



## U. S. Chemical Safety and Hazard Investigation Board RECOMMENDATION STATUS CHANGE SUMMARY

<b>Report:</b>	Aghorn Operating Inc. Waterflood Station H <sub>2</sub> S Release
<b>Recommendation Number:</b>	2020-01-I-TX-R1
<b>Date Issued:</b>	May 21, 2021
<b>Recipient:</b>	Aghorn Operating Inc.
<b>New Status:</b>	Closed – Acceptable Action
<b>Date of Status Change:</b>	April 14, 2022

### Recommendation Text:

*For all waterflood stations where the potential exists to expose workers or non-employees to H<sub>2</sub>S concentrations at or above 10 ppm, mandate the use of personal H<sub>2</sub>S detection devices as an integral part of every employee or visitor personal protective equipment (PPE) kit prior to entering the vicinity of the facility. Ensure detector use is in accordance with manufacturer specifications.*

### Board Status Change Decision:

#### A. Rationale for Recommendation

On October 26, 2019, an Aghorn Operating Inc. (Aghorn) employee responded to a pump oil level alarm at Aghorn's Foster D waterflood station in Odessa, Texas. In response to the alarm the employee worked to isolate the pump. He closed the pump's discharge valve but only partially closed the pump's suction valve. At some point on the night of the incident, the pump automatically turned on and water containing hydrogen sulfide (H<sub>2</sub>S), a toxic gas, was discharged from the pump. The employee was fatally injured from his exposure to the H<sub>2</sub>S. Subsequently, the spouse of the employee gained access to the waterflood station and searched for her husband. During her search efforts, she was also exposed to the released H<sub>2</sub>S and was fatally injured.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found that the employee was not wearing his personal H<sub>2</sub>S detection device and there was no evidence that Aghorn management required the use of these devices. The CSB also found that at the time of the incident, Aghorn did not have any written Lockout/Tagout policies, procedures, or associated training. As a result of these findings, the CSB issued seven recommendations to Aghorn. This status change summary addresses CSB Recommendation No. 2020-01-I-TX-R1.

#### B. Response to the Recommendation

On September 23, 2021, Aghorn provided a response to the CSB that they developed a Health, Safety and Environmental Manual (HSE Manual) which includes chapters on Hydrogen Sulfide Protection and Personal Protective Equipment (PPE). Chapter 25 of the HSE Manual discusses the requirement for personal H<sub>2</sub>S monitors, portable H<sub>2</sub>S monitors and fixed H<sub>2</sub>S monitors and other information regarding H<sub>2</sub>S and protection against it including manufacturer specifications.

Chapter 34 requires the wearing of H<sub>2</sub>S monitors as a part of PPE when entering sour gas locations or production areas even if the work area has adequate coverage with a fixed monitoring system. Additionally, Aghorn provided training sign-in sheets that demonstrated that their personnel had received training regarding H<sub>2</sub>S and protection against it.

C. Board Analysis and Decision

Based upon the information above, the Board determined that Aghorn Operating Inc. addressed the requirements of the recommendation. Therefore, the Board voted to change the status of CSB Recommendation No. 2020-01-I-TX-R1 to: “Closed – Acceptable Action.”