

# Deer Park Community Advisory Council (DPCAC)

## Plant Input on Winter Storm Uri

From April 26, 2021 Meeting

The input below is from presentations, breakout room discussions, and other notes plants submitted. The information has been compiled by topic without plant name so that the CAC may share it to help plants learn from each other.

### PRECAUTIONS TAKEN BEFORE THE FREEZE

- Has a meteorologist on staff as well as contracts with varying companies which provide detailed forecasts used in planning for severe weather events such as a hurricane or cold weather like we saw with the February freeze
- Preparation for any weather event is similar in that we look at this with goal zero in mind – no harm to people or the environment
- One of the biggest differences in how we prepare for a weather event has to do with the movement of people and equipment leading up to and following the event – a hurricane may involve more high-water areas or downed powerline, whereas with a freeze you're looking at ice conditions, both affect mobility to and from the site so we need to take the appropriate actions up front
- We developed a list of “what to do” ahead of “icemageddon” which helped us TREMENDOUSLY
- Weather plans include extensive lists that outline specific tasks that we take throughout the response which are guided by the temperature, wind, rain, etc.
  
- Purchased tarps, insulation wraps, ropes, sand, kerosene heaters, etc.
- Rented portable safety showers
- Identified lines to drain
- Identified lines to open for continual flow
- Wednesday, February 10th: started preparations. Friday, February 12<sup>th</sup>: shutdown potable water systems started draining those lines. Saturday, February 13th: notified insurer and blocked in and drained sprinklers systems
- Complete work such as inspections on fire monitors (things like fire hydrants) and ordering additional equipment such as safety showers, eye wash stations and port-o-lets
- To complete any housekeeping before the weather arrives so that you don't have individuals completing tie-down work in high wind
  
- Many of our plants were down for planned turnarounds, others shut down as conditions deteriorated

## **STAFFING**

- We staffed our sites with ride-out crews, implemented 48hr lock-in
- Our facility is like a small town given its size, people and services. Leading up to the freeze, we activated our ride out crew and stood up our hotel system which allows for people to sleep, eat and shower on site.
- Our people are very resilient!
  - Balance between work and freeze and home freeze damage was taxing
  - Travel in early stages required great patience
  - Tremendous commitment throughout
- We have a messaging system in our Corporate Emergency office that allows us to send text, voice mails, or both to all of our employees. We update this list frequently and keep it on file with Corporate. In the event the facility needs to shut down, or notify employees, we call the 1800 number and tell them what message to send out to your employees. We utilized this communication forum every day until we started the facility back up on February 18<sup>th</sup>

## **IMPACTS FROM THE FREEZE**

- Sunday, February 14<sup>th</sup>: shut down the production unit due to excessive plugging in process lines and reduced availability of natural gas
- Significant loss of necessary utilities including Nitrogen, Natural Gas and Power
- No major equipment damage. However more damage than from previous freeze events
- Numerous water lines and valves split/broke
- Many of the damaged lines were on lines that had been drained. Water trapped in low points or valves caused the failure
- Keeping water flowing was not enough to keep the lines from freezing in many cases
- A significant issue we had during the freeze event was the impact to our potable water lines. Without potable water, we're limited in what food we're able to prepare and our amenities are greatly reduced – in other words, we're moving to port-o-lets as opposed to fully functioning toilets.

## **RECOVERING FROM FREEZE**

- We had many (>2000) repairs required that affected every plant and most infrastructure
- Partnered with contractors/suppliers to quickly increase support staffing and leveraged help across the Gulf Coast to do repairs
- Located numerous leaks in many water lines
- Engaged with suppliers and contractors to begin repairs
- As our teams worked to restore our potable water system, we were able to bring in local food services such as Soul Food Fetish, Nola Po Boys and Iguana Ranas as well as find a

way to disconnect the coffee pots from the in line water system, clean them and then make coffee from bottled water

- Wednesday, February 17th: began the process of re-starting the production unit. Thursday, February 18th: started coordinating with Center Point to bring on electrical load. Friday, February 19th: started the unit at reduced rates. Sunday, February 28th: unit back at full rates
- All freeze repair work was completed without injury and significant change in COVID caseload

## **FLARING AND OTHER RELEASES**

- We did not have any reportable emissions due to freeze!
- Flares are safety devices which allow us to start, stop or idle a unit for maintenance work. With the freeze, and subsequent shutdown of facilities such as our own, the flare allowed us to shut down and then restart in a safe manner. Some folks may have noticed that there was more flaring than what is typical which is true given this was a full site shut down, as opposed to a turnaround on a smaller portion of the facility. In 2012, we introduced a flare gas recovery system to minimize flaring. This system collects gas that would be sent to the flare, compresses it, and returns it to be used as a fuel source for furnaces and other equipment. We strive to operate without flaring. But in the event that we do flare, we want our community to know flaring plays a key role in keeping our plant safe. Site personnel are constantly monitoring their operation to prevent smoking. Site personnel are constantly monitoring their operation to prevent smoking. Once flared, the hydrocarbon has been safely "treated" and potential emissions have been reduced by at least 98%.

## **LESSONS LEARNED/BEST PRACTICES/THINGS TO DO**

- Documenting our freeze responses to identify what we could do better
- We conducted a postmortem of the event and enhanced our what-to-do checklist. The checklist is stored on the server and will be used in the event we have another freeze issue. We wrote several work orders to correct items that were found to be deficient during the ice event.
- Like hurricanes, we will adjust our plans with what we have learned, then our Emergency Operations Team will lead our way through each case as we encounter it
- The production units are updating their freeze prep plans with their learnings
- The choice to keep plants running vs. shutting down has trade offs. Keeping things warm and moving helps prevent freeze damage In some instances, we are confident that we could have had significant process fouling if we had not shut down plants proactively; better off with freeze repairs

- Choosing to take plants off-line more often and earlier to allow for more complete draining of water has trade-offs. It takes several days, up to a week, to shut down. We prefer to keep our plants in operation when possible; less chance for EH&S event
- Our US Gulf Coast insulation standards depend on heat load in many cases
  - Water lines had to be cleared to avoid freeze, which is not easy on a large scale
  - We have plans for clearing out vulnerable water systems, but not all
  - Small pockets of water in pipes and heat exchangers made it challenging to identify until the turnarounds were completed
- Choosing to be significantly more proactive in freeze protection will have business implications and requires analysis
- Additional freeze prevention requires funding
- Our “loss of utility” emergency procedures were effective. Losing multiple utilities simultaneously was an additional challenge
- We did not anticipate we would lose power for 3+ days. This has pushed us to rethink the implementation of a backup power generator that will power our site.
- Prior to the freeze, we did some remedial training with everyone on utility shutoffs. We will do this annually from now on.
- Next time:
  - We will use air to blow out the lines that we are draining
  - Open all available drains on lines
  - Expand the scope of lines that we will drain vs. keep moving
- Even though we did a good job draining several water lines, we did find some areas where we need to install drains.
- Several areas were missing insulation because it rarely freezes in the Houston area.