOARD

Details	Organization Name	Location Name	Status	24 Hour Phone	CIMA Member?	Able to Respond?	Ride-Out Crew?	Personnel On Site?	Date & Times Updated
	Harris County Homeland Security & Emergency Management	Harris County Homeland Security & Emergency Management	REDUCED STAFF		Yes	Yes	No	75	4/1/2020 5:32:43 PM
	System Administrator	Industry Status Administration	FULLY STAFFED		No	Yes	No	2	3/18/2020 10:26:16 AM
	Baytown, City of	Baytown	FULLY STAFFED		Yes	Yes	No		3/18/2020 8:27:26 AM
	Oxy Vinyls, L.P. - La Porte VCM	La Porte VCM	FULLY STAFFED		Yes	No	No		3/17/2020 8:03:26 AM
	Oxy Vinyls, L.P. - Battleground CIA	Battleground CIA	FULLY STAFFED		Yes	No	No		3/17/2020 8:01:47 AM
	Oxy Vinyls, L.P. - Deer Park PVC	Deer Park PVC	FULLY STAFFED		Yes	No	No		3/17/2020 8:00:53 AM
	Oxy Vinyls, L.P. - Deer Park VCM	Deer Park VCM	FULLY STAFFED		Yes	No	No		3/17/2020 7:57:07 AM
	Oxy Vinyls, L.P. - Pasadena PVC	Pasadena PVC	FULLY STAFFED		Yes	No	No		3/17/2020 7:55:52 AM
	EHCMA	East Harris County Manufacturers Association	FULLY STAFFED		Yes	No	No	3	5/6/2019 1:02:15 PM
	Pasadena, City of	Pasadena OEM	FULLY STAFFED		Yes	Yes	No		5/2/2018 10:57:54 AM
	Chambers County OEM	Chambers County OEM	FULLY STAFFED		No	Yes	No	3	6/26/2017 1:59:33 PM
	CIMA	CIMA Business Office	FULLY STAFFED		Yes	Yes	No		8/29/2016 2:11:26 PM
	La Porte, City of, EOC	La Porte	FULLY STAFFED		Yes	No	No	400	3/29/2016 4:24:09 PM
	Deer Park, City of	Deer Park EOC	FULLY STAFFED		Yes	Yes	No	300	6/25/2013 8:35:25 AM
	Harris County Precinct Two	Office of Commissioner Jack Morman	FULLY STAFFED		No	No	No		8/28/2012 11:22:02 AM
	Harris County Hazmat	Harris County	FULLY STAFFED		Yes	Yes	No		6/28/2010 4:06:39 PM
	Seabrook, City of	Seabrook	FULLY STAFFED		No	No	No		8/18/2009 12:56:07 PM
	Nassau Bay, City of	Nassau Bay	FULLY STAFFED		No	No	No		5/5/2008 10:11:44 AM
	Lakeview Police Dept.	Lakeview	FULLY STAFFED		No	No	No		5/5/2008 10:11:36 AM
	Galena Park, City of	Galena Park	FULLY STAFFED		No	No	No		5/5/2008 10:11:23 AM
	Jacinto City, City of	Jacinto City	FULLY STAFFED		No	No	No		5/5/2008 10:11:13 AM
	Taylor Lake Village, City of	Taylor Lake Village	FULLY STAFFED		No	No	No		5/5/2008 10:11:02 AM
	Shoreacres, City of	Shoreacres	FULLY STAFFED		No	No	No		5/5/2008 10:10:54 AM
	Houston, City of Emergency Mgmt.	City of Houston	FULLY STAFFED		Yes	No	No		8/25/2007 8:32:55 AM

East Harris County MANUFACTURERS ASSOCIATION | *Making Good.*

CURRENT STATUS for Oxy Vinyls, L.P. - La Porte VCM
FULLY STAFFED

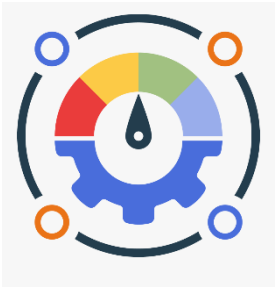
Organization Name:	Oxy Vinyls, L.P. - La Porte VCM	Key Map Location:	539B
Location Name:	La Porte VCM	GPS Longitude:	95.07834
Location Address:	2400 Miller Cut-Off Rd	GPS Latitude:	29.72480
City:	La Porte	Assistance Requested (CIMA):	
County:	Harris		
State & Zip Code:	TX - 77571-9759	Resources Requested(CIMA):	
Location Main Phone:			
Primary Contact Name	Todd Behne		
Contact Phone Number:		Are you able to respond:	No
Contact Cell Phone		# Employees to Respond:	
Contact Satellite Phone:		Available Resources:	
Contact Email Address:	todd_behne@oxy.com		
CIMA Member:	Yes	Response Equipment:	
CIMA Zone:	3		

ADDITIONAL CONTACT INFORMATION

OEM Staff:	No	Location Registration Date:	8/7/2007 1:08:51 PM
Location Web Site:		Secondary Contact Name:	Joseph Munn
Primary Contact Name	Todd Behne	Secondary Contact Job Title:	Production Manager
Primary Contact Job Title:	Plant Manager;	Secondary Contact Phone:	
Primary Contact Phone:		Secondary Contact Cell:	
Primary Contact Cell:		Secondary Contact Pager:	
Primary Contact Pager:		Secondary Contact Satellite Phone:	
Primary Contact Satellite Phone:		Secondary Contact Email:	joseph_munn@oxy.com
Primary Contact Email:	todd_behne@oxy.com		

RIDE OUT CREW INFORMATION

Ride Out Crew Activated?	NO Date/Time Activated: 1/1/1900 12:00:00 AM	ROC OFF SITE ACTIVATED:	1/1/1900 12:00:00 AM
Personnel Status Last Updated:	3/17/2020 8:03:26 AM		
Ride Out Crew Located ON SITE?	No	Ride Out Crew Located OFF SITE?	No
Ride Out Crew Address:	2400 Miller Cut-Off Rd	ROC OFF Site Address:	710 W. San Augustine
Ride Out Crew City:	LaPorte	ROC OFF Site City:	Deer Park
Ride Out Crew State and Zip:	TX - 77571	ROC OFF Site State:	TX
Ride Out Crew County:	Harris	ROC OFF Site Zip:	77536
Ride Out Crew Building:	Control Room	ROC OFF Site County:	Harris
Ride Out Crew 24 Hour Phone:	:T.:	ROC OFF Site Building:	Deer Park High School South Campus
Ride Out Crew GPS Longitude:	95.07834	ROC OFF Site 24 Hour Phone:	EXT.:
Ride Out Crew GPS Latitude:	29.72480	ROC OFF Site GPS Longitude:	
Key Map Location:	539B	ROC OFF Site GPS Latitude:	
Ride Out Crew Number Employees:		ROC OFF Site Key Map:	
Ride Out Crew Supervisor:		ROC OFF Site Number of Employees:	
Ride Out Crew Supervisors Phone:		ROC OFF Site Supervisor:	
Ride Out Crew Supervisors Cell:		ROC OFF Site Supervisors Phone:	
Ride Out Crew Contact Name:		ROC OFF Site Supervisors Cell:	
Ride Out Crew Contact Job Title:		ROC OFF Site Contact Name:	
Ride Out Crew Contact Cell:		ROC OFF Site Contact Job Title:	
Ride Out Crew Contact Email:		ROC OFF Site Contact Cell:	
Ride Out Crew LAN Number:		ROC OFF Site Contact Email:	
Ride Out Crew Satellite Phone:		ROC OFF Site LAN Number:	
Ride Out Crew Cell Phone:		ROC OFF Site Satellite Phone:	
Ride Out Crew 24 Hour Number:		ROC OFF Site Cell Phone:	
Ride Out Crew Employees Names:		ROC OFF Site Employees Names:	



Monitoring

When feasible, emergency “ride out” crews are used to closely monitor the facilities during the storm. The crews consist of employees who are well trained to deal with the emergency situations and make on the spot decisions to keep everyone safe. Any incidents or releases are reported to local authorities and government agencies.

Communications

Companies confirm contact information with emergency personnel and employees. They also form backup plans for breakdowns and share those with local emergency planning committees (LEPCs). Facilities have backup communication with emergency officials including:

- Satellite phones
- Satellite internet access
- 2-way radios

Personnel

Facilities work with employees to prepare family preparedness plans and provide temporary housing, transportation, basic amenities, and medical support for workers impacted by the storm.

Communication systems are put in place to track the safe whereabouts of employees and assess their needs.

Post Storm Inspections

Before allowing employees back onsite or restoring operations, post storm assessment teams assess the facility for any damage or remaining hazards. To facilitate re-entry, these key individuals will be issued Harris County Essential Personnel Credentials prior to evacuation. For safety reasons, access to certain areas of the facility can be restricted to essential personnel until operations come fully online.