

Deer Park Community Advisory Council

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Meeting Notes Monday, May 20, 2024

The 318th meeting of the Deer Park Community Advisory Council was held on Monday, May 20, 2024, at the Republic Grill. Facilitator Anne Gowan reviewed the agenda, which was accepted as proposed. The April 2024 meeting notes were approved without changes.

Flaring 101: A View Inside the Plant

(presentation attached)

Rafael Mendez and Fran Falcon from Dow gave a presentation titled "Flaring 101 – A View Inside the Plant." Flaring is the process of burning flammable or toxic gases at a controlled and safe location. Typically employed during the startup or shutdown of a plant, or in the event of a malfunction, this method is used when gases generated cannot be safely managed within the plant processes. For safety reasons, these gases are often best managed by a flare. While alternative technologies such as thermal oxidizers can also handle flammable or toxic gases, they are generally suitable only for small quantities.

Various types of flares are used to burn these gases. The two major types of flares are elevated flares and ground flares. Most flares in east Harris County are elevated assisted flares, or flares with mechanisms that enhance the combustion process such as the injection of steam, primarily because ground flares have a much larger footprint. Most flares are designed to achieve 98% destruction efficiency for Volatile Organic Compounds (VOCs), although flare efficiency is based on several factors. Regardless of the type of flare in use, the "pilot" flame should always be ignited, even if the flare itself is not visible.

Routine flaring and safety flaring are two different operational practices in industrial processes, where excess gases are combusted using flare systems. Each serves a distinct purpose and has different implications for plant operations and environmental impact. Routine flaring occurs as part of the standard operational procedures and involves the burning of gas that is produced as a byproduct of production or processing but cannot be utilized or transported. Safety flaring, also known as emergency flaring, is used primarily as a safety mechanism to protect personnel and equipment.

Several strategies to reduce flare emissions or the need for flaring were discussed, including a leak-by-survey, purge or sweep evaluation, procedure modifications, flare gas recovery, and reliability improvements. A flare leak-by-survey is an inspection process aimed at identifying and quantifying the release of gases from flare systems when they are not actively flaring. The primary goal of a flare leak-by-survey is to ensure that flare systems are functioning correctly and to minimize environmental impact. A flare sweep or purge evaluation is a process used to assess and optimize the purging systems of industrial flare systems. The primary goal of this evaluation is to ensure that the flare system is free of any combustible gases and air mixtures that could lead to unsafe conditions or inefficient burning when the flare is ignited. Flare gas recovery, or a process in which gases that would otherwise be burned off and wasted in a flare system are captured and reused within a facility was also discussed. This technology helps to improve operational efficiency, reduce emissions, and enhance safety.

Questions and Comments:

- 1. *What do the different colors of a flare indicate?*** When you observe a yellow or red flare, it typically signifies that a significant portion of the vent gas is being effectively burned. Conversely, a black flame indicates inefficient burning, suggesting that further action may be necessary to improve combustion. A white flare usually means that excess steam is being injected into the system. Plants continuously monitor their flares to identify the optimal conditions—often referred to as the "sweet spot"—for the most efficient combustion of vent gases.
- 2. *At the end of March, a large flare was visible in Deer Park every night. Why was that?*** Shell Deer Park Complex Manager Nate Levin explained that they were flaring due to an unplanned shutdown. He noted that it typically takes 3-4 days to restart the unit fully. During this period, the flare is used to manage gases safely. Shell Deer Park notified the community to alert them about the event.
- 3. *How does the TCEQ know exactly what is going into the flare?*** In some cases, analyzers are used, and calorimeters assess the energy of the flame. Additionally, plants are required to self-report.
- 4. *Does ambient temperature affect the performance of a flare?*** Outside temperature typically does not directly impact the flare. However, ambient temperatures can influence the operating conditions of the plant, which may lead to increased flaring. Additionally, weather conditions can alter the appearance of the flare.
- 5. *Is there a limit to how much a plant can flare?*** Yes, plants receive air permits from the Texas Commission on Environmental Quality (TCEQ), which specify both hourly and 12-month limits. The plants continuously monitor various parameters and are required to self-report any exceedances of their permit limits.
- 6. *What happens if a permit limit exceeded?*** If a permit limit is exceeded, plants take immediate actions to swiftly address and resolve the issue to return within their permit guidelines. Additionally, they must self-report any deviations to the Texas Commission on Environmental Quality (TCEQ). The TCEQ then conducts an investigation and may issue a Notice of Violation (NOV) for any deviations.
- 7. *Does severe rainfall impact a flare?*** Flares are not typically impacted by severe rainfall. Flares burn at such high temperatures that they effectively burn off any rain that comes into contact with them.
- 8. *If plants have pretty sophisticated automatic control systems, why do we see black flaring?*** Operators can intervene, if necessary, but typically, the automatic control systems adjust the flare gases to optimize heat duty and ensure efficient combustion of the vent gas. Sometimes, the flare may appear black because it is venting so quickly that the control system cannot keep up. This situation often occurs during an unplanned shutdown.
- 9. *Is there always some level flaring?*** Yes, even when flare tips are taken out of service for maintenance, some flaring can still occur because most facilities have multiple flare systems or alternate flare tips that remain operational. *This setup enables one part of the flare system to be maintained or upgraded without completely shutting down the essential safety and environmental controls that flaring provides.*
- 10. *If there is a flare gas recovery system, is there still a need to flare?*** Flare gas recovery systems do not eliminate flaring related to shutdown maintenance or unplanned events.
- 11. *How do you determine which type of flare system to use when building a new unit?*** The amount of available space influences your options. For instance, while a multipoint ground flare is highly effective, it requires a large area roughly the size of a football field. Given the limited available real estate near the ship channel, elevated flares become a more practical choice.

- 12. 12. Other factors critical for effective flaring include ensuring a proper mix of airflow.**
Maintenance routines involve inspecting the tips during each shutdown and replacing them approximately every 20 years. A marbled flame suggests near-complete combustion. The color of the flame depends on the substances being flared; for instance, flares burning heavier double-bond compounds typically exhibit a deep orange color.

Updates

Written Facility Updates - Members received regular periodic plant updates in advance of the meeting but the facilitator asked the plants who reported this month to share one or two highlights from their update that they wanted members to know about.

- **Clean Harbors** – Bruce Riffel shared that Clean Harbors has received approval for tank T-2 replacement from TCEQ. Clean Harbors signed an Agreed Order for TPDES 2021 exceedance. They have had zero lost time accidents. Clean Harbors does not have a flare. They operate a hazardous waste incinerator with 99.999994% efficiency.
- **Pemex Deer Park** – Guy Hackwell provided an update on environmental issues at their plant, including a minor oil spill on the Houston Ship Channel caused by a malfunctioning sump pump. Despite the small quantity of oil—less than half a glass—the sheen covered an area the size of a tennis court. The EPA and TCEQ were on site from April 16-19 to assess compliance with the Refinery Sector Rule Benzene Fenceline Monitoring Program. Additionally, the site received an Agreed Order from TCEQ for Q1 2022 and entered an Agreed Final Judgment with the Texas Attorney General and TCEQ regarding events during Hurricane Harvey. Since November 12, 2023, there have been several recordable incidents; although employees/ contractors recovered from all injuries, they prompted a safety standdown. Discussions on Personal Risk Tolerance and Hand Injuries were held with employees and contractors to enhance safety awareness. The second annual PEMEX Deer Park Family Day took place on March 23, 2024, at Minute Maid Park.
- **Shell Deer Park** – Nate Levin reported on 4 emission events listed in the plant update. The Title V permit for Shell Deer Park was issued 4/24/24. Following the sale of the refinery to PEMEX, both PEMEX and Shell were required to obtain this permit independently. There were two employee recordables during this time period: a pulled muscle and an employee illness. In celebration of Shell Deer Park's 95th anniversary and the 15th anniversary of the Strides for Schools Fun Run organized by the Deer Park Education Foundation, additional STEM grants were offered to participants. This year's event was the most successful to date, with 2,217 registrations. Additionally, applications for Shell Deer Park's Community Grants Programs are open until May 31st.

Ozone Exceedance Days – Yayma Martinez reported that in April, there was one additional exceedance of the Houston Region 8-hour ozone standard following the April meeting. For the May reporting period, there were four exceedances of the Houston Region 8-hour ozone standard and two of the 1-hour standard, while there were no exceedances of either the Deer Park 8-hour or 1-hour standards.

Current totals for 2024 include nine exceedances of the Houston Region 8-hour ozone standard and three exceedances of the 1-hour standard. There have been zero exceedances of the Deer Park 8-hour or 1-hour standard.

Plant Host

Texas Molecular Deer Park Services LLC (TMDP) provides commercial wastewater disposal services to a variety of industries including chemical manufacturing, petroleum refining, metal galvanizing, and landfills. TMDP has three Class 1 Hazardous injection wells with a Federal EPA No Migration Petition. They have been in business in Deer Park for over 40 years, with Frank Marine having been a DPCAC member for 19 years.

Progress Update: Improving DPCAC and Increasing Visibility & Membership

Gowan provided the following update:

- A meeting that includes childcare will not take place in 2024, as a suitable location that meets the requirements of DPCAC could not be found. The idea will be discussed again in November.
- **General Meeting Changes:** Terms & Acronym sheet was created and will be on each table at meetings. Committee that includes community and plant representatives will be formed late this summer to determine if changes need to be made to the Plant Update form and the State of the Plant Report that is given each January.
- **Membership:** This summer, a membership committee will meet to identify community members who should receive personal invitations to a DPCAC meeting. Additionally, the committee will organize the “Bring a Friend” meeting scheduled for August 26th.
- **Events:** In the fall, the committee will meet to identify community events in which DPCAC should participate.
- **Publicity:** The committee met and agreed that after a DPCAC logo is selected, the following items need to be developed: 2-sided rack/tourism card, business card that includes QR code to our website, social media flyer, DPCAC Facebook page.
 - Shell Deer Park volunteered to collaborate with a marketing firm to develop new logo designs for DPCAC. Twelve logos were presented, but none were chosen. After discussing several alternatives, Gowan committed to providing feedback to facilitate the creation of additional options. Over the summer, Gowan will distribute more logo choices. If you wish to provide input, please respond to her email. The final logo selection and the preparation of marketing materials will be completed before the August meeting.

Plans for Future Meetings

DPCAC meets at Republic Grill at the City of Deer Park Battleground Golf course from 6:00 - 7:30 p.m.

No meetings in June or July.

Monday, August 26, 2024 – Air Monitoring – Bring a Friend Meeting

Dates for 2024 - all Mondays

Jan. 22	May 20	Sept. 23
Feb. 26	No June meeting	Oct. 28
Mar. 25	No July meeting	Dec. 2
Apr. 22	Aug. 26	No December meeting

ATTENDANCE

DPCAC Community Members		DPCAC Plant Members		Guests/Resources	
x	Ruth Boyd	X	Clean Harbors , Bruce Riffel	X	Ruth Askine
	Steve Corry, DPISD		Dow Chemical Deer Park , Sharon Hulkan	X	Ed Berg
X	Sheryl DaPron	X	Evonik Oil Additives , Jim Bentinck-Smith	X	Manny Cabrera, Dow
X	Kristina DeWitty, SJC		GEO Specialty Chemicals , Kwadwo Koosono	X	Fran Falcon, Dow
X	Ken Donnell	X	Intercontinental Terminals , David Wascome rep. by Rich Howes	X	Dave Kayser, Lubrizol
	Jamie Galloway, DP OEM		Kinder Morgan , Blake Wood	X	Brian Lawson, Dow
x	Sherry Garrison	X	Lubrizol , Hector Acosta	X	Brad Lyons, Westlake Epoxy
	Tommy Ginn		NOVVI , Alan Kominek	X	Yayma Martinez, TCEQ
x	Karen Guidry	X	OxyChem Deer Park PVC/KOH , Jeff Koetitz	X	Garrett McLeod, Dow
x	Paul Guidry	X	OxyChem Deer Park VCM , Josh Munn	X	Rafael Mendez, Dow
x	Cara Herbeck	X	Pemex Deer Park , Guy Hackwell	X	Emily Morris, PCAC
	Steven Horton		Pemex Deer Park , Jennifer Walsh	X	Susan Newman, Westlake Epoxy
	Gretchen Knowles, Harris Co. Pct. 2	X	Shell Deer Park , Nathan Levin	X	Christina Perez, Texas Molecular
x	Wanda Morris	X	Shell Deer Park . Caroline Alcantar	X	George Tullgren
	Bill Patterson, DP City Council	X	Texas Molecular , Jimmy Bracher, rep by Frank Marine	X	Wallace Ward, Native Praires Assoc. of TX
	Ariel Pena	X	Valvoline , Robert Shelton		
	Randon Pierson		Vopak Moda , Jeff Sanford		
	Darrell Pinckard	X	Vopak Terminal Deer Park , Gustavo Nery, rep. by Gary Jackson		
	Vickey Roberts	X	Westlake Epoxy , Prashanth Hejmadi		
	Andy Smith, San Jacinto Battleground				
	Angela Smith, City of Deer Park		Support Staff		
	Charles Thomas	X	Anne Gowan, Facilitator		
	Cheyenne Valdez	X	Marilyn Bass, Secretary		
	David Wade				
	Ernest Weedon				

Deer Park Community Advisory Council

Flaring

May 20, 2024

1. What did you learn about flares and how they are used for industry?
 - For emission control
 - Can't have chemical plant without them
 - Didn't realize that they run all of the time
 - Learned that hearing them is not a bad thing
 - What the colors meant
 - How process impact affects flaring
 - Necessary for their safety and our safety. It's good and necessary.
 - The community is curious about flaring
 - They are for safety and maintenance
 - They keep the air cleaner through destroying toxic and dangerous gases thru combustion
 - Safety for what they are trying to resolve an issue
 - Learned about what the colors coming from flares mean
 - Types of flares - ground
2. What concerns do you have about the way industry uses flares?
 - I don't have a concern
 - Emissions are coming out one way or another, and the flare makes it safer
 - I know flares are good for the environment
 - Concern about getting it to community and them understanding. It's obvious the plants know what they are doing.
 - When there is too much flaring – Too bright, too noisy
 - They are a necessary evil. Safest way to do what is inherently required.
 - Effect on the environment
3. Are there any community impacts that DPCAC plants should consider when flaring?
 - Wish plants would use the CAER online posts more often – the warnings/heads up are helpful
 - Flare color education materials in partnership with city community events
 - Education, education. Continue to put out information about flaring.
 - Proactive communication (Host a meeting at a high school?)
 - Causes concern and confusion for citizens who don't know about flaring
 - Houses close by have to put very dark curtains to sleep. Sometimes can feel the heat and hear it.
 - Notification to the public
 - Need CAER line notification to inform individuals
4. Are there any other lingering questions that you have?
 - Very well done
 - The different color of the flares and what they mean to the operation of the flare and safety of what is emitted. Public wants to know so they know they are safe.
 - Would love to know what the temperature profile is both above and to the sides of each flare for 1 ft, 10 ft, 100 ft, 1,000 ft, 10,000 ft, ¼ mile, ½ mile, ¾ mile....
 - Who decides whether items flare or not?
5. Any other feedback or topics that you would like to see DPCAC address?
 - Flaring is most frightening to the public so to continue to put education out there.
 - How does wastewater and outfalls work

- More ISD representation
- How can we encourage more community involvement?
- Can Anne or someone from industry or the CAC community members speak to Civic groups about the CAC?
- Perhaps revive our old speakers bureau?
- We discussed waste disposal and the use of UST or AST (Underground/Aboveground storage tanks)