

# Severe Weather Preparedness and Best Practices

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*Assembled by various sources in the EHCMA outreach area.*

**Rod Herrick**

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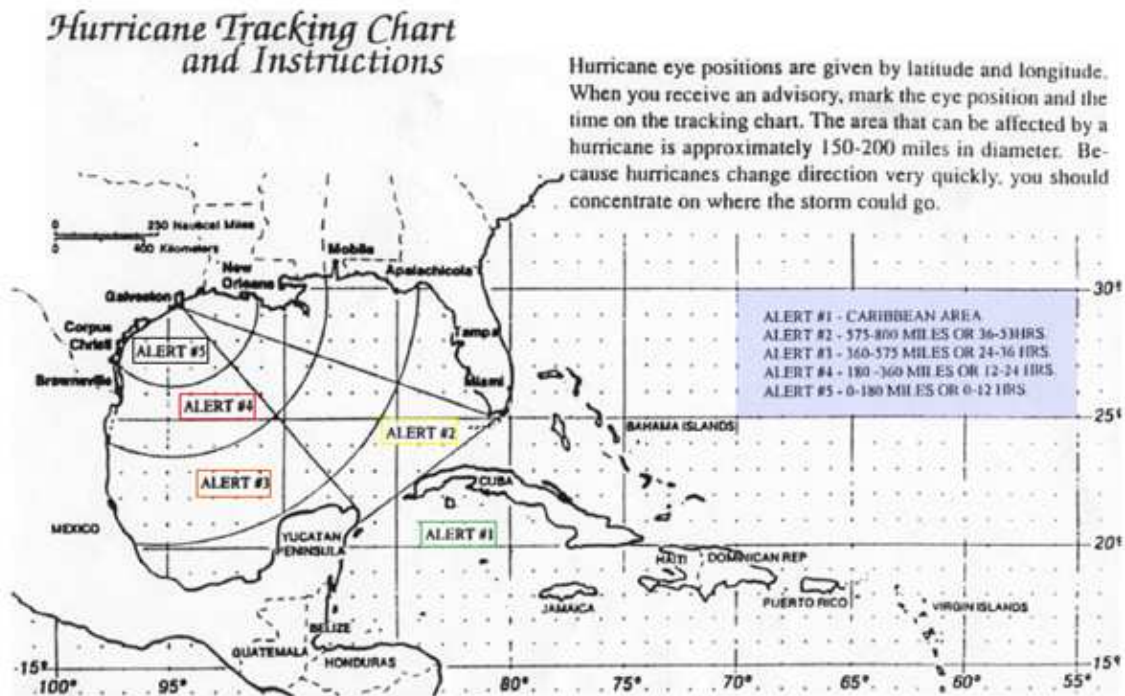
## Background

- Hurricane Harvey made landfall in Port Aransas as a Category 4 storm, then meandered exceptionally slowly up the Texas coast. It was not really a hurricane when it reached the Houston area and dumped ~40-50 inches of rain over 5+ days. In Harris County, it was a tropical storm whose rainfall intensity and duration caused flooding rather than the high wind and surge damage of major hurricanes. Whereas most bad floods have affected part of Harris County, Harvey affected all of this county and many more. *Most plant hurricane plans are phased plans based on wind speeds and days from landfall, not flooding.*
- Before the storm hit, Harris County Judge Ed Emmett pre-applied for Harris County to be designated a federal disaster area. (The County Judge requests the Governor to do so, the Governor requests the President to do so.) This allowed the state to move its resources, including equipment and state military personnel, closer to the county before the storm for quicker response when needed.
- David Wade, the Harris County Industrial Liaison, operates the East Harris County Manufacturers Association (EHCMA) Hurricane Status Reporting System for EHCMA's Emergency Management and Communications Committee. Plants provide information that is solely for emergency response coordinators (ERCs) in Harris County and east Harris County cities so the ERC has contact information for the site and knows whether plants in its jurisdiction have a ride-out crew on site. Not all plants took part in the system.
- During the storm, the area south of I-10 and east of I-45 was without a functioning hospital for 72 hours. Most EHCMA member plants are located in this area.

# Hurricane Categories

Category	Winds	Surge	Central Pressure
1 - Minimal	74 - 95 mph	4 - 5 feet	greater than 980 mb or 28.94 in
2 - Moderate	96 - 110 mph	6 - 8 feet	965 - 979 mb or 28.50 - 28.91 in
3 - Extensive	111 - 130 mph	9 - 12 feet	945 - 964 mb or 27.91 - 28.47 in
4 - Extreme	131 - 155 mph	13 - 18 feet	920 - 944 mb or 27.17 - 27.88 in
5 - Catastrophic	greater than 155 mph	greater than 18 feet	less than 920 mb or 27.17 in

# Hurricane Tracking Chart



# Hurricane Key Points

NOTE: Hurricane Season is June 1 through November 30

Three Phases: Pre-, During, & Post

## Pre- Planning – Beginning of year – Prior to Hurricane Season

- Ensure you have a Hurricane Preparation Plan
  - Contact Information – employees, local government and emergency
  - Assessment Plans
  - Evacuation plans and Triggers
  - Ride-out plans and Triggers
  - Staffing plans
    - Various teams – Ride Out, Recovery, etc.
    - Command Center – On/Off Site
    - Verify back-up for each team
- Conduct Hurricane incident drill to review and validate site procedure
- Train on the Incident Command System (ICS)
- Discuss guidelines intended to aid decision making
  - Event timelines (i.e., T-minus landfall driven schedule)
  - Hurricane characteristics at landfall – water, wind or both
    - Wind speed
    - Surge
    - Damage
    - Rain amounts / drainage
- Operations guidelines
  - Criteria for operating / shutting down of units
  - Specific checklists for equipment preparation
  - T-minus schedule for moving equipment
  - T-minus operations plan- stable operations to partial to full shutdown
  - Tankage safety – levels, roof drains, etc.
- Supplies, equipment, etc., onsite prior to season or contractual agreements in place with suppliers to provide during inclement weather
  - Utilize Regional Crisis Center to support activities (Procurement, Legal, Communications, etc.)
  - Supplies for:
    - Satellite Command Center
    - Ride Out Team
    - Recovery Efforts

- Medical Needs
- Know your critical utility needs and plan accordingly
  - Steam
  - Electricity
  - Nitrogen – safety systems during curtailments
  - Compressed gases, etc.
- Temporary Equipment Plans, e.g.,
  - Generators
  - Light Stands
  - Pumps (electric / gas/diesel)
  - Rain gear/boots
  - Cots/Bedding/MRE's
  - Sandbags
  - Relocate equipment
  - Dry clothes / Cleaning facilities
- Operations Game Plan – Establish plan and verify unit shutdown procedures
  - Feedstocks
  - Contractors – update key contact list and know their plans, know your historical key needs
    - Electrical power contractors
    - Cooling tower contractors
    - Equipment that could easily be damaged
  - Catalyst and Chemicals lists
  - Logistics – packaging, truck, rail plans
  - Supply planning
  - Supplier availability – verify their plans
  - On-site inventory – plan stocking for hurricane season – locate out of hurricane region
  - Details such as tractor trailer / qualified drivers for onsite tanker spotting or Staged or guarantee to deliver
- Meet with local government and discuss plan – verify with LEPC, secure authorizations for employees to access site during/after event
- Prepare Incident Communication Plan NOW – develop various templates
- Notify Federal and State Regulatory Agencies (EPA, TCEQ, RR Commission, etc)

## During Hurricane Season

- For plans to be effective, each organizational division/unit must have a supporting detailed response plan that includes:

- Checklists of anticipated action steps for each preparedness condition.
  - Appropriate Management ownership for developing and updating that division's/unit's plan.
- A good preparation plan strategy is to get as many low risk/low cost actions as possible started early to allow a quick and safe response during the critical hours when the ultimate strength and destination of a storm are being determined.
- Monitor Weather more closely – Use StormGeo – establish “who” monitors during season
- Have regular weather discussions and engage Weather organizations (e.g., updates 1/day, every 4 hours, every hour, etc.)
- Have a strong personnel accounting system for onsite and those at home (for relief purposes)
  - Finalize Ride Out Team plan (with supplies to live in) by June 1<sup>st</sup>
  - Establish back-ups for Ride Out Team (operations, security, maintenance onsite (technical, others remote)) – people take vacation during hurricane season – prepare for it
- Encourage personnel to have a home hurricane plan ready and available – provide handout
  - Understand evacuation routes
  - Have prescription medication ready
  - Have sufficient cash
- Survey work areas – Reinforce efforts throughout season – monitor daily
  - Prepare for cleanup of areas
  - Initiate tie-down operations, remove scaffolds, safe cranes
- Shutdown Plans – unit review monthly shutdown procedures
- Logistics – speak with suppliers – know their plans
- Monitor employee contact information and share expectations
  - Use digital media to post call numbers and emails
  - Send mailings to home with magnetic refrigerator information
  - Discuss regularly with your employees
  - Verify key team staffing – monthly
- Check and verify supply and essential list with teams – monthly
- Check and verify medical supplies and local hospital plans - monthly

## During Hurricane Event

- Execute Hurricane Plan / Initiate Incident Command
- Activate Regional Crisis Center Team – Phase 3, 72 hour alert
- Staff Incident Command System

- Regular Staff Meetings – utilize standard agenda
  - Closely monitor weather and report out – define who
  - Accountability (Onsite and Offsite) – Remote set-ups needed?
  - Verify who is in charge of what? Vacation – back-ups
- Staff
  - Allow ride out teams to manage home status prior to ride out
  - Secure access to site (limit personnel)
  - Provide Ride Out Teams / Stage food & water / Organize sleeping & bedding
  - Provide for Assessment Team
  - Implement rotational assignments
- Fuel
  - Fuel all vehicles
  - Ensure emergency supplies of fuel will be available
  - Fuel all generators/light stands/temporary power stations/portable pumps
- Notify suppliers that there may be delivery delays
- Complete final tests of emergency equipment & radio/communication systems
- Supplies – final verification that all is in place
- Contact local government and LEPC
- Initiate site shutdown sequencing – inform ICC (Incident Command Center) regularly

## Post Hurricane Activities

- Ensure personnel accounting (inside facility & at home)
- Restore data to get your business up and running
- Enact your Assessment Team
- Enact your Recovery Team – ensure you have a structured organizational chart
  - Assist personnel recovery efforts – housing, fuel, supply, etc.
  - Provide financial assistance
  - Communicate assistance resources
- Keep personnel communications open – Push/Pull
- Ensure health and safety / Site security plan – enact pre-startup safety reviews with top level sign-offs
- Initiate Restart - Restore pre-event operations with input from unit/site Assessment and Recovery Teams
- Continuously monitor medical supplies and hospital conditions – plan for worst with EMT
- Capture lessons learned – update procedures, critique activities

# Hurricane Plan Objective

This plan outlines steps to be taken to prepare your site prior to Hurricane season, respond to the threat of a hurricane, provide ride out contingencies in the event of a landfall near the site and establish an assessment and recovery plan to expedite return to normal operations following a hurricane. This plan is designed to support and protect personnel, minimize environmental impact and maximize unit availability in all phases of a storm.

## Hurricane Plan Phases

### Preparation Phase

Completion of tasks and teams required to prepare the site prior to each hurricane season, and to expedite the Assessment and Recovery Phases if required. For example of Task details, please see Attachment #1.

### Response Phase

Staged alert protocol is activated when the Hurricane Alert Level is Phase 3 or higher for your site. See Attachment #2 and #4.

### Ride Out Phase

This phase is activated by the Site Manager only when the site is shutdown and/or evacuated and the Ride out Team is left to monitor the integrity and security of the facility. See Attachment #6.

### Recovery Phase

Following landfall, it will be necessary to limit access to the site to personnel essential to the evaluation/restoration of the site since basic human services in the community will be stretched thin. This phase will stay in effect until the lifting of any mandatory evacuation order. See Attachment #5 and #8, for activities and personnel structure.

## Hurricane Teams

### Ride Out Team

A Ride out Team command structure is detailed in Attachment #4 and consists of personnel assigned from various Site Departments. The Ride Out Team is detailed in Attachment #6 and is staffed by qualified volunteers. Ride Out Team members must commit to report to the

site in the event of a mandatory evacuation and remain until released. Non Ride Out Team personnel will be required to report to work as scheduled until they are relieved by a Ride Out Team member or released by Site Management even after a mandatory evacuation has been called. It is the responsibility of the Ride Out Team to maintain or reduce operating activities to the level designated by Management during the Response Phase of a hurricane event.

### Assessment Team

The Assessment Team organization is detailed in Attachment #3 and is made up of personnel assigned from various site Departments. As soon as safely practical at the beginning of the Recovery Phase, they are responsible for returning to the site to conduct an initial security/damage assessment and to secure the facility to the best of their ability.

### Recovery Team

The Recovery Team command structure is detailed in Attachment #8 and is made up of personnel assigned from various site Departments. The hurricane Recovery Team is depicted in Attachment #3. They are responsible to restore the Site to normal operations following initial damage assessment until any mandatory evacuation order is lifted.

## Hurricane Preparation

### Unit Level

#### Unit Check List Update and Validation by Phase

At the beginning of hurricane season, business units, construction areas, and fenceline companies will prepare their areas for the hurricane season by completing the items on the Hurricane Preparedness Checklist. Refer to example Hurricane Checklist Attachment #1. The completed checklist should be approved by the responsible unit lead and submitted to the Site Hurricane Coordinator no later than May 15 of each year.

The Communications Manager will issue various site wide communications for annual awareness announcing hurricane season and reminding employees of info line access and call in procedures.

#### Watch Preparations

Be watchful of loose materials that must be tied down or brought inside before high winds are anticipated. Some examples are:

- Chain operator chains and overhead cranes
- Ladders, pipe
- Storage buildings not on slab

- Fire extinguishers (Tie to mounts with retractable Bunge cords during pre-season preparations).
- Waste containers
- Sheet metal and building materials
- Bicycles
- Cylinders, buckets, barrels
- Chemical totes
- Incomplete construction material and scaffolds
- Emergency escape respirators if cabinets are loose

Include in your plan a detailed inspection of elevated platforms and pipe racks for loose materials. Some examples are:

- Fire extinguishers
- Ropes, hoses
- Ladders, scaffolds
- Fittings and tools
- Incomplete construction material
- Emergency escape respirators if cabinets are loose

## **Personnel Preparation**

### **Identify Ride Out Team Members**

A small number of employees may stay in the plant during level 1, 2, or 3 hurricanes to perform plant security and leak mitigation. In preparation for Hurricane Season identification of Ride Out Team Members is essential. Therefore, critical personnel that have in depth knowledge of the operating facility, environmental, security, maintenance, electrical/instrument, logistics and medical will be requested to serve on this team. Personnel that have agreed to serve on the Ride Out Team will be communicated to Incident Command (IC) for consideration. See Attachment #6.

The Ride Out Team mission is:

- Plant Security
- Local contact for city, county, or industrial emergency response teams
- Leak mitigation
- Initial damage and safety assessment to include industrial hygiene requirements prior to return of any team

### **Identify Unit Assessment Team Members**

Before employees return to the plant after a storm, a thorough evaluation of all areas and systems shall be performed. During this time, we must stay true to our values of Personnel Safety, Process Safety and Environmental protection. Personnel Safety shall be maintained at all times. Therefore, critical personnel that have in depth knowledge of the operating facility, environmental, maintenance, electrical/instrument,

and logistics will be requested or can volunteer to serve on this team. Personnel that have agreed to serve on Unit Assessment Team will be communicated to Incident Command for consideration. See Attachment #3.

The Assessment Team mission is to:

- Relieve Ride-Out Team
- Conduct initial damage assessment
- Begin recovery planning and hand-off to Recovery Team
- Coordinate return of key personnel with Site Leadership Team
- Utilize check-list in Attachment #19
- Provide post hurricane orientation to returning employees and contractors

### **Identify Recovery Team**

The purpose of the Recovery Team is to perform a systematic hazard/damage assessment, communicate the results of that assessment to key stakeholders, scope the repair effort that is required before the assets can be restarted, and develop a plan to staff the assets repairs and staff the assets restart. The ride-out crew will serve as the initial assessment and recovery team. Therefore, critical personnel that have in depth knowledge of the operating facility, environmental, maintenance, electrical/instrument, and logistics will be requested or can volunteer to serve on this team. Personnel that have agreed to serve on Unit Recovery Team will be communicated to Incident Command for consideration. The goal of the recovery team is to restore the site back to normal operations. See Attachment #3.

### **Validate Unit Shut Down Procedures with Employees**

Prior to hurricane season, it is required that all operations conduct, at a minimum, a tabletop shutdown scenario. Additionally, all unit shut down procedures shall be validated for completeness by the area trainer and approved by the unit lead.

## **Site Level**

In preparation for hurricane season some considerations are noted below:

- Have an accurate understanding of your site elevation and drainage.
- Determine how best to keep pumps dry. Determine which can be moved out of the area prior to the storm and, conversely, whether additional, bigger, pumps will be needed to pump floodwaters out of the plant.
- Acquire effective sandbags and enough rubber boots.
- Pre-planning on raw materials
- Reactive chemicals are specifically accounted for in hurricane plans.
- Ensure monitoring cameras are fully operational.
- Integrate fence-line/small neighboring plants into your hurricane plans.

- Ensure you have an integrated personnel plan by Zip Code that includes contractors.
- Chemical plants are often integrated, thus it is important to have contact information of all of your key suppliers to know their situation/challenges. Supply reviews need to be done regularly. See Attachment #16.
- Consider alternative power supplies for critical operations, e.g. Generators in your annual preparation. Backup generators should be placed at high levels level in anticipation of flooding.
- Hurricanes come with lightning, thus evaluate your lightning arrestors.
- Consider utilizing 3rd-party weather services, such as Storm Geo or Sign up for the EHCMA Hurricane Status Reporting System not just so the county and city emergency response coordinators know your status but also so you receive information from the Harris County Industrial Liaison – David Wade.
- Remember in your planning. *“There is no such thing as a “normal storm” even if you plan!”*
- Recognize that your ability to operate the plant will be affected by whether workers are able to travel to the plant and travel home. Staff with employees with multiple skillsets. Acquire enough (good) food before roads are impassable.
- Have extra cots on hand and laundry capability.
- Consider ride out team accommodations and provision needs for multiple days
- Develop process to conduct Fatigue checks on ride out team to ensure safety.
- Secure nearby hotel rooms early to stage relief crews and provide high-water vehicles so they can reach the plant.
- Determine how to deal with medical needs if hospitals are not available. Anticipate injuries associated with a storm, how to prevent them and potential medical supplies needed.
- With hospitals shutting down, if someone at plant got injured a good plan needed to be in place to care for people.
- Evaluate potential medical concerns, when local hospitals shut down; needed a proactive plan for medical issues (people and supplies) including accident response when-hospitals shut down, ambulance service down
- Logistics- Consider how to deal with disruptions when suppliers, customers, and distribution systems are not operating normally.
- Set up an employee accountability system that will work for your situation; some found off-site systems the most successful. Create lists with more than one way to contact an employee and keep it up to date. Utilize the months leading up to Hurricane season to evaluate your personnel contact lists and provide other means to ensure your people are ready, e.g. Magnetic company contact info, zip code identifier, site buddies, etc. Determine the frequency with which to contact employees in a long-term event like Harvey because situations change.
- Consider the kinds of phones/service needed in the event of disruptions: land lines, cell phones, satellite phone.
- Hurricane plan should address flooding associated with storms, not just hurricane wind response.

## **Site Check List Update and Validation**

### **Validate Unit Check Lists by Phase**

Establish a site liaison to validate and approve all unit hurricane preparation check lists. Please note that during hurricane season that check lists could cover multiple phases. For example, pre-season preparation such as securing material that could become airborne vs. raising the level in a tank when a hurricane is imminent. See Attachment #9 and #10.

### **Update Supply Lists (Essential, Ride Out Team, etc.)**

To ensure that your personnel needs will be taken care of, one must ensure that the appropriate supplies are available. For example, please see Attachment #11 Hurricane Ride Out Team Supply List, Attachment #13 Essential Supply List and Attachment #12 Satellite Command Supply Check List.

### **Update Medical Supplies**

In preparation for hurricane season, it is important to evaluate medical supplies and local hospitals to ensure that the needed items and services will be available. Some considerations are as follows:

- Coordinate with local hospitals and regional crisis centers to ensure medical supplies availability.
- Evaluate daily hospital situations to ensure that proper medical attention will be provided if an incident occurred that required higher than EMT care.
- Ensure that your transfer vehicles, e.g. Ambulance are readied and personnel are available for transport.

### **Validate Temporary Equipment Needs (generators, pumps, etc.)**

In preparation for hurricane season, one should consider the need for larger rental equipment such as generators, diesel pumps, etc. to ensure that low lying areas (such as control rooms) are protected from flood waters. Since these items can be in high demand after a hurricane, it is prudent to make reservations or have on-site prior to hurricane season.

### **Validate Unit by Unit Site Shutdown Plans**

It is important to understand how long it would take to execute a unit shutdown at a plant site in a safe and orderly fashion. This information can then be utilized with other utility and raw material information to determine the sequential shutdown of a plant site. An example is located in Attachment #14, however this can vary based on the expected severity of the storm. Unit shutdowns should follow existing unit operating procedures, and plans should be made to minimize emissions. If portable generators and air compressors are needed they should be staged accordingly. If a

unit or site shutdown is triggered, each unit/department or area will initiate their plan to safely turndown/shutdown and secure their areas, in coordination with IC (Incident Command).

An example of a unit shutdown could involve the unit be left in the following state:

- Feed removed Furnace(s) shutdown
- Pumps de-energized
- Compressors shutdown and de-energized
- Vessels de-inventoried where possible
- Storage tanks blanketed if required
- Storage tanks prepared for high winds and high water
- MCC de-energized and plans for transformers and substations

In addition to unit shutdown activities, Operating units and departments shall be in continuous communication with their IC to ensure that shutdown activities are progressing as planned. Upon completion of shutdown, a final communication shall be given to the IC.

### **Validate Financial Needs Plan**

Financial planning should be executed during the hurricane preseason. Some items to consider are as follows:

- Availability of cash after a hurricane
- Cost of supporting impacted employees – pre-plan impact level costs
  - Housing needs (apartments, hotels, etc.)
  - Employee support package (cash, gift cards, etc.)
  - Home damage
  - Etc.
- Increase credit lines for key individuals at the site

### **Site Management Readiness Approval**

Upon completion of Attachment #1 by unit leadership, the Site Management Team shall review for completeness by June 1st. Upon approval of completed document, Site Management shall sign and forward to Regional Crisis Center for review and approval.

## **Personnel Preparation**

### **Identify Key Roles for Site Leadership Team**

It is important that members of the Site Leadership Team assume critical specific roles in preparation for hurricane season as well as leading specific teams during and after a hurricane. See attachments #4 and #8.

Some examples would be:

- Incident command lead
- Satellite command center preparation
- Ride Out Team lead
- Assessment Team Lead
- Recovery Team Lead
- Communications Lead
- Environmental Lead
- Financial Lead
- Employee Recovery Lead
- Employee Relations Lead
- Operations Lead
- Power Distribution lead
- Contractor Liaison
- Community Liaison
- Etc.

### **Identify Incident Command (IC) and Severe Weather Team**

The Site Lead together with the HSE Lead shall review and approve the IC Team members. The IC (Incident Command) shall follow the NIMS (National Incident Management System) structure. The Severe Weather Team (SWT) will coordinate activities for securing the assets and will provide emergency action planning for conditions that may arise prior to the time the assets are returned to normal operating conditions. This team should meet annually prior to the official start of hurricane season.

### **Severe Weather Team (SWT) Responsibilities**

#### ***Severe Weather Team Lead***

- The Severe Weather Team will need to make recommendations on shutdown of operations early as possible. The team lead may include the operations leads in discussions related to the storm preparations.
- Provide communication to the IC at declaration of Phase 1 indicating the Severe Weather Team has been formed.
- Initiate severe weather alerts to all teams and call meetings as necessary.
- Review weather information and formulate decisions relating to assets status and preparation.
- Inform and coordinate major decisions with Site Lead as soon as possible.
- Make recommendations to Site Lead to move to Satellite Command Structure.

### **Selection of Ride Out, Assessment and Recovery Teams**

The Site Lead together with the HSE Lead shall review and approve the proposed members of the Ride Out, Assessment and Recovery Team Members. Consideration

shall be given to those individuals that possess in depth knowledge of the key operating units as well as environmental, security, maintenance, electrical/instrument, logistics and medical knowledge.

### **Define Essential and Non Essential Personnel**

Personnel approved as Ride Out, Unit Assessment and Recovery Assessment Teams will be deemed essential personnel. All others shall be deemed non-essential personnel at this point unless requested to report to site by management.

### **Update Employee Personal Data and Intake Forms**

To ensure adequate personnel preparation for hurricane season, it is imperative that all critical employee contact information is current. Therefore, it is highly recommended that prior to hurricane season a campaign is conducted to ensure employee contact information is 100% accurate. Also, it is important to develop/audit your employee tracking forms and/or post hurricane questionnaires are validated.

- “Send Word Now” and Amerilert system – validate/update settings – “groups”
- Utilize offsite IC and “Send-word-now” system to communicate and facilitate support.
- Consider the following:
  - Accountability protocol worked well/check for current phone numbers
  - Phone contact with employees
  - Use of an off-site communications system
  - Keeping cell phone numbers updated
  - Consider for each employee, 2 phone numbers and 1 email address
  - Consider Accountability system for multiple day events
  - Consider developing a predefined questionnaire to aid in efficiency and understanding employees damages or on-line form that could be filled out
  - Coordinate regular plant status communications 2/day, 1/day

### **Validate Employee Pay Schedules**

Due to the possibility that some employees may not be able to leave your site due to weather and/or operating conditions outside of your control or have volunteered to be members of e.g. Ride Out Team, one should develop and/or validate pay schedules to ensure employee compensation is correct. Typical pay schedules determine when premium pay starts (Site Lead) and when it ends (Site Lead).

### **Identify Security Staffing Requirements**

In the event that a site is completely shut down, one should identify qualified internal or external personnel to ensure the sites assets are protected and maintained.

### **Update Communication Tools (Amerilert)**

Consideration shall be given to utilize your communication tools such that specific groups call outs can be set up prior to hurricane season. Groups could include:

- Site Leadership Team
- Ride Out Team
- Assessment Team
- Recovery Team
- Owners
- Contractor Teams
- Non-essential personnel
- Etc.

### **Develop Local Staffing Plan for Employee Assistance Recovery Plan**

In preparation for hurricane recovery efforts, one should consider utilization of non-essential personnel volunteers to support your impacted employees once they are free to return to your site. Therefore, prior to hurricane season it is recommended to conduct a volunteer campaign. Areas of consideration would include:

- Meal preparation
- Home remediation (removal of drywall)
- Garbage removal
- Personal support group
- Temporary living
- Supply distribution
- Fuel distribution
- Etc.

### **Discuss and Validate Plans with Local Government and LEPC**

Once you have completed your hurricane preparedness plans, it is recommended that you convene a meeting with local government and LEPC personnel. The objective of this meeting is to ensure that each group understands the preparation activities and personnel available to support a successful hurricane recovery effort. It is also important to ensure that all contact information is current for all parties involved. It is recommended that you appoint one (1) person from your site to be the liaison.

## Corporate Level (Regional Crisis Center)

At the corporate level, many opportunities are available to support impacted sites and the communities that they operate in. Establish a corporate organizational chart for specific coverage areas and practice with site personnel for personnel recovery efforts and specific assets, e.g. pumps, motors, valves, etc.. Some considerations could be:

- Consider how you will help your community; e.g. donations; cleanup and equipment; equipment to assist cities; rescues; and more. Donations during Harvey that were specifically related to the storm included lending a big pump to a city water purification plant that prevented floods from shutting it down; fuel for first responders; PPE for residents cleaning up after the storm; and funds for vaccines such as tetanus for city health department.
- Evaluate the need to use remote monitoring or site mapping at Regional Crisis Center.
- Practice drills with local site personnel to ensure readiness is intact.
- Anticipate employee assistance needs and what the plant and corporate can do to help them personally and to enable them to return to work and concentrate while on the job.
- Financial help; personal time off; employees volunteering to help others; equipment and supplies for cleanup, remediation, and repairs; housing, cars, and gasoline; access to company resources for restoration, legal advice and more; and food.
- Consider activating a regional crisis center Regional Crisis Center to support site facility 48-72 hours in advance of hurricane landfall. Regional crisis centers away from impacted area create a calmness and advantage to procure needed essential items. Create a structure meeting agenda with regional crisis center to optimize efficiency. Practice and plan during April/May with Regional Crisis Center to ensure essential item lists are current and clearly understood.
- Secure hotels for impacted employees and for potential needs to set up a satellite command center.
- Develop a supplies or “key essential” master template.
- Develop a Key suppliers list with contact information. See Attachment #16

## Develop Staffing Plan for Personnel Recovery with Site (housing, fuel, essential needs)

To ensure that impacted employee needs will be taken care of, one must ensure that the appropriate organizational design is in place. Therefore, it is recommended to institute a regional crisis center organization that will support the impacted site with key supplies and personnel as needed. Once the local personnel recovery team staffing is approved, it is recommended to have a liaison from the Regional Crisis Center staffing plan. Thus, the members can coordinate activities/orders together. For example,

generators, dehumidifiers, fuel, general supplies, etc. that would be needed to support impacted employees. Consideration should be given in locating the regional crisis center outside of the expected impact areas.

### **Validate Plan to Secure Key Personnel Recovery Items**

It is recommended that the potentially impacted site provide the regional crisis center with a list of potential needs prior to hurricane season. The regional crisis center personnel should meet with their site counterparts to validate the list. It is recommended that this be conducted annually. A best practice consideration would be to generate multiple lists, for example, a wind event list and a flood list. Examples are shown on Attachments #11, #12 and #13.

### **Validate Mobilization Plan of Key Personnel Recovery Items**

After the potential needs list is validated, the regional crisis center personnel will determine availability and timing of requested supplies and accommodations. Upon completion of this assessment, the local and regional crisis center personnel shall meet to ensure alignment of key supplies.

### **Approve and Fund Financial Plan**

Upon receipt of site financial plan, the regional crisis center shall approve/reject the request for budgeted funds. If rejected the Regional Crisis Center shall contact the Site Lead.

### **Review Crisis Communication Strategy**

Prior to hurricane season, the crisis communication strategy shall be developed/reviewed for completeness. It is recommended to have templates available for various scenarios as depicted in Attachment #15.

### **Conduct Tabletop Review with Site**

Upon completion of hurricane preparation, site leadership together with Regional Crisis Center leadership should conduct a tabletop review to ensure readiness.

### **Regional Crisis Center Approval**

After completion of tabletop review, Regional Crisis Center shall approve or reject the site hurricane plan. If rejected, the Regional Crisis Center Lead and the Site Lead shall discuss action items required for approval.

# Hurricane Alert Levels

## Review Action / Trigger Plans

Prior to hurricane season, it is recommended to review and/or train your hurricane alert levels with your key personnel. Below you will find two (2) examples of how action trigger plans are implemented.

### Example #1

The following alert phases are based on the number of miles or hours tropical force winds are from Site “X”. **These phases are used as a guide only. Each hurricane will be dealt with individually as it develops and approaches land.**

#### **Phase 1 - 1,200 Miles or 120 Hours Alert**

- HSE (Health, Safety and Environmental) team will meet to begin implementation of hurricane response plan.
- Severe Weather Team Lead will notify Site Lead and HSE Lead that Phase 1 has commenced and monitoring will be initiated.

#### **Phase 2 - 960 Miles or 96 Hours Alert**

- Site Leadership Team – Review Attachment #2 and Attachment #3.
- Determine if a plant shutdown is necessary based on the analysis of weather data collected, public mandatory evacuations, and school closures. Site Lead has final approval of site shutdown. Coordinate in such a manner to maximize safe, controlled shutdown of equipment and processes. Refer to and review Attachment #14 Unit Shutdown Sequence.

#### **Phase 3 – 720 Miles or 72 Hour Alert**

- Site Leadership Team – Review Attachment #2 and Attachment #3.
- Review availability of Ride Out Team, Assessment and Recovery Team personnel.

#### **Phase 4 – 480 Miles or 48 Hour Alert**

- Site Leadership Team – Review Attachment #2 and Attachment #3.
- Release Ride Out Team to take care of family at home.
- Production, Maintenance, and Construction - Complete the checklists on Attachment #9 48-Hour Checklist. Completed checklists are to be delivered to the IC. Refer to Attachment #10 Securement Procedure for securement methods.
- Determine if satellite command is needed. If so, implement.

#### **Phase 5 - 350 Miles or 36 Hour Alert**

- Site Leadership Team - In place at off site command center and under the direction of the Site Lead or designee.

- Ride Out Team - In place and under the direction of the HSE Lead or designee..
  - Store personal vehicles of Ride Out team in plant warehouses.
  - Take over Security duties.
  - Consider whether to enlarge size of ride-out crew or how to replace them in an extended event.
- Assessment Team – In place at off site command center and under the direction of the HSE Lead or designee.
- Facility Security Officer - Coordinate release of remaining Security personnel, who will turn Security duties over to the Ride Out Team.
- Electrical/Instrument Ride Out Team Member - Verify function of generator at gas pump.
- Day Safety Superintendent - Will authorize the notification to the insurance company of all fire water systems that have been isolated at the Site.

## **Example #2**

Once a storm begins development near the Texas Coast or projections indicate the facility is potentially in the path of a storm, the Safety Superintendent or designee assesses and decides if the Hurricane Advisory Team is to be activated. The Hurricane Advisory Team consists of:

- HSE Manager
- Operations Manager
- Safety Superintendent
- Unit Lead #1
- Unit Lead #2

The Hurricane Advisory Team is responsible for monitoring the storm's progress, potential impact to the site and keeping the Leadership Team informed of storm conditions and action that must be taken. Once activated, the Hurricane Advisory Team will meet as determined by the Safety Superintendent. The team is also responsible for notifying the Contingency Assessment Team once a storm is deemed a threat to the site and providing regular updates (every 12 hours).

When advised by the Hurricane Advisory Team, the Site Lead or designee will make the decision on when to initiate a plant ***Turndown\*1***. If a plant turndown is called for, the Hurricane Advisory Team will continue to meet and monitor the storm track. A plant turndown can be stopped and reversed if the hurricane should change course and no longer threaten the plant.

Once notified by the Hurricane Advisory Team, the Contingency Assessment Team will also begin meeting. The Contingency Assessment Team consists of the:

- Finance Manager- Team Lead

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**\*1Turndown** – A step-down in production rates (25-50%) to aid in a complete site shutdown sequencing.

- Procurement Site Lead
- Maintenance Manager
- Technical Manager
- Operations Manager
- HSE Manager
- Human Resources Manager
- Capital Projects Superintendent
- IT (Information Technology) Manager

The Contingency Assessment Team will support the plant from a financial, accounting, and services perspective prior to arrival of the storm as well as during post storm activities.

The Hurricane Advisory Team is responsible for monitoring the storm's progress, potential impact to the Site, and keeping the Site Leadership Team informed of storm conditions and action that must be taken. Once activated, the Hurricane Advisory Team will meet as determined by the Safety Superintendent. The team is also responsible for notifying the Contingency Assessment Team once a storm is deemed a threat to the Site by providing regular updates.

### **Plant Coordination for Turndown**

When the Site Manager or designee initiates a plant turndown, a command center will be set up in the Emergency Operations Center. The control center will be staffed with the following representatives:

- Operations Manager
- Unit #1 Operations
- Unit #2 Operations
- Unit #3 Operations
- Unit #4 Operations
- Unit #5 Operations
- Maintenance Services
- Electrical - Shared Services
- Procurement Liaison
- Environmental Liaison
- Laboratory Liaison

The Operations Manager or their designee will chair this command center. The command center will monitor unit shutdowns and assist the units by calling suppliers and advising them of needs and plans and working on coordination efforts across the plant. A preliminary list of suppliers by operating area is included as Attachment #16.

A unit shutdown sequence should be developed to determine the overall time to safely shutdown each unit in an orderly fashion. A sequence example is located in Attachment #14 and varies based on the expected severity of the storm. The

command center will be de-activated (dismissed) at T-16 hrs at timeline 1, 2 and 3, and T-24 hrs. at timeline 4, 5.

Unit shutdowns should follow existing unit operating procedures, and plans should be made to minimize emissions. At the trigger on Attachment #14 (Plant Turndown/Shutdown Sequence), each unit/department or area will initiate the plan to safely turndown/shutdown and secure their areas. This will include strict coordination of employee schedules to assure proper personnel are in place for preparations and all employees are released home in a safe and timely process. (Ride Out Team – Attachment #6)

When a unit shutdown is called for, unit will typically be left in the following state:

- Feed removed
- Furnace(s) shutdown
- Pumps and other powered equipment will be de-energized
- Compressors shutdown and de-energized
- Vessels de-inventoried where possible
- Storage tanks blanketed if required
- Storage tanks prepared for high winds and high water – determine appropriate levels based on a location (inside or outside)

In addition to unit shutdown activities, Operating units and departments will begin preparation per the checklists in Attachment #9 and #10. These checklists should be completed as soon as possible and delivered to the command center. The command center will request status updates during the turndown period. It is not intended that all items needing attention are covered in the checklists. They should serve as a guideline to aid in the preparation process. All area units should be checked regularly (12 hours) and necessary action taken as the situation dictates.

Note: Local jurisdictions have the authority to mandate evacuation for a hurricane that would be based on risk associated with our area. This guideline and associated timelines can be altered based on information the plant receives from local authorities. Sufficient time is needed by employees in evacuation areas to prepare their families and personal residences.

## Acronyms and Trigger Parameters

<b>RPA</b>	<b>Response Plan Activator</b> – We have identified a hurricane threat to your location (generally within 5-6 days). You should activate your hurricane response plan now.
<b>HSI</b>	<b>Hurricane Severity Index</b> – our enhanced hurricane rating system that takes into account both the size and intensity of a storm using a 50 point scale. The HSI size component can be used to estimate potential storm surge inundation.
<b>WCS39 WCS58</b>	<b>WCS = Worst-Case Scenario</b> – an estimate of the potential arrival time (in hours) of the 39 mph or 58 mph winds at your location. Calculated even when the storm is not moving toward your location.
<b>PWI58</b>	<b>Probability of Wind Impact for 58 mph Winds</b> – used in combination with a WCS arrival time to act as an objective trigger for a phase of your hurricane response plan. Expressed as a percentage (i.e. 12%)
<b>FTA39 FTA58</b>	<b>FTA = Forecast Time of Arrival</b> – a projected arrival time (in hours) of either the 39 mph or 58 mph winds based upon our latest forecast track.

Condition	Trigger Parameter
A (120hrs)	RPA+ (Plan Activation)
B (96 hrs)	WCS39 ≤ 96 hrs and PWI58 ≥ 15% (Awareness)
B (72 hrs)	WCS39 ≤ 72 hrs and PWI58 ≥ 20% (Monitoring)
B (48 hrs)	FTA39 ≤ 48 hrs and PWI58 ≥ 30% (Initial Actions)
B (43 hrs)	FTA39 ≤ 43 hrs and PWI58 ≥ 30% and HSI contains either size component ≥ 13 or Max forecast HSI intensity ≥ 15 (Inundation Likely or Damaging Winds Likely - evacuation & shutdown evaluations)
B (40 hrs)	FTA39 ≤ 40 hrs and PWI58 ≥ 30% and Max forecast HSI intensity < 15 and size component < 13 (Prep for Shutdown)
B1 (36 hrs)	FTA39 ≤ 36 hrs and PWI58 ≥ 30% and Max forecast HSI intensity ≥ 15 or size component ≥ 13 (Prep to evacuate)
B2 (36 hrs)	FTA39 ≤ 36 hrs and PWI58 ≥ 30% and Max forecast HSI intensity < 15 and size component < 13 (Prep for Live-in)
C1 (32 hrs)	FTA39 ≤ 32 hrs and 58mph winds forecasted and Max forecast HSI intensity ≤ 15 and size component ≤ 13 (Continue Live-in preparations)
C2 (32 hrs)	FTA58 ≤ 32 hrs and 58mph winds forecasted and either Max forecast HSI intensity > 15 or size component > 13 (Continue Evacuation preparations)
D1 (24 hrs)	FTA39 ≤ 24 hrs and 58mph winds forecasted and Max forecast HSI intensity < 15 and size component < 13
D2 (24 hrs)	FTA39 ≤ 24 hrs and 58mph winds forecasted and either Max forecast HSI intensity ≥ 15 or size component ≥ 13 (Evacuation)
E1 (18 hrs)	FTA39 ≤ 18 hrs and 58mph winds forecasted and Max forecast HSI intensity < 15 and size component < 13 (Hold at released rates and release all non-live-in personnel)
E2 (18 hrs)	FTA39 ≤ 18 hrs and 58mph winds forecasted and either Max forecast HSI intensity ≥ 15 or size component ≥ 13 (Arrange for transportation as shutdown completes)
F1 (12 hrs)	FTA39 ≤ 12 hrs and 58mph winds forecasted and Max forecast HSI intensity < 15 and size component < 13 (Live-in)
F2 (12 hrs)	FTA39 ≤ 12 hrs and 58mph winds forecasted and either Max forecast HSI intensity ≥ 15 or size component ≥ 13 (Complete shutdown and Evacuation)
G (8 hrs)	FTA39 ≤ 8 hrs and 58mph winds forecasted and either Max forecast HSI intensity ≥ 15 or size component ≥ 13 (Complete Evacuation)
R	FTD39 winds fall below 39mph (Recovery)

# Active Hurricane

## Establishment of Incident Command and Satellite Command Centers

The Site Leadership Team and Site Lead will evaluate the hurricane's impact and any possible recovery assistance needed for the Site. The Site Lead and designated support personnel will determine need for relocation to an offsite central location. From this location they will maintain communication with the Ride-Out Crew. If warranted, a special Hurricane Assessment Team will be activated, see Attachment #3. The Assessment Team members will shelter off site at a determined safe location to support the Site Leadership Team and the Hurricane Ride Out Team during the hurricane, with expertise and experience of plant operations, maintenance and trouble-shooting. Preparation of materials for the offsite command center shall be prepared in accordance with Attachment #12.

This Hurricane Assessment Team will be under the direction of the HSE Lead and supported by an assigned Shift Superintendent as their designated team leader. The Shift Superintendent assigned to the Hurricane Assessment Team will oversee the setup and deployment of the five basic supply requirements supporting Sheltering, Food Supplies, Transportation, Communication Equipment, and Alternate Power Supply.

The designated Recovery Team (Attachment #3 Hurricane Teams) will also be activated for post-hurricane recovery activities. This Recovery Team will remain on stand-by to return to the site after the hurricane, once it is safe to travel from individually chosen storm shelter locations, and as coordinated by the Assessment Team.

The Site Leadership Team, under the direction of the Site Lead will set up and operate the off-site command center, with the assistance of the designated Shift Superintendent and the Assessment Team. The primary function will be to communicate with the Hurricane Ride Out Team and the Regional Crisis Center. Communications with the Hurricane Ride Out Team will be updated every four hours until time of hurricane impact, and then approximately two (2) hours after the storm has passed. Communication will address current personnel accountability, chemical containment, fence line companies status, information from local agencies (City, County, LEPC and Coast Guard), and site over-all condition. Site information will be evaluated and communicated through the Regional Crisis Center as needed.

One site medic will also be assigned to oversee any medical needs of the team members and their families while at the off-site satellite command center. The Assessment Team's primary function will be to assist the Shift Superintendents with all equipment setup and supply distribution needs. The team will also assist the Site Leadership Team with unit evaluation issues that may arise.

The Environmental Representative will establish a communication link with the Offsite Command Center to provide updates to Agencies as necessary. They, together with the Communication Liaison, will also monitor Agencies, news media and trade groups for any announcements related to the hurricane.

### **Activation of Regional Crisis Center**

At Phase 3 or 72 hours prior to landfall, consideration should be given to activate the Regional Crisis Center. Thereafter, a minimum of two meetings per day shall be conducted with Site Lead, Regional Crisis Center Lead, Site HSE Lead and Regional HSE Lead or their designee.

### **Implementation of Ride Out Team**

A small number of employees may stay in the plant during Phase 3, 4, or 5 hurricanes to perform plant security and leak mitigation. If wind speeds are projected above the 130 mph threshold, this Team will be re-located to a safe location or dismissed based on risk assessment determined by the Contingency Assessment Team.

The ride-out team's mission is:

- Plant Security
- Local contact for city, county, or industrial emergency response teams
- Leak mitigation
- Initial damage and safety assessment which includes industrial hygiene requirements prior to return of first return crew.

Personnel remaining in the plant after the plant is shut down during a hurricane will do so on a volunteer basis. Personnel must be fully qualified / knowledgeable of the process area operations. The Day Safety Superintendent, together with site management, will determine the number of Operation and Maintenance personnel needed to provide coverage. (Attachment #3 Hurricane Teams) The Hurricane Ride Out Team will remain under the direction of the Day Safety Superintendent during the shutdown period until released back to their departments. Typically staffing should include:

- Employees who can multi-task for repairs, operations and provide medical assistance, e.g. EMT
- Provide important contact information to team, e.g. Management staff, local, county and state support personnel. Harris county via David Wade's warning (via the Hurricane Status Reporting System)

***AFTER THE STORM, MEMBERS OF THIS TEAM WILL NOT BE ALLOWED OUTSIDE UNTIL CONDITIONS ARE DETERMINED TO BE SAFE BY THE RIDE-OUT CREW LEADER IN COORDINATION WITH IH ASSESSMENTS. (Attachment #17)***

The Ride Out Team will be housed in the specific hurricane rated area. Ride out duration will depend on the scope of damage and the ability to get the Recovery Team back in the plant. The Ride-Out Team may be housed in the plant from one to three days following the hurricane.

Each person on the Ride Out Team staying in the plant should have access to or possession of the following items:

- Discretionary personal hygiene and comfort items from home - blankets, pillows, toiletries, medicines, radio, spare shoes, socks, etc.
- Flashlights, spare batteries, rubber boots, slicker suit, etc.
- The EMT is responsible for maintaining a fully stocked medical kit.
- Access to the full complement of tools, materials, equipment, and vehicles in the Plant.
- The Fire & Safety Specialist will have Master keys to all buildings and shops
- A tractor and heavy tow chain will be made available to the Ride-Out Team at a safe location near the ride out structure.
- An aluminum boat will be stored in or near the ride out structure. Paddles will be stored inside the ride out structure.
- Additional supplies needed for the team are included in Attachment #11.

Rules and Roles of the Ride Out Team include:

- Members of the team will not be allowed outside until conditions are determined to be safe by the Ride-Out team Leader unless human life is in danger.
- Members must maintain contact with the satellite command center throughout the storm. Once landlines are lost, various methods of communication will be used; cell phones and satellite phones will be available.
- During approach and after passage of the storm the Ride-Out team leader will gather data and make all decisions on seeking shelter or venturing outside. Observational data includes but are not limited to flying debris, difficulty in walking, wind gusts, standing water, amount of rain, or other hazards.
- Once conditions are deemed safe to venture outside, a buddy system will be utilized to begin an organized plant survey to assess damage and identify at risk situations. Teams shall be formed beforehand based on area responsibility.
- Initial focus will be on safety and environmental risk assessments.
- Each member shall provide the team leader an assessment of their responsible area of expertise for communication back to the Satellite Command Center.

### **Ride-Out Team / Responsibilities**

- To perform safe mitigation of abnormal conditions where approved by the command and control leadership.
- Serve as the initial recovery team providing a first look damage and hazard assessment within EOC as soon as the storm passes and the conditions outside allow (<39 mph sustained).

- Provide area status information regarding their assigned area to the command and control leaders.
- Serve as site security and report breaches.
- Conduct the initial area assessment post storm and report to the on-site leadership staff.
- No exiting of safe shelter above 39 mph sustained winds without EOC authorization and safety plan (buddy, tie off and accountability/communication systems).
- Conducting advance personal preparations for hurricane support.
- Personnel volunteering for the Hurricane are responsible for making advance personal preparations before Hurricane Season. This is intended to minimize the time required for final preparations to be completed when the Ride-Out Team is released.

## Post Hurricane

### Site Leadership Coordination

#### **Attachment #18**

#### **Site Leadership Team Meeting Initiation**

The Site Leadership Team will meet daily regarding hurricane preparations approximately 4 days out from landfall, depending on the severity potential of the storm. After a hurricane, the Site Leadership Team shall meet twice daily to assess personnel and site impact and provide direction to the key leaders to resolve issues/challenges to return the Site back to normal operations. This is a guideline for conducting those meetings. The actual meeting agenda will utilize a template based on the type of storm. (See Attachment #18 for further details)

### Implementation of Assessment Team

The Assessment Team returns to site to assist the Ride Out Team, conduct further assessments and coordinate resources needed to begin recovery process, under the direction of the HSEQ Head.

#### Assessment Team and Recovery Team

After the storm, the functional positions of the Assessment Team and the Recovery Team will coordinate Site activities. The IH (Industrial Hygiene) Lead will monitor and inform the Site Lead and HSE Lead when it is safe for staff to return to the Site.

These teams will assemble and conduct damage assessments following IH and Occupational Safety/Health assessments (See Attachment #17). This information will assist in determining communication requirements and post hurricane orientation to returning employees and contractors.

The Assessment Team will also marshal resources based on what is requested by the Recovery Team. They will ensure that environmental controls and utilities are available to control emissions prior to startup of the operating units.

The Ride Out Team will be relieved as soon as practical by the Assessment Team. The Assessment Team will make a preliminary assessment of damage to the plant and begin planning for return of employees. Priority will be on establishing control of loss of containment for chemicals and establishment of control of emissions as dictated by the operating hierarchy. All employees shall remain ever vigilant to hidden hazards. Process Safety systems shall be followed and utilized to assure safe startup is achieved. We shall evaluate and restart Environmental Protection systems as soon as they are available. The assessment team may require additional technical expertise as follows:

#### Technical Assessment Team / Responsibilities

- This team will be staffed with selected personnel from various disciplines such as civil engineering, electrical engineering, mechanical engineering, and process engineering groups that support plant operations and reliability personnel.
- Responsible for evaluation and prioritization of repairs necessary for a safe restart of the facility.
- Communicate findings to Site Leadership Team
- Ensure that you have a civil, structural and architectural firm that can evaluate your site assets (buildings, piperacks, etc.) after a wind/flood event.

### Implementation of Recovery Team

The purpose of the recovery crew is to a) perform a systematic hazard/damage assessments, communicate the results of that assessment to key stakeholders, b) scope the repair effort that is required before the assets can be restarted, develop a plan to staff the assets repairs, c) staff the assets restart. (See Attachment #20)

The Ride Out Team will serve as the initial Recovery Team.

#### Recovery Crew / Responsibilities

- The Maintenance, Reliability and operations assessment and repair staffing for the recovery effort shall be per Attachment #3. Individuals shall be identified before June 1st of each year for these roles.
- A structural integrity survey shall be performed after the areas are verified free of chemical and fire hazards. The surveys are intended to identify structural members that have already failed, or have been stressed to the point that they may fail as recovery operations continue. Since cooling towers are very susceptible to wind damage, particular attention should be placed on examination of cooling tower stairs and load bearing members. Personnel performing these assessments will typically consist of CSA (Civil, Structural and Architectural) engineering, operations, maintenance, and HSE personnel.

- Critical system assessments shall be performed. A detailed checklist for assessment and recovery details on the following systems should be considered for:
  - Power distribution
  - Cooling Water Tower and System
  - Instrument air and Nitrogen system
  - Steam System
  - Flare system
  - Potable Water system
  - Wastewater Treatment system (including septic systems)
- Prepare a list of potential maintenance activities that should be considered while the unit is shutdown including the following:
  - LDAR repair list (Leak Detection And Repair)
  - Past due inspection recommendations requiring a shutdown
  - Other proactive activities to reduce the risk of potential safety, environmental, or reliability incidents.

## Start Up Plans

Communications Manager - Communicate information regarding plant operation and work requirements to Site personnel by telephone and/or radio.

Facility Security Officer – Maintain communication with the United States Coast Guard, Department of Homeland Security, state and local agencies and take steps necessary to maintain security of the site.

- Maintain contact with the local city contacts to confirm potable water and other key service utilities availability for the Site as required.
- Conduct Pre-startup Safety Reviews before allowing unit startups. Team members should be from Operation, Safety, Environmental, Maintenance, Logistics and Human Resources.
- Evaluate fatigue management and staffing plan before startup.
- Authorize the notification to the insurance company of all fire water systems that have been re-activated at the Site.

## Facility Restart

Plans for restart of the facility will be determined by the Site Lead consistent with our values of Personnel Safety, Process Safety and Environmental protection. Restart of the operating units should follow existing unit operating. All emission control equipment must be functional and required utilities such as steam, nitrogen and/or air must be available before facility start-up commences.

- Evaluate Logistics and supply chain issues that could affect startup—e.g. truck and rail service is typically slow to recover.

## Personnel Assessment Team

### Return to Work planning

All Personnel should report to the plant on regular schedule after the storm has passed unless notified otherwise. It remains the responsibility of the employee to report in on your regular schedule, or contact your unit supervision.

Emergency notifications will be made to employees using the Amerilert system. This system is able to send out and receive information back from employees via text message. Weather advisories and report-to-work status reports will be posted on the Employee Info Line.

Employee Contact - An "All Employee Check In" Hotline and Facility Emergency Information Hotline is available at xxx-xxx-xxxx.

If plant operations are impacted due to a hurricane or tropical storm the Facility Emergency Information Hotline Number will be updated with a status message for the Site. This hotline is a recorded message only and provides employees and contractors an avenue to call and find out plant status and to receive instructions concerning reporting to work.

If you are in an area impacted by a hurricane or tropical storm, you must check in per the process below as soon as possible to let us know that you are safe, provide us with reliable contact numbers, advise us of your work availability, and inform us of your current location if you were forced to evacuate. There are two ways to check in, either by phone or online.

- Check In By Phone
  - Call the All Employee Check In Hotline. Choose Option 1 and Operators will gather information such as reliable contact numbers and your current location. Once you have checked in, you do not need to call the All Employee Check In Hotline again unless your status changes and you need to update your contact information.
  
- Check In By Email
  - If you cannot reach the All Employee Check-In Hotline by phone, you can send an email to xxxxxx@xxxxxx.com. At a minimum you should provide the following in your email:
    - First and last name (and nickname if commonly used)
    - Work location
    - Contact phone number in your current location
  - Home status (sheltering in place, staying with family elsewhere, etc.)
  - Both the Employee Check In Hotline and email address can be used by employees, their families, contractors, and friends to report the whereabouts of another employee or contractor.

Continue to monitor the Facility Emergency Information Hotline for updates. At least once a day, call the Site's Emergency Information Hotline at xxx-xxx-xxxx, then follow the prompts for the Site for status updates on plant conditions, restarts, report back to work dates, etc.

Monitor [www.mysite.us](http://www.mysite.us) in the event of an emergency, a crisis information web page will be activated. It will include emergency phone numbers, plant status updates, and emergency/disaster relief policies. If you do not have Internet access, continue to call the Site's emergency information phone number at least once a day for updates.

### *When to Return to Work*

- You should return to an evacuated area when permitted by the governing authority. If you do not know, then utilize your site's emergency contact information or contact your supervisor.
- All employees returning to the Plant will be re-orientated based on current safety status and operating condition of the plant prior to beginning work activities. The HSE Department will be responsible for completing this orientation.

## **Personnel Best Practice Considerations**

### **Medical**

- Evaluate conditions and work with local hospitals and regional crisis centers to obtain needed medical supplies.
- Evaluated daily the hospital situations to ensure that proper medical attention can be provided if an incident occurred that required higher than EMT care.
- Ensure that transfer vehicles, e.g. Ambulance were readied and personnel are available for transport. Proactive advice: staff during recovery and start-up activities.

### **Employee Assistance**

- Divide and Conquer, Set up 2 Senior Managers: One focused on plant startup activities and one focused on impacted employee's needs.
- Contract with several water damage restoration firms prior to storm for employees to use.
- Provide legal support to employees.
- Set up volunteer teams.
- Humanitarian efforts for employees, time off for staff to volunteer.
- Recovery--company support with employee funds, zero percent interest loans, temporary housing and additional time off
- Set up relief fund and Go Fund Me accounts
- Match employee donations with on-line fundraiser
- Provide financial needs for impacted employees from \$200 to \$3000

### **Impacted Housing support**

- Provide sheetrock
- Site personnel scheduled to support house clean-up efforts (owners and contractors, consider proper contract language to cover risk) follow Attachment #17
- Provide temporary housing and hotel rooms. (consider needs early)
- Provide rental cars or utilize site cars for impacted employees to use
- Provide travel trailers to support families (keeps children in same school district)

### **Essential items - see Attachment #13**

- Set up Teams ahead of time
- Define clean-up kits
- Pre-stage dehumidifiers/blowers for employees
- Determine need for generators and the fuel for them
- Consider allocating gasoline and diesel tank trucks to site employees

### **Family assistance**

- Determine care package make-up.
- Determine who can provide cold and hot prepared meals (site volunteers)
- Consider conducting a toy drive across all regional sites to support impacted families
- Consider conducting a shoe drive to support impact families across region

### **Critique and Lessons Learned**

As with any major event/incident, it is important to continuously learn, therefore it is highly recommended that each site conduct a critique of their facility and make the necessary changes to their site procedures.

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

HSEQ Department		Completed by: _____	Date:
Complete	Action		
	Survey all metal coverings (towers, lines, vessels), metal buildings, and roofing for loose material and repair as necessary.		
	Validate a plan for medical treatment, doctor, and eyeglass prescriptions for all on-site personnel during a hurricane event.		
	Verify supply lists are correct Attachment #11, #12, #13).		
	Verify that adequate medical supplies are on hand.		
	Identify and verify a location to move site safety equipment/vehicles and ride out location.		
	Validate a post-hurricane supply/equipment list.		
	Finalize Staffing Plan for the Assessment Team.		
	Finalize Staffing Plan for the Recovery Team.		
	Identify Severe Weather Team Lead.		
	Finalize Staffing Plan for Ride Out Team.		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

<b>Reliability Department</b>		Completed by: _____	Date: _____
Complete	Action		
	Develop staffing plan Hurricane Response Team		
	Develop staffing plan for "Security Crew" which may be utilized in the event the ride out is activated		
	Survey Refinery Drainage and correct deficiencies		
	Verify the connections to load diesel and gasoline out of tanks		
	Validate list of generators locations/size/collections		
	PM all emergency power generating equipment		
	Validate a plan to take UPS and substation battery systems out of service and separate the Site from the electrical utility grid		
	Survey all guy wires and need for guy wires		
	Survey Storm Levee Flood Gate for proper working conditions and repair as necessary. Also survey flood gates for Outfalls 001, 002, and 003 which pass through the levee. Survey Outfall 003 flood gate which goes to Drainage District 7's ditch		
	Validate plan for handling analyzers and oil mist systems		
	Validate electrical power distribution supplies to be acquired and stored prior to hurricane season. Examples would be <ul style="list-style-type: none"> <li>a. Poles</li> <li>b. Pins</li> <li>c. Insulators</li> <li>d. Hardware</li> <li>e. Soft drawn bare tie wire</li> <li>f. Fuses</li> <li>g. 100, 200 amp fused disconnect switches</li> <li>h. Pole Backfill</li> <li>i. Material Cable and wire terminators</li> <li>j. Transformers</li> </ul>		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

Human Resources		Completed by: _____	Date: _____
Complete	Action		
	Validate plan for providing humanitarian aid.		
	Set up a process for issuing and tracking timesheets and actual hours worked (on -site payroll clerk)		
	Validate a "personnel availability" plan for the recovery effort.		
	Validate a site personnel emergency contact number and cell phone list and update annually		
	Validate hurricane communication plan		
	Validate Expat/Interns/Visitors Relocation Plan		
	Begin monitoring school shutdowns and mandatory evacuations to keep the SLT informed throughout all phases, as appropriate.		
	Organize list of site employees by home zip code to assess applicability of mandatory evacuations. Coordinate with Site Safety Manager as this relates to recommendations for releasing employees		

Information Technology		Completed by: _____	Date: _____
Complete	Action		
	Develop a plan to re-establish electronic communication with the site network		
	Acquire laptop computers with a cellular satellite-based internet capability for communication and information distribution		
	Inspect radio transmission equipment and tower		
	Contract for satellite phones as needed for communication		
	Secure adequate supply of radio and cell phones batteries		
	Develop communication channels guide – texting, phone, etc.		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

<b>All</b>		Completed by: _____	Date: _____
Complete	Action		
	Identify files and records to be backed up and moved to a safe location		

<b>Security</b>		Completed by: _____	Date: _____
Complete	Action		
	Perform a monthly test of the hurricane ride out team pagers during the hurricane season		
	In conjunction with the local Emergency Management Team (LEPC), develop a plan for response/recovery personnel to have evacuation/response access to the site. This will include all the required identification for exit and return.		
	Secure a backup access control system for maintaining headcount that will work after the hurricane event		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

Purchasing		Completed by: _____	Date:
Complete	Action		
	Secure/Reserve location hotel and apartment facilities for Leadership and Assessment teams as well as impacted personnel.		
	Contract with a roofing service in advance and provide them with employee addresses prior to event for doing assessments.		
	Ensure that a process is in place for tracking purchase orders after an event.		
	Secure 5-gallon gasoline cans and store in warehouse.		
	Secure the services of a vacuum truck(s), cranes, manlifts, sweepers, and roll-off boxes.		
	Contract for a supply of nitrogen by truck.		
	Keep 5 generators in storage.		
	Contract for the services of a caterer, kitchen, sleeping facilities, laundry, restrooms, and shower facilities.		
	Contract for a Bobcat or tractor for use of Initial Assessment Team.		
	Make sure contracts are in place for standby generators.		
	Review essential item list (Attachment 13)		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

### Example of Operations Checklists

Operation Checklist		Completed by: _____	Date: _____
Complete	Action		
	Check and fill diesel fuel tank for emergency generator		
	Arrange to return catalyst to vendor. Pack catalyst freezers with dry ice. Dilute head tanks with soltrol and slop.		
	Tie down and connect portable air compressor		
	Order sufficient dry ice to fill the two permanent ice chests. Chock wheels.		
	Remove and Store inside <ul style="list-style-type: none"><li>• Chemical and oil barrels</li><li>• Trash drums (remove the cans not already tied down)</li><li>• Have waste management pick up and remove all empty barrels</li></ul>		
	Tie down the following <ul style="list-style-type: none"><li>• Portable ladders</li><li>• Gas cylinders, including calibration cylinders (verify the cylinders are secure)</li><li>• Fire hose carts (on deck: chain to grating, in purification: chain to 1-beams)</li><li>• Loading hose storage racks in the 900 area</li></ul>		
	Use cable through bikes in racks to the east and west of control room (ensure racks are securely bolted to ground)		
	Secure blower covers at sanitary sewer plant		
	Secure all vessel insulation that is susceptible to being torn loose. When performing the tasks on this list, look for insulation that may be a problem.		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

	Secure cooling tower treatment chemical tanks and block in
	Secure all hoses. Wire to hose holders when possible, secure the rest with wire to nearest available spot
	Secure all fire extinguishers using duct tape if necessary. Fastening devices inspected monthly.
	Secure all safety equipment boxes <ul style="list-style-type: none"><li>• Wire shut all breathing air cabinets</li><li>• Wire shut all PPE cabinets and sample collection cabinets and PPE cabinets on decks and in purification sample collection boxes</li><li>• Check that all cranes and monorails are secure</li><li>• Check elevated walkways and tower platforms for loose items such as boards, insulation, etc and secure or remove</li><li>• Remove loose items from top of cooling tower</li><li>• Close all doors and windows in all buildings</li></ul>
	Use vacuum trucks to remove oil from API separators
	Assure the API and storm water pond are at their minimum levels.
	Check all emergency (battery powered) lighting on unit
	Check all unit radios for proper operation
	Make sure foul weather gear and flashlights are available on the unit, including extra batteries
	Fuel up the unit van
	Tape all windows in the control room, offices, and substations only if it is apparent that winds will be in excess of 75 mph in the area. This should be one of the last items.
	Check all flare pilots frequently and re-light if required
	In the event of a power failure or if power loss is eminent, power down the mod-comp computer system. Backup tapes and disks should be moved to a secure location.
	Chock wheels on all trailer mounted portable equipment, railcars, trailers, etc.

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

	Have vendors remove empty chemical totes or tie-down chemical totes
	<p>Inventory the three hurricane supply boxes in unit for the following gear, as soon as a storm begins to threaten the area:</p> <ul style="list-style-type: none"><li>• 3-rolls of #9 wire</li><li>• 1-spool of rope</li><li>• 3-wire cutters</li><li>• 3-rolls of duct tape</li><li>• 3-rain suits</li></ul>
	<p>1-4 Deck Box</p> <ul style="list-style-type: none"><li>• 3-rolls of #9 wire</li><li>• 1-spool of rope</li><li>• 4-wire cutters</li><li>• 3-rolls of duct tape</li><li>• 3-rain suits</li></ul>
	<p>5 &amp; 6 Deck Box</p> <ul style="list-style-type: none"><li>• 3-rolls of #9 wire</li><li>• 1-spool of rope</li><li>• 3-wire cutters</li><li>• 3-rolls of duct tape</li><li>• 3-rain suits</li></ul> <p>9 -tie downs for hose racks in unloading area</p>
	Check all drains and culverts to ensure good drainage. Items likely to plug drains or culverts will be removed and securely stored.
	Pick up all loose material such as fittings, tools etc. and place in the warehouse.
	Move all wood pallets inside warehouse building. If space does not

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

	permit all pallets to be moved inside, secure by tying down all pallets and bundling together.
	Tie down any stand-alone scaffolding or dismantle any not being used.
	Repair building siding.
	Evaluate and repair anchors and securing for portable buildings, air conditioning units, and other equipment that may become displaced due to high winds. Secure all portable buildings and trailers with tie downs.
	Repair broken windows. Check windows and doors for proper closure and ensure the latching mechanism works properly. This includes openings for ventilating fans, etc.
	Have plywood window coverings for all window openings available. The direction to install window protection will be provided by HSEQ as circumstances require.
	Secure loose items stored outside, i.e. band empty shipping containers, equipment in lay down yards, packing material, lumber, etc. Remove loose material from pipe rack
	Prepare all electric sources for possible rising water such as air conditioner, condensers and MCC rooms.
	Make sure all breathing air banks are secure.
	Have a designated storage area for vehicles, golf carts, and bicycles.
	Reserve generators for your area, if needed, and fill all fuel tanks.
	Reserve pumps for your area, if needed.
	Ensure an adequate amount of #9 wire, tie down rope, ground anchors, cargo nets, etc. are in place for last minute securing activities.
	Purchase adequate supply of sand bags.

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

	Develop hurricane volunteer list and turn in to HSEQ.
	Update unit hurricane shutdown and start up procedure.

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

### Examples of Utilities/ Environmental Preparation Checklist

<b>Utilities/ Environmental Preparation Checklist</b>	Completed by: _____	Date: _____
Complete	Action	
	Remove the following loose items from the area and store in the new Maintenance Building in Utilities or Wastewater Treatment Area Storage room. <ul style="list-style-type: none"><li>• Ladders - keep two in Wastewater Treatment Area<ul style="list-style-type: none"><li>○ Substation.</li></ul></li><li>• Bicycles - keep two in Wastewater Treatment Control Room.</li><li>• Sample containers, buckets, etc.</li><li>• Drums that are empty or less than half-full (lubricating oil, chemicals, additives, etc.).</li><li>• Any other miscellaneous lightweight items that cannot be readily stored in the areas designated</li></ul>	
	Check doors on Motor Control Centers; see that all doors are closed and latched.	
	Remove the sample catchers from the aeration basins and the sludge judges from the clarifiers. Place them inside the Spill Building.	
	Tie down all chlorine cylinders	
	Make sure instrument air junction box lids are securely fastened.	
	Make sure all fire extinguisher and hose carts are secure. These should be secured with duct tape, not wire.	
	Bring mops into the Wastewater Treatment Control Room.	
	Make sure gas cylinders at boilers are securely fastened and remove cylinders that cannot be secured	

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

	Tape windows in the Waste Treatment Control room and Office areas.
	Close isolation valves for sightglasses on all Nalco Storage tanks in the main Unit, cooling towers and waste treatment.
	Secure lid on lift stations.
	Tie down dumpsters on the Unit and Waste Treatment.
	Tie utility hoses to hose racks using duct tape.
	Fill diesel tank.
	Start and check diesel pumps.
	Fill diesel storage tank for emergency generator.
	Check floating roof drains to be sure they are open.
	Check dike containment drains to ensure they are closed.
	Start up and check all fire pumps for satisfactory operations. Secure any loose facilities at pump station. Fill the fuel tanks.
	Secure any loose facilities at hydroblasting area.
	Tie life rings to life ring racks using duct tape.
	Assist Maintenance in closing in storm levee around #1 Sub-station and seal area for high water. Set up portable water pump at the #1 Sub-station.
	Set up portable air compressor, one (1) on instrument air and three(3) at the hydroblast pad for use on the Flare steam lines.
	Secure oil drum CT fans
	Secure covers on blowers
	Secure drain covers on acid caustic pump row
	Secure boiler oil guns.
	Secure gas cylinders used for checking explosion meters.
	Secure all chemical tote tanks or move them to a safe location.
	Clean out all refrigerators completely.

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

	Complete final shutdown of Waste Treatment equipment Using the Checklist.
	Isolate ammonia system.
	Block in acid cooling tower.
	Shutdown injection pumps and secures feed tanks.
	Turn off main valves on all chlorine cylinders and disconnect.
	Tie Main Control room (Padlocked) and Waste Treatment control room doors shut. (Looking to probably install hasp-type locks on both Waste Treatment control room doors)
	Check all drains and culverts in the area to ensure good drainage. Items that are likely to plug drains or culverts shall be removed and securely stored.
	All scaffolding material, boards, drums, and other loose material should be secured.
	All tanks should be checked for liquid levels and action taken to prevent floating in case drains begin backing up inside dikes.

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

### Examples of Utilities Cooling Towers Checklist

Utilities Cooling Towers Checklist		Completed by: _____	Date: _____
Complete	Action		
	Order passivation chemistries with one-week lead-time		
	Begin decycling cooling tower. Purpose- minimize micro-bia. <ul style="list-style-type: none"><li>• Increase blowdown to 600 GPM.</li><li>• Open blowdown valve to 100%</li><li>• Open blowdown valve to 100%</li><li>• Open blowdown valve to 100%</li></ul>		
	Adjust chemistries and feed set points. No changes until heat load is off of the tower.		
	Reduce blowdown for cooling towers once no longer under heat load.		
	Kill cooling tower fans.		
	Shut down and block in all chemistries including Nalco chemicals, chlorine gas, bleach and acid.		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

### Examples of Logistics Checklists – 72 Hours before plant is down and evacuated

<b>Logistics Checklist</b>		Completed by: _____	Date: _____
<b>72 Hours before plant is down and evacuated</b>			
Complete	Action		
	Restock as needed with essential supplies: batteries, flashlights, drinking cups, eating utensils, box of rags, paper towels, first aid boxes, mops and buckets		
	Fill the locomotives and track mobiles w/ diesel		
	Order diesel to fill storage tank		
	See that hand pumps are installed on underground gasoline tank-- Maintenance Department handles		
	Order gasoline delivery to top off our tank.		
	Order from Stores one (1) each of the following: case of filament tape, case of masking tape, one wire roll, and one roll of rope		
	Remove all scrap dumpsters. Begin with the dumpsters in the lay-down area, then the two used to unload blue flag hoppers, then those under the hydrosieve. The process will take - three days based on Hurricane rate in 2005.		
	Rail Car Repair Area - Fuel welding machine. Remove all trash and loose objects. Tie down as necessary fire extinguisher, loose parts, scrap metal.		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

### Examples of Logistics Checklists – 48 Hours before plant is down and evacuated

<b>Logistics Checklist</b>		Completed by: _____	Date: _____
<b>48 Hours before plant is down and evacuated</b>			
Complete	Action		
	Fuel all vehicles and all forklifts to maximum.		
	Close and latch all MCC boxes and secure as necessary to prevent doors from coming open.		
	Secure all trash drums		
	Loading Racks - Pick up all loose fittings, sample bottles, wrenches, traffic signs, etc		
	Loading Racks - Secure all safety cabinets, fire extinguishers, (those not in brackets should be secured with duct-tape not wire) hose carts, load hoses and load spouts. Close all valves.		
	Flap Shack - Secure the gas metering station bottles.		
	Tank Farm -Secure all fire extinguishers, those not in brackets should be secured with ducktape, not wire.		
	Tank Farm - Remove any loose piping or fittings		
	Tank Farm -Inventory M-102 (adjust timing as needed based on AO unit shutdown schedule)		
	ATLR - Pick up all loose material such as fittings, tools, bucket, etc. and place in the storage building.		
	ATLR - Secure wax drums (full and empty)		

## Attachment #1

Hurricane Preparedness Activities Preparation Plan  
(Begin May, complete by June 1)

	ATLR - Secure any extra loading hoses on the racks
	Rail Repair Yard- Tie down any loose items in shed
	Rail Repair Yard - Place any hand equipment into trailer

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Planning</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Test your communication plan (Amerilert, Send Now, etc.).	
	Verify stock of required supplies.	
	Set up corporate "clearing house" number for information about family members.	
	Verify availability of each member of the Hurricane Ride Out Team and report to ICS. Release Ride Out Team.	
	Release Ride-Out Team members to secure personal property and to arrange evacuation of family, if necessary. Team must return to the plant within 36 hours and report to the Day Safety Superintendent for further direction.	
	Run/check fire trucks and associate equipment.	
	Run/check oil spill response equipment.	
	Release Assessment Team members. The team members will be released to secure personal property and to arrange evacuation of family, if necessary. They must report to the designated off-site command center accommodations within 36 hours and report to the Site Safety Manager for further direction.	

<b>Planning</b>	Completed by: _____	Date: _____
Complete	<b>Phase 4</b>	
	Issue bedding/towels to members of Hurricane Ride Out Team.	
	Conduct head count of Hurricane Ride Out Team.	
	Implement Expat/Interns/Visitors Relocation Program.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Planning</b>	Completed by: _____	Date: _____
Complete	<b>Phase 5</b>	
	Review Fire Brigade responsibilities with Hurricane Team and ensure emergency response equipment is ready for immediate use.	
	Provide a common lock and key for the team to use at the front gate.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Logistics</b>	Completed by: _____	Date: _____
Complete	<b>Phase 2</b>	
	Coordinate railcar truck and barge traffic with plans and timing for plant shutdown.	

<b>Logistics</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Begin disconnecting (loading or unloading cars) coupling railroad cars and applying the mechanical brakes.	
	Verify access into the Government Emergency Telecommunications Service (GETS) and the Wireless priority Service (WPS).	
	Arrange for sand and sandbags.	
	Arrange for extra water deliveries (first load).	
	Arrange for food and supplies to sustain Hurricane Ride Out Team personnel.	
	Prepare satellite phones.	
	Begin back-up PC files.	
	Have hot shot/delivery services on stand-by in event UPS/FedEx/DHL are not running.	
	Know USACE contact information – ZULU?	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Logistics</b>	Completed by: _____	Date: _____
Complete	<b>Phase 4</b>	
	Move all required files and records to a safe location	
	Verify contract with a roofing service in advance	
	Arrange for a helicopter fly over the Site.	
	Contract with a helicopter service to transport personnel into facility. Have portable diesel and gasoline tanks available and full	
	Arrange for extra water deliveries (second load)	
	Complete back up of all PC's. Evaluate potential of building damage for water ingress with location of UPS, if shut down is required, and if so the following activities will occur: <ul style="list-style-type: none"><li>• Tape backups will be performed, confirmed and sent to an offsite storage facility.</li><li>• Begin shutdown of the servers and storage and waterproofing of equipment. This process takes approximately four hours.</li></ul>	
	Begin supplying food and supplies to Hurricane Response Team, once they are activated.	
	Verify delivery of Bobcat or tractor for use of Assessment Team.	

<b>Logistics</b>	Completed by: _____	Date: _____
Complete	<b>Phase 5</b>	
	Confirm that all essential files and information have been moved to secure site.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Operations Section</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Verify that buildings and grounds are secure. Begin detailed clean up activities.	
	Implement plant operation plan based off alert that is activated.	
	Test run on-site emergency generating equipment and other critical equipment.	
	Fuel diesel air compressors.	
	Inventory all essential chemicals/caustics/inhibitors/etc.	
	Keep all tanks at minimum 30% level.	

<b>Operations Section</b>	Completed by: _____	Date: _____
Complete	<b>Phase 4</b>	
	Line up adequate line and substation crews and electrical distribution specialists to perform repair work.	
	Ensure Hurricane Ride Out Team is in place.	
	All tanks at or above minimum of 305, close all firewall drains.	
	Secure and sandbag all non-essential doors at critical installations.	
	Cover office building widows with plywood covering.	
	Release all personnel who are not part of the Hurricane Ride Out team once relieved.	
	Complete back-up of all Distributed Control Systems.	
	Reduce waste water basins to a minimum.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Operations Section</b>	Completed by: _____	Date: _____
Complete	<b>Phase 5</b>	
	Assume that chemical tanks and drums are isolate including blocking in site glasses.	
	Assure that cylinders are isolated as cooling tower systems are shut down.	
	Prepare financial plans.	
	Shutdown analyzers and oil mist systems as they become available.	
	Take UPS and substation battery systems out of service as they become available.	
	Lower and secure all booms, cranes and dock booms.	
	Barge docks vacated and barges secured.	
	Block in all vessels and tanks not in service.	
	Sandbag critical areas.	
	Secure all rail cars, and tank trailers.	
	Secure loading racks.	
	Secure all outfall areas and prepare sand bags near each outfall.	

<b>Operations Section</b>	Completed by: _____	Date: _____
Complete	<b>Phase 6</b>	
	Separate the site from the electrical utility grid once the site is shut down and evacuated.	
	Due to the severity of storm surge, when landfall is forecast in the vicinity of the Site and flooding of the process units is forecast to occur, all other operations will be shut down and secured at that time, and the Site will be evacuated.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Communications Officer</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Initiate employee communications to encourage personal preparedness.	
	Prepare and issue standard notice for bulletin boards, email and radio, twice per day.	
	Initiate Site attachment #15 to employees.	

<b>Communications Officer</b>	Completed by: _____	Date: _____
Complete	<b>Phase 4</b>	
	Distribute toll-free hurricane information number to Site personnel.	
	Issue standard notice for bulletin boards, email and radio.	
	Notify appropriate agencies for Site status.	
	Communicate information regarding plant operation and work requirements to Site employees. Activate system for employees to report their evacuation location and to post messages of plant status.	
	Secure transportation, if needed, for personnel held over for shut down at plant.	

<b>Communications Officer</b>	Completed by: _____	Date: _____
Complete	<b>Phase 5</b>	
	Notify appropriate agencies of Site Status.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Liaison Officer</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Assign individual to stay in contact with local emergency planning officials.	
	Implement plan to allow emergency personnel access to Site both prior to and after a hurricane event.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Safety Officer</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Release all non-essential personnel.	
	Verify adequate medical supplies are on hand. Order shortfall for immediate delivery.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Purchasing Officer</b>	Completed by: _____	Date: _____
Complete	<b>Phase 2</b>	
	Coordinate plans and timing for plant shutdown with outside suppliers of raw materials and safety systems.	
	Confirm off-site accommodations for SLT and Assessment Team.	
	Confirm contact numbers of key outside utility and raw material suppliers. Confirm names and contact numbers for other key contractors for mechanical, PCT, power distribution, cooling tower repair, building repair, window repair, fence/gate repair and other necessary repair work needed to secure the site and allow timely start-up to begin.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Maintenance</b>	Completed by: _____	Date: _____
Complete	<b>Phase 2</b>	
	Verify inventory of wire, rope, ground anchors and cargo needs.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>All</b>	Completed by: _____	Date: _____
Complete	<b>Phase 2</b>	
	Close all interior doors and blinds in all buildings.	
	Empty all refrigerators/freezers.	
	Leave keys to all vehicles in them with all boxes locked.	
	Leave keys to all tool and parts lockers in location specified by the reliability group.	
	Park all company vehicles at specified location. Leave keys in vehicles.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Facility Security</b>		Completed by: _____	Date: _____
Complete	<b>Phase 2</b>		
	Coordinate with Security Account Manager to evaluate which staff is available to work at main gate areas during Phase III and verify Security Return Team personnel.		
	Communicate decision for plant shutdown to the United States Coast Guard, Department of Homeland Security, state and local agencies. Also alert your regional Crisis Center.		
	Determine when to release Security personnel, except for the position of Truck Gate Officer and Construction Gate Officer.		

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Site Leadership Team</b>	Completed by: _____	Date: _____
Complete	<b>Phase 2</b>	
	Site Leadership Team will meet twice daily regarding hurricane preparation, dependent on storm severity. Attachment #18	
	Coordinate with contract administrators on timing of plant shutdown and if necessary with contractor management.	
	Coordinate with fence line management on timing of plant shutdown.	

<b>Site Leadership Team</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Begin evaluating early release of personnel.	
	Coordinate with fence line management early release of personnel	

<b>Site Leadership Team</b>	Completed by: _____	Date: _____
Complete	<b>Phase 4</b>	
	Release all non-essential personnel.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Business Units and Fence Line Companies</b>	Completed by: _____	Date: _____
Complete	<b>Phase 2</b>	
	If possible, begin equalizing storage tanks to maintain a minimum level of one-third capacity.	
	Secure loose items stored outside, i.e. band empty shipping containers, packing material, lumber, etc.	

<b>Business Units and Fence Line Companies</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Remove trash and debris to trash bins or inside buildings. All trash bins that cannot be closed must be covered securely (cargo net).	
	Tie down portable buildings and any other structures not anchored to foundations.	

<b>Business Units and Fence Line Companies</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	As each department is shut down to a safe condition and secured, report final status to the HSE Lead for evaluation before final release of essential personnel.	
	Make plans for contacting start-up personnel after the storm passes.	
	Store plant vehicles, golf carts, etc. inside plant warehouses. This must be done prior to release of personnel.	

## Attachment #2

### Hurricane Response Activities - Hurricane Response Plan

<b>Medical</b>	Completed by: _____	Date: _____
Complete	<b>Phase 2</b>	
	Verify medical supplies – develop min/max	
	Ensure availability of critical vaccines (tetanus, etc.)	
	Develop staffing plan with Safety Officer	

<b>Medical</b>	Completed by: _____	Date: _____
Complete	<b>Phase 3</b>	
	Finalize staffing with Safety Officer	
	Verify hospital plan – local and regional – daily	

<b>Medical</b>	Completed by: _____	Date: _____
Complete	<b>Phase 4</b>	
	24/7 staffing plan in place and handed over to Safety Officer.	
	Review hospital plans and mitigate with contingency plans for injuries with EMTs and supplies.	

<b>Medical</b>	Completed by: _____	Date: _____
Complete	<b>Phase 5</b>	
	Continue daily update with hospitals, Safety Lead and EMTs.	
	Review hospital plans and mitigate with contingency plans for injuries	

## Attachment #3

### Hurricane Assessment and Recovery Teams

These groups will report back to the Site as soon as possible after the storm has passed through the area. They will be responsible for assessing the damages to the Site and initiate the recovery plan. A typical team is located below for reference. Note, any need for additional personnel must be approved by the onsite Incident Commander due to logistical and support reasons. Additional personnel will be called in as the needs are identified and the plant can support additional people. The following personnel will comprise the Initial Assessment and Recovery Teams.

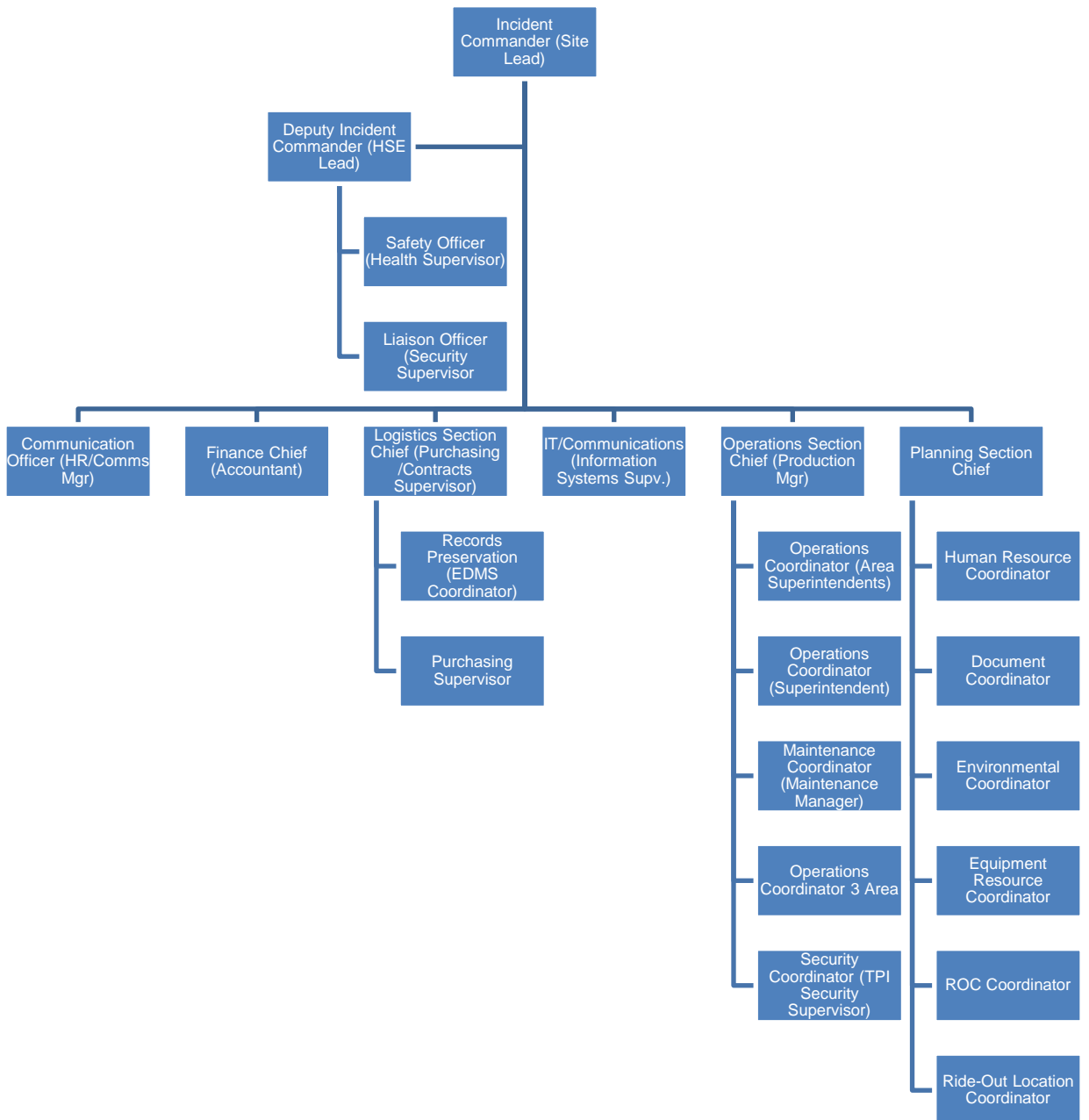
#### HURRICANE ASSESSMENT TEAM

Unit #1	1
Unit #2	1
Unit #3	1
Environmental department	1
Infrastructure area #1	1
HSEQ	6
Maintenance – Millwright	1
Maintenance – Pipefitter	1
PCT or E/I	1
Power Distribution	1
Site Logistics Operations	1
Guest Facility - #1	1
Guest Facility - #2	1
Deputy Incident Commander	1
Liaison Officer	1
Operations Section Chief	1
Logistics Chief	1
Power Distribution Supervisor	1
Mechanical Engineer Coordinator	1
Maintenance Coordinator	1
Security Coordinator	1
Medical Response Coordinator	1
IT Communication Coordinator	1
E&I Coordinator	1
Safety Representative	1
Medical	1
Safety Inspectors	1
Capital Project Coordinator	1
Operations Support	1
Environmental Support	1
Humanitarian Aid Support	1
IT/Documentation Support	1

**HURRICANE RECOVERY TEAM**

Unit #1	4
Unit #2	1
Unit #3	5
Environmental Department	2
Infrastructure area #1	2
HSEQ	2
Maintenance – Millwright	2
Maintenance – Pipefitter	1
PCT or E/I	1
Power Distribution	1
Site Logistics Operations	3
Guest Facility - #1	2
Guest Facility - #2	2

## Attachment #4



## Attachment #5

### Hurricane Recovery Activities Response Plan

<b>Planning</b>	Completed by: _____	Date: _____
Complete		
	Implement the medical treatment plan	
	Update the information on website or Amerilert and the toll-free number every day by a defined time	
	Activate Personnel Accountability plan	
	Activate Equipment Resource Availability plan	

<b>Logistics</b>	Completed by: _____	Date: _____
Complete		
	Set up fueling operations (diesel and gasoline)	
	Re-establish radio and phone communications	
	Implement contract for a helicopter to fly over the site if needed	
	Implement services for a caterer, kitchen, sleeping facilities, laundry, restrooms, and shower facilities	
	Implement contracts for the services of a vacuum truck(s), cranes, manlifts, sweepers, and roll-off boxes	
	Implement contract for a supply of nitrogen by trucks. Know your requirements	
	Implement plan for providing humanitarian aid.	
	Re-establish electronic communication with the company network	

## Attachment #5

### Hurricane Recovery Activities Response Plan

<b>Operations</b>		Completed by: _____	Date: _____
Complete			
	Inspect all unit equipment/ infrastructure for status of condition		
	Activate temporary generators to supply electricity		
	Develop, prioritize and implement a maintenance repair plan once an infrastructure survey has been completed		
	Obtain services of contract security company to maintain integrity of site boundary and equipment		

<b>Finance</b>		Completed by: _____	Date: _____
Complete			
	Implement process for issuing and tracking timesheets and actual hours worked		
	Provide HR payroll support on site during recovery		

<b>Communication</b>		Completed by: _____	Date: _____
Complete			
	Communicate information daily regarding plant status to Site personnel by telephone, email, radio, etc.		
	Implement with HR Section communications that assess employee needs and impact.		

## Attachment #6

### Hurricane Ride Out Team

This group will stay at the plant during a hurricane to ensure the security of the site. The Site Management Team will decide if this team will ride out the hurricane at the site. Personnel with skills in several areas are preferred.

#### HURRICANE RIDE OUT TEAM

Unit #1	1
Unit #2	4
Unit #3	1
Environmental department	4
Infrastructure area #1	2
HSEQ – Fire/Safety Specialist, EMT, Industrial Hygiene	6
Maintenance – Millwright	2
Maintenance – Pipefitter	2
PCT or E/I with Radiation training	3
Power Distribution- power grid experience	2
Site Logistics Operations- contact with USCG, USACE	2
Guest Facility - #1	1
Guest Facility - #2	1
Heavy Equipment experience	1
EMT – verify levels	2
Offsite Fire and Safety Specialist (Assigned to Baytown LEPC)	1
Security Lead	1

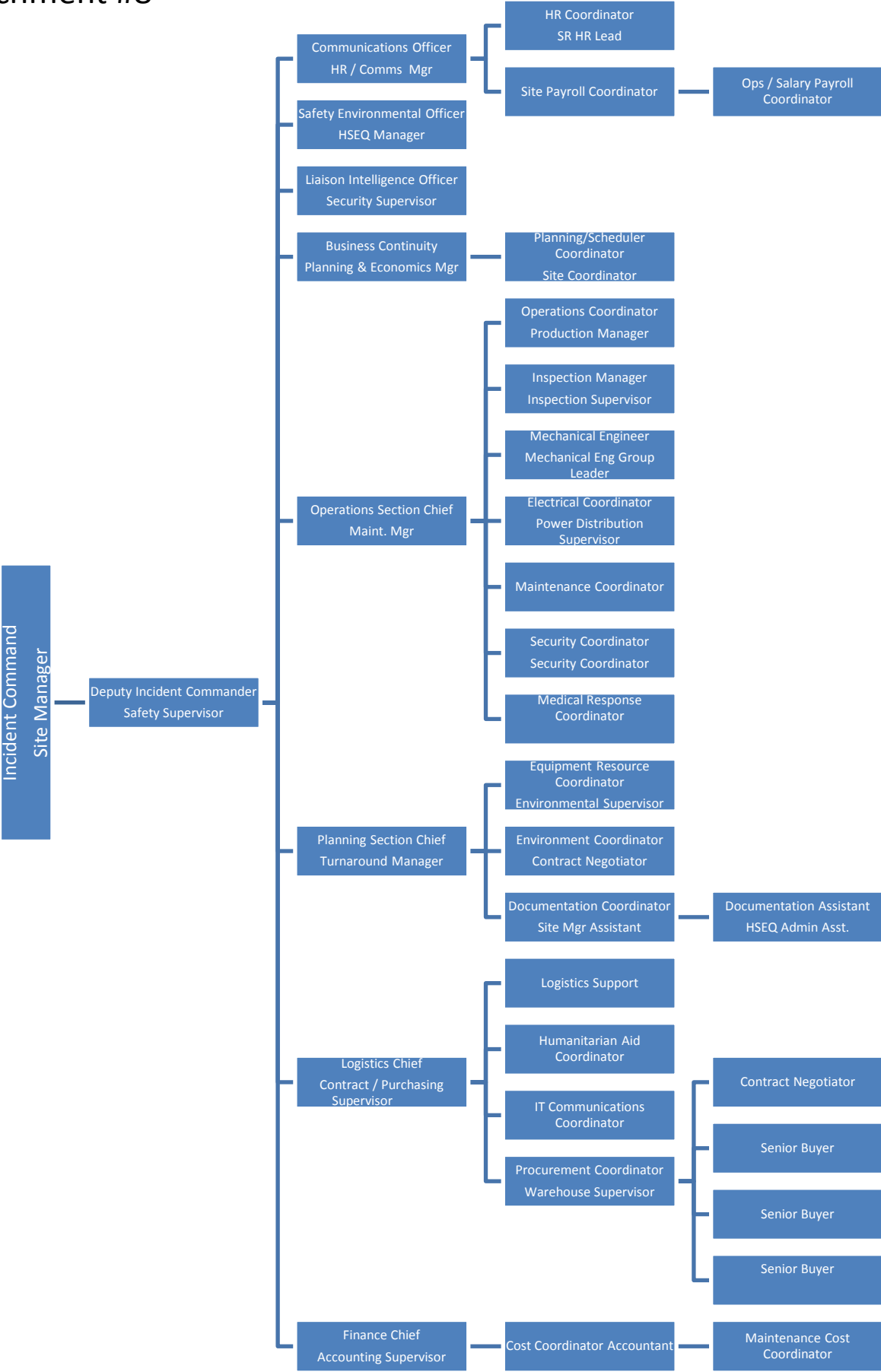
NOTE: All employees assigned to the Ride Out Team should prepare for seven (7) days of lockdown with consideration of items that are needed for personal comfort, diet, medicine, clothing, etc. as standard supplies will be provided. Ride Out Team members who have accepted this role will be given an appropriate amount of time prior to prepare their private residences, etc for the storm. Additionally, family members of Ride Out Team will be trained on how to prepare for hurricane season annually.

## Attachment #7

### Hurricane Master Planning Team

Department	Planning Element
Team Lead	Lead Team
HR	Payroll
Payroll	Payroll
Controller	Emergency cash
Communications	Proactive Employee Communication
HSEQ	Incident Command Emergency Employee Communication Proactive Employee Communication Fuel & Supplies Generators Support
Procurement	Temporary Shelter Food Service Fuel & Supplies
IT	Support and IT consult
Security	Support
LECP and Local Gov't Liaison	Support Lead
Regional Crisis Team	Team Lead
Severe Weather Team	Team Lead
Ride Out Team	Team Lead
Assessment Team	Team Lead
Recovery Team	Team Lead
Employee Recovery Efforts	Team Lead

Attachment #8



## Attachment #9

### HURRICANE CHECK LIST (Refer to Attachment #10 for Securement Methods)

**This list will be worked in the 48-hour warning period**

<b>Central Shop, Site Services Building</b>	Completed by: _____	Date: _____	
ITEM	WORK NEEDED	RESPONSIBILITY	INITIAL COMPLETE
Windows	Close and latch windows. If available, cover windows with plywood.	Central Shop Supv.	
Doors	Close and latch doors not necessary for operations.	Central Shop Supv. Building Mgmt.	
Big Fans	Install plywood covers (bolt on).	Central Shop Supv.	
Trash & Containers	Pick up trash and move all containers inside building.	Labor Foreman	
Lumber	Move all lumber into building.	Central Shop Supv.	
Trailers (offices)	Check to see if trailers are securely tied down and windows taped. Steps must be tied down.	Rigging Foreman	
Outside Area	Check entire area for anything that can be blown about and remove item or tie it down.	All Shop Foremen	
Large Equipment: Cherry pickers Boom Trucks Track Cranes	Move to east end of the Central Shop. If available, cover windows with plywood. If practical, tape glass panels larger than four square feet in area. Do not tape over tint shield film. Lower booms. Lower outriggers and make sure fuel tanks are full.	Crane Operator	
Small Equipment: JLG Lifts Tow Motors Tractors, etc.	Fill all fuel tanks, move inside Central Shop	Rigging Foreman	
Welding Machines	Check out machines for AC and DC output for emergency lights. Move inside building. Fill fuel tanks.	Welding Foreman	
Emergency Equipment	Check all fire extinguishers. Prepare emergency light equipment. Check and repair all string lights.	All Shop Foremen	
Roofs	Check and remove all loose material.	Central Shop Supv.	
Stores Yard	Secure all loose material to racks.	Stores Supervisor	
Salvage Yard	Remove bins from site.	Solid Waste Specialist,	

## Attachment #9

### HURRICANE CHECK LIST (Refer to Attachment #10 for Securement Methods)

<b>PSL and Process Improvement Labs</b>	Completed by: _____		Date: _____
ITEM	WORK NEEDED	RESPONSIBILITY	INITIAL COMPLETE
Windows	Close and latch windows. If available, cover windows with plywood.	PUR Maint.	
Doors	Close and latch doors not necessary for operations.	Lab Manager	
Trash and Containers	Pick up trash and move all containers inside building.	Maintenance	
Outside Area	Check entire area for anything that can be blown about; remove or tie down.	Maintenance	
Vent Hood	Remove stacks, store inside or stake down on the ground.	Maintenance	
Siding	Check and repair if necessary.	Maintenance	
Roofs	Check and remove all loose material.	Maintenance	

<b>Administration, Engineering and Credit Union Buildings</b>	Completed by: _____		Date: _____
ITEM	WORK NEEDED	RESPONSIBILITY	INITIAL COMPLETE
Windows	Close and latch windows. If available, cover windows with plywood.	Central Shop Supv.	
Outside Area	Check complete area for anything that can be blown about; remove or tie down.	Central Shop Supv.	
Doors	Close and latch doors not necessary for operations.	Bldg. Evac. Coordinator	
Utility Doors	Check all doors; bolt and/or lock.	Bldg. Evac. Coordinator	
Emergency Generator	Check and start generator.	Central Shop Supv.	
Roofs	Check and remove all loose material.	Central Shop Supv.	
Parking Lot	Secure trash containers or remove from area.	Central Shop Supv.	
Glass Doors	If available, cover windows with plywood.	Central Shop Supv.	

## Attachment #9

### HURRICANE CHECK LIST (Refer to Attachment #10 for Securement Methods)

<b>Personnel Services Building</b>	Completed by: _____	Date: _____	
<b>ITEM</b>	<b>WORK NEEDED</b>	<b>RESPONSIBILITY</b>	<b>INITIAL COMPLETE</b>
Portable Buildings	Close and latch windows. If available, cover windows with plywood.	Central Shop Supv.	
Outside Area	Check complete area for anything that can be blown about; remove or tie down.	Central Shop Supv.	
Doors	Close and latch doors not necessary for operations.	Shift Superintendent	
Utility Doors	Check all doors; bolt and/or lock.	Central Shop Supv.	
Emergency Generator	Check and start generator.	Central Shop Supv.	
Roofs	Check and remove all loose material.	Central Shop Supv.	
Windows/Doors	Install panels on windows and doors when requested by Safety supervision.	Central Shop Supv.	

<b>Yards and Roads</b>	Completed by: _____	Date: _____	
<b>ITEM</b>	<b>WORK NEEDED</b>	<b>RESPONSIBILITY</b>	<b>INITIAL COMPLETE</b>
Main Roads / Pipe Racks	Tour total plant and remove loose material that can be blown about; secure other items.	Maintenance	
Plant Roadways	Stake plant roadways that are subject to flooding.	Maintenance	

## Attachment #10

### Hurricane Check List Securement Procedure

TYPE	SECUREMENT METHOD
Barricade stands	Remove or tie with #9 wire
Bicycles	Tie together with rope
Cooling Tower Fans	Tie cooling tower fans to the structure.
Deluge Sprinkler Systems	Block before releasing area to Ride-Out Team Command (Unit, Tank Farms, Cooling Towers, etc.)
Equipment on Storage Racks	Tie with #9 wire or rope
Golf Carts	Remove to inside shop areas
Insulation	Remove and store inside
Large Waste Combies	Empty and secure with #9 wire
Lease Cars	Move to Warehouse #1
Loose Pipe in Pipe Racks for Construction Activity	#9 wire tied to cross support
Miscellaneous	Pallets/boxes/etc. containing items weighing less than 200 pounds: secure with #9 wire or rope and cover if contents are small. Individual items, tie down and secure
Office Trailers/Portable Buildings	Screw anchors
Pallets	Move inside
Portable ladders	#9 wire tied to structure
Porta-Cans	Remove from site
Scaffolding	Dismantle stand alone scaffolding and remove to scaffolding yard.  For scaffolding located on the perimeter of units, bundle the boards and tie with #9 wire and the poles to structures.  Inspect all remaining scaffolding and insure boards are tied with #9 wire and that poles are tied to unit structure.
Scrap Metal Bins	Remove from site
Structural	Loose structural members in operating areas - if less than 100 pounds, tie down and secure
Tarps / Bags / Paint Cans / Hoses	#9 wire
Trash Barrels	Remove to inside
Trash Dumpsters	#9 wire tied to pipe stanchion

## Attachment #10

### Hurricane Check List Securement Procedure

Truck Trailers	Remove from plant or relocate
Vessels less than 200#	Tie down and secure with #9 wire (including non-metallic vessels)
Wire Spools	#9 wire tied together

## Attachment #11

### Hurricane Supplies Ride-Out Check List (Ride Out and Seasonal Items)

Complete	Water	COMMENTS/NOTES/EXPLANATION
	1 case of bottled water per person	1 case of drinking water for each person store in warehouse unless evacuating then grab 5 cases for EOC
	1 gallon of utility water per person per day	Used for hygiene and washing purposes 5 gallon Ozarka water store in warehouse unless evacuating then grab 25 gallons for EOC
	Surplus potable water	100 gallons' minimum of surplus potable water to be kept at each site. 5 gallon Ozarka bottles stored in warehouse.

Complete	Cooking	COMMENTS/NOTES/EXPLANATION
	Gas grill	1, stored outside shop
	Full 5-gallon propane bottles	2, stored near grill
	Small camp stove	1, stored in (EOC)
	Small propane bottles	10, stored in EOC
	Eating utensils (knives, forks, spoons)	5 sets of metal utensils stored in EOC trailer and plastic ware stored in break room
	Cooking utensils	1 set stored in EOC
	Plastic cups	25 per person, store in break room unless evacuating then grab 125 for EOC
	Paper plates	25 per person, store in break room unless evacuating then grab 125 for EOC
	Paper bowls	10 per person, store in break room unless evacuating then grab 100 for EOC
	Can opener	2 stored in break room and 4 stored in EOC
	Aluminum foil	1 roll stored in EOC
	Zip-lock bags	1 box stored in EOC
	Pots and Pans	3 set stored in EOC

## Attachment #11

### Hurricane Supplies Ride-Out Check List (Ride Out and Seasonal Items)

Complete	Tie Down and Secure	COMMENTS/NOTES/EXPLANATION
	¼" ropes	1000' stored in EOC
	bungee cords	24 stored in EOC
	ratchet straps	20 stored in EOC
	duct tape	6 rolls stored in EOC
	zip-ties	100 stored in EOC
	#9 wire	1 roll stored in warehouse
	Safety tie-wire (small wire)	1 roll stored in warehouse

Complete	Verify Information	COMMENTS/NOTES/EXPLANATION
	Review employee locator data	Ensure data is correct
	Review phone rosters	Master copy is kept with regional administrator
	Site emergency manual contacts	Current and up to date
	Local officials	Verify positions have not changed and contacts are current
	Regional officials	Verify positions have not changed and contacts are current
	Crisis Mgmt Data base in Allentown	Ensure data is correct
	Obtain/verify contacts from others	New customers, vendors, neighbors, etc

Complete	Fuel	COMMENTS/NOTES/EXPLANATION
	Verify all fuel tanks are full	Diesel, gas, etc...
	Confirm alternate method of pumping fuel	Hand cranked drum pump stored in tool room
	Funnels	2 stored in EOC trailer
	Spill kits	Stored in warehouse and EOC

Complete	Lighting	Quantity
	Head lamps	5 stored in EOC
	Hand held flash lights	10 Stored in EOC
	Light sticks	50 stored in EOC
	Lantern (battery powered)	8 stored in EOC

## Attachment #11

### Hurricane Supplies Ride-Out Check List (Ride Out and Seasonal Items)

Complete	Sanitation	Quantity
	TP rolls	4 per person, store in warehouse unless evacuating then grab 20 for EOC
	Bottles of bleach (1-gallon size)	1 per person stored in warehouse and 12 ea 35 count Clorox wipes stored in EOC
	Hand sanitizer	1 per person, store in warehouse unless evacuating then grab 5 for EOC
	Lysol spray cans	1 per person, store in warehouse unless evacuating then grab 5 for EOC
	Rolls paper towels	2 per person, store in warehouse unless evacuating then grab 10 for EOC
	Hand soaps	2 per person store warehouse and 12 bars of bath/hand soap in EOC
	Bath cloths	4 per person, stored in EOC (20)
	Bath towels	4 per person, stored in EOC (20)
	Shower shoes (flip flops)	1 pair per person store in EOC
	Tooth brushes	1 per person store in EOC
	Tooth paste	1 per group store in EOC

	Sleeping	Quantity
	Cot	1 per person stored in EOC
	Pillow	1 per person stored in EOC
	Sheets/pillow cases	2 per person stored in EOC
	Light blanket	1 per person stored in EOC
	Sleeping Bag	1 per person stored in EOC

Complete	First Aid	Quantity
	First Aid Manual	1 per group stored in EOC first aid kit
	AED	1 in Break room.
	O2 bottle and masks	1 in Operator locker room and 1 in EOC
	First Aid kit	1 in Operator locker room and 1 in EOC
	Snake bite kit	1 per group in EOC
	Sun screen	1 per person in EOC
	OFF spray	4 per person in warehouse

## Attachment #11

### Hurricane Supplies Ride-Out Check List (Ride Out and Seasonal Items)

Complete	First Aid	Quantity
	OFF wipes	1 box per person in EOC

Complete	Food	Quantity
	Canned chicken	3 per person Food Locker #1
	Canned ham	3 per person Food Locker #1
	Canned fruit	3 per person Food Locker #2
	Canned soups	3 per person Food Locker #1
	Canned beans	3 per person Food Locker #1
	Beef jerky	1 box per person Food Locker #1
	Ritz crackers	1 box per group Food Locker #2
	Peanut Butter	1 jar per group Food Locker #1
	Jelly	1 jar per group Food Locker #1
	Oat meal	1 box per person Food Locker #2
	Granola bars	1 box per person Food Locker #2
	Chips	2 bags per person Food Locker #3
	Gum	1 bag per person Food Locker #1
	Cereal bars	1 box per person Food Locker #2
	Sugar	1 5lb per 10 people Food Locker #3
	Honey	1 jar per person Food Locker #3
	Mixed nuts	1 jar per person Food Locker #2
	Dried fruits	1 jar per person Food Locker #3
	Cup o soup	3 per person Food Locker #3
	Ramen Noodles	3 per person Food Locker #3
	MRE	1 case per person EOC

## Attachment #11

### Hurricane Supplies Ride-Out Check List (Ride Out and Seasonal Items)

Complete	Beverages	Quantity
	Sports drinks	12 per person EOC
	Powdered milk	1 box per person Food Locker #3
	Instant coffee	1 box per group Food Locker #3
	Tea bags	1 box per group Food Locker #3
	Soft Drinks	1 case per group EOC
	Kool-Aide drink mix	1 box per group Food Locker #3

Complete	Misc	Quantity
	Street maps of local area	1 per group, store in EOC
	State map	1 per group, store in EOC
	Extra keys for all vehicles & buildings	1 set in Admin lock box and Maintenance planner lock box
	Tarps (20 x 12)	6 per group store in EOC
	Contractor trash bags (drum liners)	1 roll per group store in EOC
	Visquene	1 roll per group store in EOC
	C batteries	1 box per person, store in warehouse and store 1 in EOC
	AA batteries	1 box per person, store in warehouse and store 1 in EOC
	D batteries	1 box per person, store in warehouse and store 1 in EOC
	Pop-up chairs	1 per person store in EOC
	Pop-up canopy	2 per group Store in EOC
	Battery powered fans	1 per person Store in EOC
	Box of shop rags	1 per group Store in warehouse
	Camera for documentation	Use cell phone if unavailable
	Deck of cards	1 per group store in EOC
	Dominos	1 set per group, store in EOC
	GPS	1 per group, Store in EOC or use cell phone App
	AM/FM battery operated radio	1 in Operator locker room shelter in place kit and 1 in EOC

## Attachment #11

### Hurricane Supplies Ride-Out Check List (Ride Out and Seasonal Items)

	1 98 QT ice chest	1, store in EOC
	7500-watt generator with 30AMP pig tail, 12 ga extension cord, surge protectors, GFCIs and 5-gallon gasoline can.	1 set, Store in EOC
	6 ft folding table with 6 folding chairs	1 set, Store in EOC
	Screw in tie down anchors	4, store in EOC
	Halogen bulb Light tree	1, store in EOC

Complete	Recovery Tools	Quantity
	Shovels	2 per group store in EOC
	Pry bars	2 per group store in EOC
	Come-Along	1 per group store in EOC
	Chain saw (with fuel and oil)	1 per group store in EOC
	Bolt cutters	1 per group store in EOC

Complete	Plant Vehicles and Hurricane Ride Out Trailer	Quantity
	Current inspection/registration	
	Copy of insurance in glove box	
	Tires	Good condition and will last thru hurricane season
	Wiper blades	Replace as needed
	Battery	Check voltage/water levels
	General maintenance	Perform any general maintenance that is needed, don't wait (replace brakes, etc)

## Attachment #11

### Hurricane Supplies Ride-Out Check List (Ride Out and Seasonal Items)

#### Ride Out Team Supplies

##### Equipment

- ☐ Light towers
- ☐ Generators
- ☐ Satellite phone – confirm operation
- ☐ Fuel – gas and diesel
- ☐ Battery-operated radios, clock, extra batteries
- ☐ Flashlights
- ☐ Slicker suits
- ☐ Computer laptops for key personnel
- ☐ Portable coolers
- ☐ Plastic trash bags
- ☐ Absorbent towels
- ☐ Tarp or sheet plastic
- ☐ Duct tape
- ☐ Hammer and nails
- ☐ Bedding - Air mattresses, blankets, sheets, pillows
- ☐ BBQ pit
- ☐ Coleman stove and lighter
- ☐ Charcoal
- ☐ Water-proof matches
- ☐ Extra propane gas
- ☐ Manual can-opener
- ☐ Aluminum foil
- ☐ Paper goods – plates, napkins, cups, plastic utensils

##### Food (consider special dietary needs)

- ☐ Ready-to-eat canned food (vegetables and fruit)
- ☐ Soft drinks, canned juices, tea, coffee
- ☐ Milk
- ☐ Soup
- ☐ Snacks (peanut butter, crackers, granola bars, trail mix, cookies, cereals)
- ☐ Ice
- ☐ Staples – items such as sugar, salt, pepper
- ☐ Breakfast items
- ☐ Bread
- ☐ Meat
- ☐ Produce
- ☐ Dairy

##### Water

- ☐ Bottled Water (1/2 gal per person/day)
- ☐ Water stored in clean plastic containers for bathing (2 gallons per person/day)

##### Sanitation

- ☐ Toilet paper
- ☐ Towels
- ☐ Soap
- ☐ Liquid detergent
- ☐ Shampoo
- ☐ Disinfectant
- ☐ Household chlorine bleach

## Attachment #12

### Off-Site Hurricane Command Supply Checklist

<b>Transportation</b>	Completed by: _____	Date: _____
Complete	<b>Action</b>	
	Plant Vehicle filled with gas (2 minimum)	

<b>Food and Water</b>	Completed by: _____	Date: _____
Complete	<b>Action</b>	
	Each team member to supply own food.	
	Xxxx – total number of bottles (6 full-size Ozarka bottles).	
	Consider ice if there is available room during transportation.	

<b>Communication</b>	Completed by: _____	Date: _____
Complete	<b>Action</b>	
	One Satellite Phone - Name of person with phone:	
	25' Network Cables (5)	
	15' Network Cables (5)	
	VOIP Phones (2)	
	Additional Laptop Computers, batteries, cords (5)	
	AM/FM Weather radio	

## Attachment #12

### Off-Site Hurricane Command Supply Checklist

	Printer with wireless printing, and supplies (1)
	Portable projectors (2)

Alternate Power Supply		Completed by: _____	Date: _____
Complete	Action		
	5000-7000 Watt Generator 1 Minimum		
	Full 5-gallon Gas Cans 4 Minimum		
	Siphon Hose 1 Minimum		
	100 Ft. (30 amp) Power Cords 4 Minimum		
	UPS for protecting electronics 2 Minimum		
	Power Strips 6 Minimum		
	25 Ft. Power Cords 6 Minimum		
	Portable Lights from hazmat truck 1 Minimum		
	Portable Fans from HSEQ building 4 Minimum		
	Portable (rent from United Rentals) A/C (110 V) 1 each		

## Attachment #13

### Post Hurricane Essential Supply List

ITEM	QTY	UNIT	\$/UNIT	COST	COMMENT
CASES (80 ea) TOILET TISSUE	5	CASE	\$ 42.40	\$ 212.00	Storeroom
AA BATTERIES	400	EACH	\$ 0.45	\$ 180.00	Storeroom
C BATTERIES	400	EACH	\$ 0.63	\$ 252.00	Storeroom
CASE WYP-ALLS	20	CASE	\$ 49.86	\$ 997.20	Storeroom
FRUIT TO GO	10	CASE	\$ 6.19	\$ 61.90	sam's club
FOAM PLATE	4	CASE	\$ 11.26	\$ 45.04	sam's club
APPLESAUCE	4	CASE	\$ 7.89	\$ 31.56	sam's club
FRUIT CUPS	5	CASE	\$ 7.29	\$ 36.45	sam's club
SNACK PACK	4	CASE	\$ 7.32	\$ 29.28	sam's club
LAYS REGULAR	4	CASE	\$ 9.29	\$ 37.16	sam's club
SPAMCAMO	24	CASE	\$ 7.79	\$ 186.96	sam's club
PROGRESSO	15	CASE	\$ 10.88	\$ 163.20	sam's club
CHICKEN NOODLE	4	CASE	\$ 8.28	\$ 33.12	sam's club
MICROMEAL	10	CASE	\$ 6.60	\$ 66.00	sam's club
BEEF RAVIOLI	15	CASE	\$ 8.78	\$ 131.70	sam's club
SILVER W/BNS	15	CASE	\$ 7.68	\$ 115.20	sam's club
MINIPRETZEL	4	CASE	\$ 8.07	\$ 32.28	sam's club
MM SALMON	24	CASE	\$ 10.88	\$ 261.12	sam's club
WHITE FORK	2	CASE	\$ 9.96	\$ 19.92	sam's club
WHITE SPOON	2	CASE	\$ 9.96	\$ 19.92	sam's club
HAND SANITIZER	24	BOX	\$ 6.73	\$ 161.52	sam's club
CASE (20 BX) DISPOSABLE GLOVES	1	CASE	\$ 109.20	\$ 109.20	Storeroom
CHEMICAL RESISTANT GLOVES	144	EACH	\$ 1.36	\$ 195.84	Storeroom
LIQUID HAND SOAP	10	CASE	\$ 27.36	\$ 273.60	Storeroom
BLUE PLASTIC TARPS 12 X 16	5	CASE	\$ 27.02	\$ 135.10	Storeroom
BLUE PLASTIC TARPS 10 X 12	5	CASE	\$ 15.78	\$ 78.90	Storeroom
COOLERS (48 QT)	200	EACH	\$ 28.00	\$ 5,600.00	Sunnyside Supply / Grainger
KLEENEX, BANDAIDS, GLOVES, MIXED SKID	1	PALLET		\$ -	???
5 GALLON GAS CANS	500	EACH	\$ 16.00	\$ 8,000.00	Sunnyside Supply / Grainger
5 GALLON POLY BUCKETS	200	EACH	\$ 6.05	\$ 1,210.00	Sunnyside Supply / Grainger
TARPS 25 X 40	300	EACH	\$ 55.20	\$ 16,560.00	Sunnyside Supply / Grainger
WOOD SCREWS 2.5"	100	BOXES	\$ 5.00	\$ 500.00	Sunnyside Supply / Grainger
INSECT REPELLANT	250	CANS	\$ 1.66	\$ 415.00	Sunnyside Supply / Grainger

## Attachment #13

### Post Hurricane Essential Supply List

WATER CONTAINERS (5 GAL FILLED POTABLE)	300	EACH	\$ 5.99	\$ 1,797.00	Sunnyside Supply / Grainger
WATER CONTAINER CAPS	MATCH	CONTAINERS			Sunnyside Supply / Grainger
MRE	4000	EACH	\$ 5.60	\$ 22,400.00	Sunnyside Supply / Grainger
BOTTLED WATER	2000	EACH	\$ 0.25	\$ 500.00	Sunnyside Supply / Grainger
BOW SAW 21"	100	EACH	\$ 5.00	\$ 500.00	Sunnyside Supply / Grainger
FOLDING LED FLASHLIGHT	200	EACH	\$ 20.00	\$ 4,000.00	Sunnyside Supply / Grainger
D BATTERIES	775	12 PACK	\$ 7.00	\$ 5,425.00	Sunnyside Supply / Grainger
PAPER TOWELS	200	CASE	\$ 38.00	\$ 7,600.00	Sunnyside Supply / Grainger
BLEACH	200	CASE	\$ 16.69	\$ 3,338.00	Sunnyside Supply / Grainger
SIMPLE GREEN DEGREASER/CLEANER	200	CASE	\$ 9.51	\$ 1,902.00	Sunnyside Supply / Grainger
BOX FAN 20"	200	EACH	\$ 24.00	\$ 4,800.00	Sunnyside Supply / Grainger
LEATHER GLOVE (LARGE)	200	EACH	\$ 1.45	\$ 290.00	Sunnyside Supply / Grainger
LEATHER GLOVE (XL)	200	EACH	\$ 1.60	\$ 320.00	Sunnyside Supply / Grainger
8D NAILS 30# BOXES	25	BOX	\$ 31.00	\$ 775.00	Sunnyside Supply / Grainger
ROOFING NAILS, 5# BOXES	150	BOX	\$ 9.00	\$ 1,350.00	Sunnyside Supply / Grainger
TARPS 20 X 30	300	EACH	\$ 48.00	\$ 14,400.00	Sunnyside Supply / Grainger
HAMMER, RIP, 20 OZ, FIBERGLASS	200	EACH	\$ 17.00	\$ 3,400.00	Sunnyside Supply / Grainger
TRASH BAGS, 55 GALLON	600	CASE	\$ 12.00	\$ 7,200.00	Sunnyside

## Attachment #13

### Post Hurricane Essential Supply List

					Supply / Grainger
16D NAILS	50	BOX	\$ 5.00	\$ 250.00	Sunnyside Supply / Grainger
FLASHLIGHT D YELLOW	500	EACH	\$ 20.00	\$ 10,000.00	Sunnyside Supply / Grainger
MANUAL CAN OPENERS	100	EACH	\$ 7.50	\$ 750.00	Amazon on- line
INDIVIDUAL POWDER SPORT DRINK MIX	10	CASE	\$ 20.00	\$ 200.00	sam's club
PEANUT BUTTER CRACKER	20	CASE	\$ 32.81	\$ 656.20	Amazon on- line
LANTERN D-CELL REQUIRED	200	EACH	\$ 20.00	\$ 4,000.00	Sunnyside Supply / Grainger
ICE 20# BAGS (20 PALLETS/TRUCK OR 2000 BAGS)	6000	BAG	\$ 1.30	\$ 7,800.00	IMPERIAL ICE
PALLETS FOR ICE	60	PALLET	\$ 38.50	\$ 2,310.00	IMPERIAL ICE
<b>\$ 142,114.37</b>					

Items delivered by Grainger - add 15% to  
the above cost

Items purchased by Sunnyside locally - add 35% to the  
above cost

BULK LIQUIDS		
Gasoline	4	Trailers
Diesel	1	Trailers

## Attachment #14

Unit Shutdown Sequence										
Unit	Time (Hr)	12	18	24	30	36	42	48	60	Control Device
BU1	Unit 1									to Unit 12
	Unit 2									to Unit 12
	Unit 3									own control
BU2	Unit 4									own control
	Unit 5									to Unit/TO
	Unit 6									Unit 12
	Unit 7									to TO
	Unit 8									to TO
	Unit 9									to Unit 12/TO
	RM 8									to TO
	RM 9									
	RM10									
	FL1									
FL2	RM 5									n/a
FL3	Unit 10									to boiler 5
	Unit 11									own control
	ECD will continue to process water at a reduced rate & not shut down until we lose power									
Logistics	Barge Dock (RM1, RM2, RM3, RM4)									to TO
Control Devices	(6 hrs after last sending unit is down)									
BU3	(12 hrs after last sending unit is down)									
	Boliler (start shut down 6 hours after begins to go down)									
Utilities	CO, H2									
	DM Water									
	Steam, Electricity									
	Nitrogen									
	Boiler Feed Water									
	Plant water									
	Plant Air									
	Other									
	Other									

## Attachment #15

### WEATHER ALERT – WEATHER ALERT – WEATHER ALERT

At military time Hurricane/Tropical Storm Name was reported # of miles miles off the coast of Name of City. Coordinates are storm coordinates.

Landfall is / is not predicted at / until military time.

Initial reports indicate:

Report storm status

HSEQ personnel are monitoring the storm and plant preparations. The latest hurricane information is available from the Baytown Weather link. It is important to assess your areas and identify what needs to be tied down in the event that high winds occur. Plant status

At this time, a plant wide shutdown is not / is expected, and personnel should / should not report to work for normal shift. If this changes, please contact your supervisor, call the INFO line at 1-877-382-2937 or listen for announcements over the following radio stations:

KTRH – Houston – 740 AM

KILT – Houston – 610 AM / 100.3 FM

The next report will be issued at military time

## **Attachment #16**

### **Unit Supplier Contact List**

1. Raw Materials
2. Mechanical Contractor
3. Electrical/Instrument Contactor

## Attachment #17

### Industrial Hygiene and Occupational Exposure Assessment Information

**Purpose:** Provide an industrial hygiene recovery plan (IHRP) to ensure safe access to affected areas after a hurricane event.

**Objectives:** 1) To address occupational safety and health issues by performing health and injury surveillance and exposure assessments for workers and visitors to the site, 2) To perform outreach and provide industrial hygiene and safety guidance to vulnerable workers, 3) To develop and disseminate occupational health information to workers and visitors to the site.

**Roles and Responsibilities:** The IHRP consists of Three Phases that provide guidance to

**Hurricane Recovery/ Start-up Safety Plan.** The Three Phases will be managed in coordination with the Hurricane Recovery Team. The IH/Occupational Health Superintendent is responsible for providing all IH and Medical personnel staffing required for recovery and safe start-up. In the absence of IH/Occupational Health Superintendent, the Safety Superintendent or HES Manager is responsible for ensuring that staff and that IHRP is considered.

**Infrastructure and Supply Chain:** Understand existing inventory of IH/Medical supplies and establish essential supplies needed to execute the IHRP.

Items	Inventory Owner	Location
Water (instrumentation and consumption)	Established by Safety and IH	Safety & IH/EOC Gate 1
Food	Established by Procurement	Procurement / TBD
Batteries (flash lights)	Established by Procurement	Procurement / TBD
Generators for instrument powering	Established by Procurement	Procurement / TBD
Monitoring supplies (monitors, calibration gas, tubing, test media, shipping supplies, laptops)	Established by IH	IH/EOC Gate 1
Communication	Established by Procurement	Procurement / TBD
Barricade Tape(Radiation/red/yellow},duct tape, plastic covers, blank signs/tags	Established by Safety and IH	Safety & IH/EOC Gate 1
Pink Marking Spray	Established by Safety and IH	Safety & IH/EOC Gate 1
Immunizations (Hepatitis /tetanus)	Established by Medical	Medical / EOC Gate 1
First Aid Supplies (ice packs, OTC, bandages, antimicrobial creams, etc)	Established by Medical	Medical / EOC Gate 1

## Attachment #17

### Industrial Hygiene and Occupational Exposure Assessment Information

PPE-Half Face/Full face respirators, Organic vapor Cartridges, Tyvec suits, N-95, P100, hearing protection, eye protection, face shields, SCBA, gloves (cut level vs infection control), 4 gas personal monitors, legionella test kits, coliform test kits.	Established by IH	IH / EOC Gate 1
Infection Control (sanitizers, bleach, soap, wipes, sprayers, fans)	Established by Medical	Medical / EOC Gate 1
Safety Items (options-life jackets vests, flood markers_	Established by Safety	Safety & IH/EOC Gate 1

#### Recovery Plan:

The IHRP is used to evaluate exposure to mold, chemicals, biological agents, flood waters, dust and dried flood sediments, flood debris, noise, asbestos, lead, radiation, other toxic chemicals and/or other physical hazards such as broken glass.

**Phase 1:** Conduct needs assessment of situation by identifying hazards and establishing communication with various worker groups (management, workers, government agencies, other response officials).

Inspections	Example Hazards	Example Recommendation
<b>10 Building Hazards</b>	Mold, Broken Glass, asbestos, fiber glass	Remediation, Respiratory protection, fans, barricades
<b>10 Road Hazards</b>	Fallen trees, flooding, dried flood sludge	Debris removal, barricades
<b>10 Flood Hazards</b>	Wild life (alive/dead), Biological, depth	Immunizations, flood markers, barricades gloves
<b>10 Safety Hazards</b>	Broken glass, temperature, wild life	Gloves
<b>10 Sanitation Issues/ Activities</b>	Biological, Chemical	Immunizations

## Attachment #17

### Industrial Hygiene and Occupational Exposure Assessment Information

**Phase 2:** Conduct environmental sampling of occupational exposures. If team changes occur, re-establish communication with key contacts. IH plays a very active role for technical assistance in clean-up and start-up activities. IH plays an integral role in approving visits by auditors and other officials requesting to enter the Cedar Bayou Facility.

Description	Evaluation Methods Needed
<b>Injuries/illness</b>	Evaluate all workers who had worked through the days during and immediately after the hurricane-symptomology and determine scope of illness, injury, and stress. Fill out CB42, FRMS, COS report form for all cases exhibiting injury or illness. Document workers evaluated.
<b>Flooded Buildings</b>	Airborne particulates, CO, CO <sub>2</sub> , Total VOC, LEL, mold, asbestos
<b>Process Areas</b>	Airborne particulates, VOC, LEL, H <sub>2</sub> S, O <sub>2</sub> , CO, asbestos, lead, chromium
<b>BF<sub>3</sub>, Chlorine cylinders, water reactives</b>	VOC, Chlorine detection
<b>Restoration work</b>	Airborne particulates, mold, dust, crystalline silica, noise, dried flood sediment
<b>Flood/ water removal</b>	Dried flood sediment, odor (VOC), infectious microorganisms activities
<b>Dispose of spoiled food</b>	Empty out refrigerators, trash

**Phase 3:** Conduct outreach and provide occupational safety and health information to various worker groups.

Actions	Deliverable
<b>Complete any Health and Safety Surveys</b>	Work with Safety to complete and communicate
<b>Educate workers</b>	Provide tool box sessions on respiratory protection, etc.
<b>Obtain feedback from field</b>	Re-monitor areas of alleged exposure (eg, asbestos), continue with infection control
<b>Outreach to community</b>	Work with local restaurants to continue to educate workers (eg 1 sheet alerts in menus)

## **Attachment #18**

### **Site Leadership Coordination**

#### **SLT Meeting Initiation**

The SLT will meet daily regarding hurricane preparations approximately 4 days out from landfall, depending on the severity potential of the storm. After a hurricane, the SLT shall meet twice daily to assess personnel and site impact and provide direction to the key leaders to resolve issues/challenges to return the Site back to normal operations. This is a guideline for conducting those meetings. The actual meeting agenda will utilize a template based on the type of storm.

#### **SLT Meeting Frequency**

0900 and 2100 - Daily

#### **Meeting Attendees**

Site Manager – (leads meeting)  
HSEQ Lead  
HR Lead  
Unit #1 Lead  
Unit #2 Lead  
Unit #3 Lead  
Unit #4 Lead  
Procurement Lead  
Site Logistics Lead  
Reliability Lead  
Electrical / Instrument Lead  
Engineering Lead  
Fenceline Representatives

#### **Meeting Outline**

1. Situation
  - a. Severe Weather Pattern of Interest
    - i. Status of Weather Event
      1. Location
      2. Severity
      3. Earliest time of impact on Site
      4. Most likely course of action
      5. Worst case/most dangerous course of action
  - b. State and Federal courses of action
  - c. Local Civil Authority courses of action
  - d. Industry Peer courses of action
  - e. Fenceline Partner status
  - f. Visitor status
  - g. Ride-out Team status
  - h. Assessment Team status
  - i. Recovery Team status

## Attachment #18

### Site Leadership Coordination

#### 2. Current Activities

- a. Hurricane Phase Activities – See Attachment #1 and #2
  - i. Phase 0 (Perpetual during Hurricane Season) – During continuing operations, unit leadership at all levels must include strong situational awareness, housekeeping, and decision making around temporary structures (i.e. scaffolds).
    1. All units complete Hurricane Preparedness Checklist no later than May 15<sup>th</sup> each year.
  - ii. Phase 1: H-120 (occurs at 120 hours prior to impact on Site)
    1. Key events
      - a. HSE Superintendent – Monitor storm's location and direction of travel, determine appropriate course of action, prepare for Ride-out Team (Attachment #1) activation, and discuss with Site Leadership Team (SLT) if conditions warrant (potential for Level 2 at Site).
      - b. Communications Manager - Initiate employee communications to encourage personal preparedness.
      - c. Human Resources Head - Begin monitoring school shutdowns and mandatory evacuations and organize list of site employees by home zip code to assess applicability of mandatory evacuations. Coordinate with Site Safety Manager as this relates to recommendations for releasing employees.
  - iii. Phase 2: H- 96 (occurs at 96 hours prior to impact on Site)
    1. Key events
      - a. Contract Administrators - Coordinate plans and timing for plant shutdown, if necessary, with nested and non-nested contractors on site.
      - b. Purchasing Manager - Coordinate plans and timing for plant shutdown with outside suppliers of raw materials and safety systems. Confirm off-site accommodations for SLT and Assessment Team.
      - c. Site Logistics Operations - Coordinate railcar, truck and barge traffic with plans and timing for plant shutdown.
      - d. Business Units, Construction Areas and Fenceline Companies – Secure loose items stored outside, i.e. band empty shipping containers, pallets, lumber, unsecured equipment, etc. Begin to develop courses of action depending upon storm severity.
  - iv. Phase 3: H-72 (occurs at 72 hours prior to impact on Site)
    1. Key events
      - a. HSE Superintendent - Release Ride-Out Team members. Release Assessment Team members.
      - b. Site Leadership Team - Begin evaluating early release of personnel.
      - c. Site Logistics Operations - Begin disconnecting (loading or unloading cars) coupling railroad cars and applying the mechanical brakes.

## Attachment #18

### Site Leadership Coordination

- d. Business Units, Construction Areas, and Fenceline Companies - Remove trash and debris to trash bins or inside buildings. All trash bins that cannot be closed must be covered securely (cargo net). Tie down portable buildings and any other structures not anchored to foundations.
- v. Phase 4: H-48 (occurs at 48 hours prior to impact on Site)
  - 1. Key events
    - a. Site Leadership Team - Release all nonessential personnel.
    - b. Human Resources Head and Communications Manager - Activate storm communication plan (radio and telephone system)
    - c. Business Units, Construction Areas, and Fenceline Companies - As each department is shut down to a safe condition and secured, report final status to the HSEQ Head for evaluation before final release of essential personnel.
  - 2. Unit Update on Preparations Status per Attachment #16
    - a. Unit #1
    - b. Unit #2
    - c. Environmental Department
    - d. Unit #3
    - e. Unit #4
    - f. Project Engineering
    - g. Site Administration
    - h. Site Logistics
    - i. Reliability
    - j. HSEQ Department
    - k. E/I Department
- vi. Phase 5: H-36 (occurs at 36 hours prior to impact on Site)
  - 1. Key events
    - a. Ride-out team – Team is on Site and assumes control of and responsibility for Site Baytown site.
    - b. Assessment Team – In place at off-site command center and under the direction of the HSEQ Head or designee.
  - 2. Unit Update on Preparations Status
    - a. Unit #2
    - b. Environmental Department
    - c. Unit #3
    - d. Unit #4
    - e. Project Engineering
    - f. Site Administration
    - g. Site Logistics
    - h. Reliability
    - i. HSE Department
    - j. E/I Department

## Attachment #18

### Site Leadership Coordination

3. Coordinating Instructions (Share with Regional Crisis Center)
  - a. Critical information requirements associated with weather event
    - i. Deviations in path of storm
    - ii. Deviations in intensity of storm
    - iii. Significant deviations in speed of storm (change in timeline)
    - iv. Continually monitor conditions at the site to ensure the safety of the Ride Out Team (Section 2d and 2e)
  - b. Critical information requirements associated Site personnel and equipment (supply immediately to GPM)
    - i. Any injury caused by the severe weather event
    - ii. Equipment damage caused by severe weather event
    - iii. Any significant personal property loss for Site employee (i.e. home, vehicle, etc)
  - c. Movement Instructions
    - i. Determine timing of movement of assessment team and key leaders/families to off-site Remote Command Post
    - ii. Evaluate IH and environmental considerations before releasing personnel back to Site e.g..building conditions, external steam and waste water back up, etc.
    - iii. Timing and route of movement of assessment team from Remote Command Post to site
    - iv. Timing and route of movement of key leaders from Remote Command Post to site
  - d. Displacement Criteria for Ride-out Team at Site
    - i. Change in categorization of storm to Category 5 (wind speeds in excess of 150 mph).
    - ii. Storm surge that is projected to exceed 30 feet.
  - e. Displacement location for Ride-out Team
    - i. Team utilizes plant vehicles and moves to SLT Command Post if conditions warrant
3. Service Support
  - a. Raw Material Supply Update – Site Logistics Lead
  - b. Procurement Update for necessary supplies – Procurement Lead
  - c. Ride Out Team Supply Status – HSE Superintendent – Attachment #11
    - i. Food and Essential Items
    - ii. Fuel
    - iii. Barricade/Building Material
    - iv. Critical Repair Parts
    - v. Time and location of distribution and method
  - d. Recovery Status – follow structure as outlined in Attachment #8 and #13
    - i. Casualty Assessment and Support
    - ii. Food and Essential Items
    - iii. Fuel
    - iv. Barricade/Building Material Requirements

## **Attachment #18**

### **Site Leadership Coordination**

- v. Critical Repair Parts
  - vi. Time and location of distribution and method
- 4. Command Posts/Communications
  - a. Command Posts
    - i. Location of SLT Remote Command Post
    - ii. Location of on site Command Post
  - b. Communications
    - i. Methods of communication by priority
      - 1. Plant Radio
      - 2. Cell Phone
      - 3. Text Message
      - 4. Land Line
      - 5. Satellite Link

## **Attachment #19**

### **HSE Contacts and Checklist**

Add your lists here.

## Attachment #20

### Hurricane Recovery/Start-up Safety Plan

#### Security/Emergency Response

- Make initial rounds around plant to check any damage, checking entrances and fence lines.
- Ensure perimeter fencing is still secure.
- Make initial survey of plant with support from Assessment team members
- Develop list of any potential "Health", "Hygiene", and/or "Safety" issues. Specific plans may need to be developed for any conditions that may be found including clean up & PPE.
- Utilize O2/LEL equipment when teams are making rounds.
- Industrial Hygiene- Use industrial hygiene monitoring equipment as needed to check and verify installations
- Work in Pairs- Good safety practice until facility is secure.
- Review of unusual hazards - Be aware of snakes, wasps, gas cylinders, debris, etc.
- IH to determine level of PPE protection required for initial survey of plant; initial IH assessment .
- Verify status of all perimeter camera surveillance and detection.
- Keep buildings secured and closed until condition is verified.
- Prepare staffing plan for re-mobilization of Security personnel to control plant entrances and prevent un-authorized entry into the plant.
- Verify status of plant Emergency alarm system to ensure it is working properly in all work areas including testing of PA system.
- Verify radio communication status.
- Check status of all Emergency Response equipment after storm passes and verify operation.
- Conduct any new staging as needed.
- Check status of card key entry system for preparation for employee re-entry .
- Staff Fire & Safety Specialist consider 2 per shift during recovery & start-ups Members as shifts begin coming back into plant.
- Work with Utilities to verify fire protection systems are operational before any Unit-startup including pumps.
- Verify power status or back-up power plans for critical buildings (EOC) and installations.

## Attachment #20

### Hurricane Recovery/Start-up Safety Plan

#### Safety & Health

- Develop a "re-entry" orientation plan for employees as they get back into the plant.
- Check status of Medical, and include medical staffing as part of initial re-entry for plant personnel. Ensure vaccines are available as needed.
- Touch bases with local hospitals and availability for any transport needs.
- Personal Hygiene- Potable water, Port-o-lets, sanitary sumps, effluent treatment system,
- Decontamination sites, etc. Are there any water/flooding concerns where we need to take water samples?
- Inspect storage areas.
- Industrial Hygiene- Asbestos concerns from blown insulation.
- If suspect found, barricade and notify Fire and Safety and Asbestos Contractor.
- During start-up ensure all non-essential personnel are out of operating areas and roadways secured.

#### Environmental

- Assess plant for any spills or releases.
- Inspect tank berms and secondary containment areas. Perform AVO survey at each unit.
- Determine extent and potential offsite impacts.
- Notify on call environmental representative to obtain clean-up assistance.
- Check status of all plant outfalls and report to on call environmental representative.
- Inspect ditch systems.
- Ensure all culverts and underpasses are free of debris and are not clogged.
- Inspect ponds, fence along Cedar Bayou, and other areas for trapped wildlife and report to on call environmental representative.
- Inspect drum storage pad for integrity. Note drums that have been moved, floated away, or are no longer upright.
- Check condition of all API separators and sumps. Assess overfills or releases and need for assistance.
- Check Cedar Bayou for excessive debris from the plant (e.g., oil sheen, drums pellets).
- Environmental representative will establish communication link with Recovery Team.
- Environmental representative will ensure the flare check list has been completed.

## **Attachment #20**

### **Hurricane Recovery/Start-up Safety Plan**

- Upon assessment of needs and approval from the SLT the Environmental representative will arrange for necessary response
- Environmental representative will make necessary startup notifications.
- Environmental representative will coordinate emissions determinations and finalize any release notification within the allotted time.