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Flint Hills Resources

Discharge Event Summary

Ingleside, Texas

April 24, 2023

Introduction

Flint Hills Resources Ingleside crude oil terminal is a 104-acre facility with two docks, Dock 4 and Dock 5. Terminal operations can include receipt and shipment of crude oil via pipelines and both delivery and receipt of crude oil via the docks. There are 17 crude oil tanks with capacity to store 3-million barrels and one firewater tank. The terminal is served by inbound and outbound pipelines.

On the evening of December 24, 2022, approximately 335 barrels of light crude oil was discharged from a sump line on Dock 5 at the Flint Hills Resources Ingleside facility following a freeze event, as shown on Photograph 1 (Appendix A). Flint Hills Resources began recovery efforts that evening, which are described in more detail below. Flint Hills Resources retained a third party to perform an investigation into the cause of the release. The information contained in this report is based on what Flint Hills Resources knows at this time about the release and response efforts, as well as what the third party has determined to be the cause of the release.

Unified Command Structure

A Unified Command was established on December 24, 2022 with the United States Coast Guard (Federal On-Scene Coordinator) and Texas General Land Office (State On-Scene Coordinator). The City of Corpus Christi was notified of the event by the Incident Command Liaison Officer on December 25, 2022 and was included in reoccurring updates.

Unified Command is an organizational structure that brings together the incident commanders of agencies that have jurisdiction over the incident to coordinate an effective response while carrying out their own agency's jurisdictional responsibilities. The Unified Command links responding agencies to the incident, establishing a common set of incident objectives, strategies and tactics that can all be deployed in the response. Representatives from the agencies of the Unified Command sign off on the tactics and strategies for a response while in a formal Unified Command structure.

The Unified Command established a command post at the DoubleTree Hotel along North Beach in Corpus Christi, Texas from December 30, 2022 through Jan 5, 2023 and included the City of Corpus Christi Emergency Management Coordinator. The agencies from the Unified Command have continued to meet virtually for the past 14 weeks and will continue to do so until the group determines it is no longer warranted.

Discharge and Recovery

Upon confirmation of the discharge on December 24, 2022, Flint Hills Resources engaged its emergency response team. The emergency response team from Flint Hills Resources and third parties, trained in oil spill recovery, performed assessment of local shorelines, and containment and collection of product immediately adjacent to the Dock 5 structure, as shown in Photograph 2 (Appendix A). Product was also found washed onto the shoreline of the Dredge Material Placement Areas (DMPA) immediately across the shipping channel. That product was collected and placed into waste disposal containers through 24-hour per day cleanup operations, as shown in Photograph 3 (Appendix A).

At the direction of the Unified Command team, aerial and vessel patrols were conducted throughout the bay areas by the United States Coast Guard (USCG) and Texas General Land Office (TGLO) to locate other locations of potential crude impact. During the reconnaissance efforts by Flint Hills Resources, TGLO and

USCG over the first four days following the release, additional product was not identified in Nueces or Corpus Christi Bay areas.

On December 29, 2022, a dredge working in the Corpus Christi Bay reported observation of possible crude oil to TGLO. Flint Hills Resources dispatched several boats to the location to confirm the identity and location of the floating product. The product was confirmed to be consistent with the material being collected near Dock 5, which was a yellow paraffin wax-like substance. Flint Hills Resources mobilized containment booms, collection booms, skimmers, boats and over 300 personnel to the Corpus Christi Bay area for protection and recovery efforts, consistent with Unified Command objectives, as shown in Photographs 4 and 5 (Appendix A). Potential sensitive locations were identified working with TGLO, City of Corpus Christi (COCC), Port of Corpus Christi (POCC) and Texas Parks and Wildlife Department (TPWD) and strategies were prepared and executed to protect those locations with guidance from TGLO, COCC, POCC and TPWD, as shown in Photograph 6 (Appendix A). Mechanisms such as protective boom, recovery and daily shoreline reconnaissance were deployed, consistent with the Unified Command directed objectives and tactics.

Flint Hills Resources maintained the Unified Command Post at the DoubleTree Hotel through January 5, 2023, after which the Unified Command transitioned to Flint Hills Resource's office in Corpus Christi to continue to respond to infrequent reports of material. The emergency response resources, including boom, skimmers and personnel, were gradually demobilized from the site as product observations became less frequent. The TGLO and USCG reviewed shoreline cleanup operations and provided sign-off to certify that the cleanup completed at the impacted areas met agency cleanup objectives.

Approximately 147 barrels of crude oil product were recovered from the shoreline and bay during the cleanup efforts as of March 2023. Care was, and continues to be, taken to maintain appropriate resource levels for reports and findings of additional product as a coordinated effort with the Unified Command.

As of mid-April, 2023, Flint Hills Resources continues to monitor shorelines in the area of North Beach and University Beach and has collected approximately 12 to 24 ounces of material per week, averaged over the past 4 weeks. The recovered material continues to exhibit a wax-like consistency. Flint Hills Resources meets with the agencies that were part of the Unified Command during the response on a weekly basis to provide updates and align on future action items. Flint Hills Resources has occasionally identified material that appears inconsistent with the product recovered during the Dock 5 discharge event response. In such instances, Flint Hills Resources notifies TGLO of the presence of the materials. The reduction in product observations is consistent with the expected impact of natural degradation and recovery efforts. Flint Hills Resources continues to maintain the ability to mobilize and respond to reports of product in the Bay area.

Local Impact Summary

Community air monitoring was conducted to understand if volatile components of the discharge were detectable in the community. A third-party specialist and equipment were dispatched to the site to perform the monitoring. More than 1,000 readings were taken over a 10-day period between December 25, 2022, and January 4, 2023. The samples were collected in the vicinity of the discharge and recovery locations. The air monitoring efforts measured no detections.

The TPWD and TGLO have indicated they are evaluating deceased wildlife collected throughout the response and recovery effort. The event coincided with an unseasonably cold temperature period. The TPWD indicated that the cold temperatures impacted local wildlife. TPWD also indicated to Flint Hills Resources that it appeared some of the collected wildlife were impacted by the discharge event, including turtles and birds. NOAA provided direction to the Unified Command to cease wildlife recovery 30-days after the event onset, noting that deceased wildlife discovered after that point would not be related to this incident. TGLO has not provided an update regarding their expected review timeline or results of their evaluation as of March 30, 2023.

A shoreline assessment was conducted in the Corpus Christi area by a third-party consultant to identify potential impacts from the discharge event. Approximately 271 miles of water-based investigation and seven miles of foot-based investigation were performed following the general principles of National Oceanic and Atmospheric Administration (NOAA) Shoreline Cleanup and Assessment Technique (SCAT). The assessment included visual inspection, shallow test pit excavations, surface water sampling, sediment sampling, wildlife observations and product sampling.

A summary of the assessment findings is included below:

- Visual observations of shoreline cleanup were documented and noted to be consistent with Flint Hills Resources' recovery documentation.
 - A sample of product was collected from North Beach during this investigation. This sample exhibited characteristics consistent with the Flint Hills Resources' discharge event.
- Two samples of what appeared to be an oil-like material were also collected from local shoreline areas that were not known to be within the Flint Hills Resources' discharge and recovery areas. The consultant determined that these two samples were not related to Flint Hills Resources' discharge event based on the timeline of the event, a visual inspection of the samples, and analytic and fingerprint analysis. Flint Hills Resources notified TGLO of these findings and TGLO also indicated that the material was not related to the Flint Hills Resources discharge event. Flint Hills Resources also provided this information to NOAA.
- The consultant observed wildlife around the shorelines that had known impact and shorelines with no known impact from the discharge event. The consultant concluded that wildlife types, numbers, and behaviors were consistent with what is expected in that area.
- Incident related oil was not identified in the water column samples.
- Surface water testing results did not detect parameters associated with crude oil.

Non-Unified Command Stakeholders/Elected Officials/Impacted Public Spaces

In an effort to provide up-to-date and accurate information about the event to public stakeholders that were not part of the Unified Command structure, Flint Hills Resources contacted and maintained ongoing communication with local elected officials in the impacted areas, including area mayors, city council members and county judges, as well as state legislators and the Texas Governor's Office. This included but was not limited to the following geographical areas: Ingleside, Ingleside on the Bay, Portland, Nueces County and San Patricio County. Additionally, stakeholders representing public spaces, including the Port of Corpus Christi, Texas A&M Corpus Christi, the USS Lexington, the Texas State Aquarium, as well as a host of others, were provided updates and ongoing communication with Flint Hills Resources throughout the response and up until the present.

Public Communication

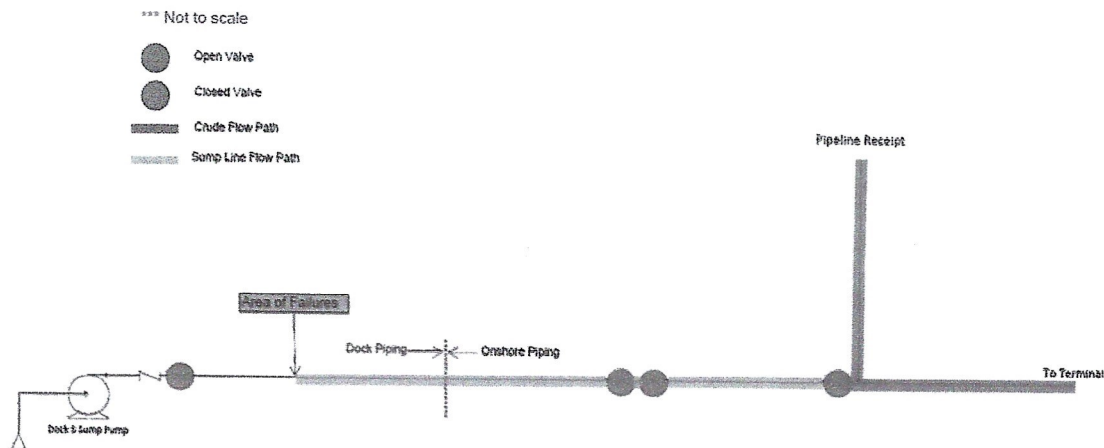
Public Communication throughout the event has included information distributed through the Unified Command as well as through the City of Corpus Christi Communications Department. Regular media releases were issued that included operational updates as the response was carried out. Additionally, more than two dozen media interviews have been conducted with local media. A public reporting phone number, (361) 396-2831, was established in the early stages of the response and it remains active. This number was provided on press releases and was posted on the website of both Flint Hills Resources and the City of Corpus Christi. The last call that was received into the public reporting line was on February 25, 2023. The line remains open and available for any member of the public to reach Flint Hills Resources and Flint Hills Resources continues to maintain the ability to mobilize and respond to reports of product in the Bay area.

Additionally, Flint Hills Resources briefed the City of Corpus Christi City Council on January 10, 2023 and the Port of Corpus Christi Authority on January 17, 2023. An update letter was also sent to the City of Corpus Christi Watershore and Beach Advisory Committee in February 2023.

Investigation

Flint Hills Resources retained a third party to perform an investigation of the event. The results of the investigation indicate that the failure likely occurred due to water freezing within the sump pipe. The frozen liquid caused the piping to expand, resulting in ductile tearing and failures at regions of wall thinning due to external corrosion.

The 3" sump line was designed to transport liquids accumulated in the sump, such as rainwater from Dock 5 to the terminal tanks through piping that is also used for crude oil transfer. When the ductile tearing occurred in the sump line, the liquid in the line drained out, allowing crude oil to backflow into and discharge from the sump line.



In addition to performing an analysis on the pipe, the third-party consultant reviewed documentation and performed interviews as part of its investigation. The third-party consultant determined the following:

Finding (1) A management of change process was not performed when the Dock 5 sump pump was removed from service in June 2022, which resulted in the sump line being low flow/no flow piping, while still holding liquid.

Finding (2) Although Flint Hills Resources executed a freeze protection checklist at the Ingleside Terminal prior to the freeze event, the checklist did not address the threat of freezing within low flow/no flow piping on Dock 5.

Finding (3) When the sump line was not actively being used, Flint Hills Resources did not maintain positive isolation (e.g. a closed valve).

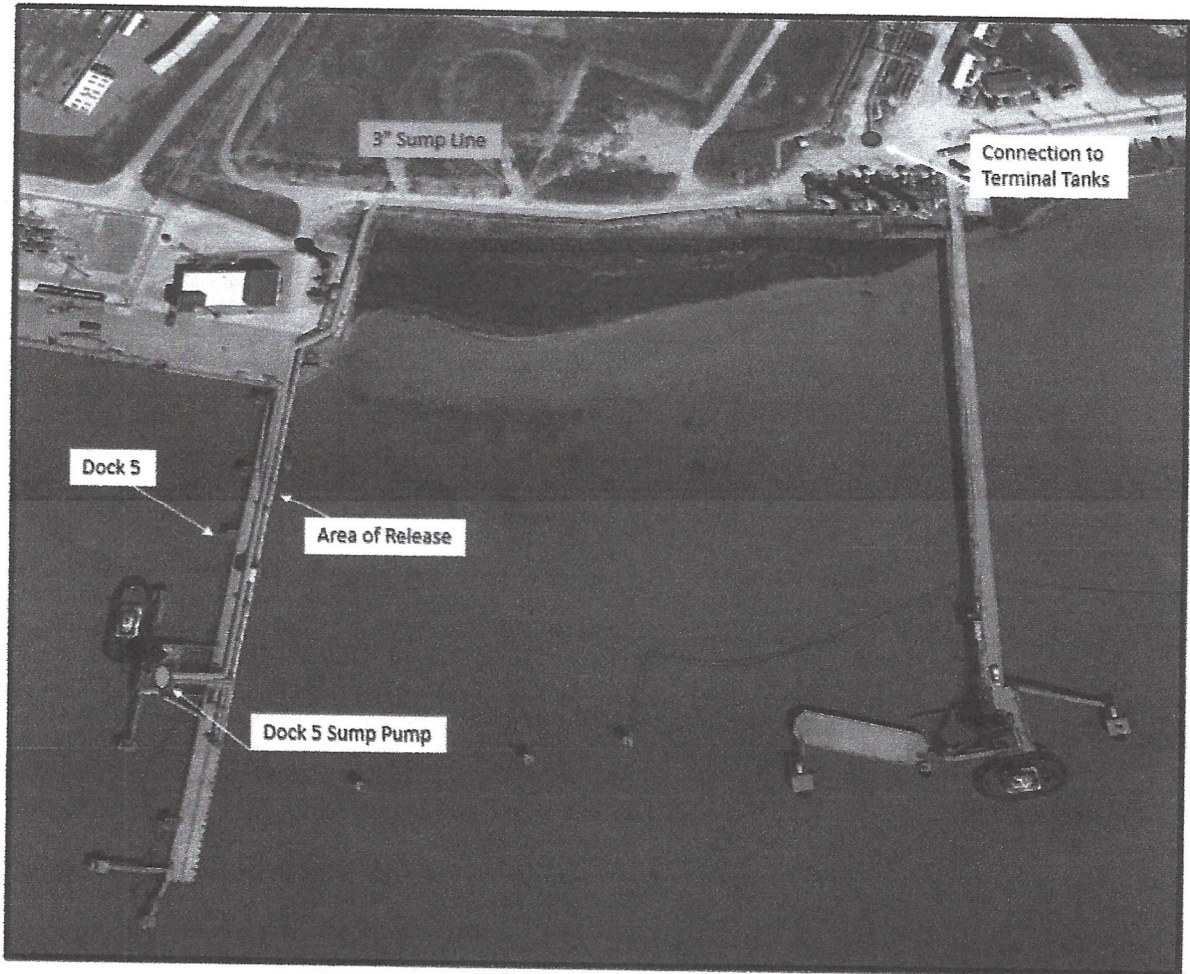
Following the release, Flint Hills Resources drained, air gapped and disconnected the Dock 5 sump line from the piping used for crude oil transfer to the terminal tanks. Flint Hills Resources also updated its Ingleside Terminal freeze protection checklist to include requirements around low flow/no flow piping. Additionally, the site has reviewed the overall terminal operations to identify and address similar risks.

The Ingleside facility is in the process of installing a leak detection capability at the site. The purpose of the leak detection system is to detect vapor and send notifications to facilitate a follow-up by Flint Hills Resources personnel.

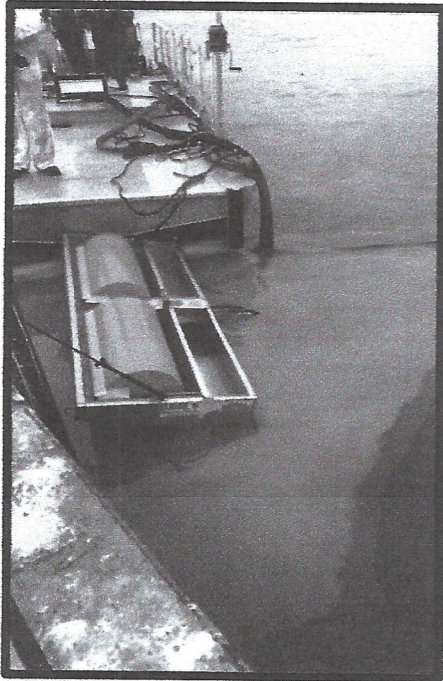
Conclusion

Flint Hills Resources appreciates the cooperation of the United States Coast Guard, the Texas General Land Office, the City of Corpus Christi, Texas Parks and Wildlife, the Port of Corpus Christi and others throughout this event. We intend to maintain the public reporting phone number, (361) 396-2831, through mid-year to provide a simple method of reporting the identification of product potentially related to this discharge event. As noted above, we will continue to monitor and staff the necessary personnel and equipment to be responsive to discovered material.

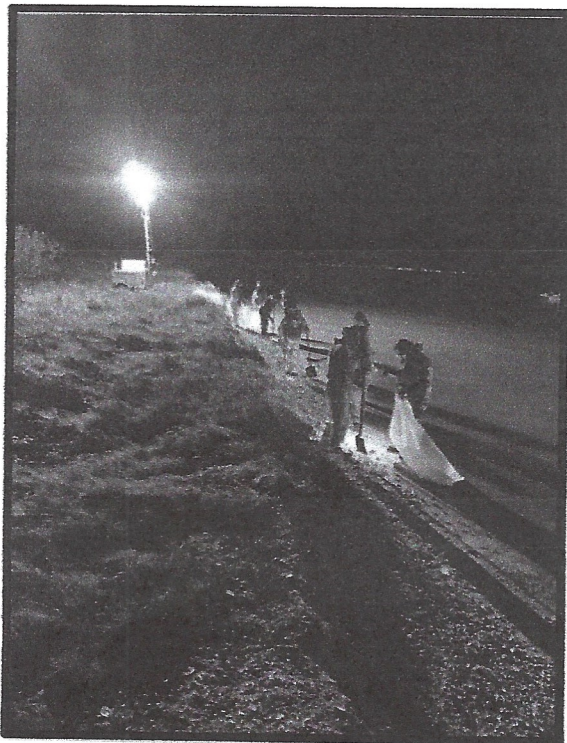
Appendix
Photographs



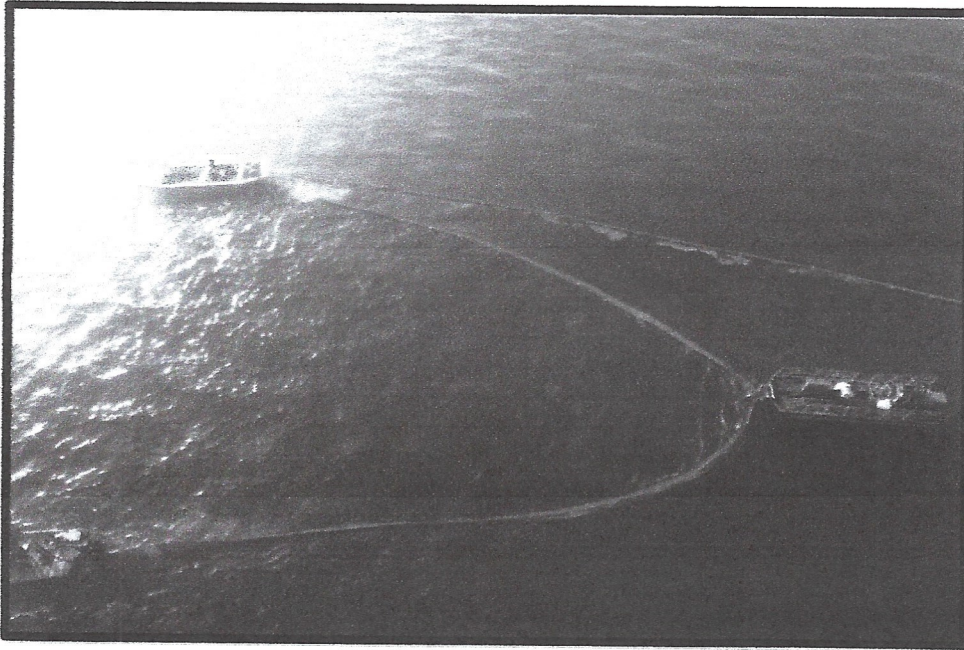
Photograph 1: Flint Hills Resources Ingleside terminal sump line location.



Photograph 2: Drum skimmer removing product from the surface of the water near Dock 5.



Photograph 3: Emergency response crew responding during night hours, with the use of a portable light plant, performing shoreline reconnaissance and cleanup.



Photograph 4: V-boom strategy collecting product along protective boom.



Photograph 5: Protective boom deployed along North Beach.



Photograph 6: Protective boom surrounding habitat area.