

## CSB “Audio Only” Business Meeting (Remote)

April 2, 2021 11:00 a.m. (EDT)

Welcome everyone! We will now call to order this public meeting of the U.S. Chemical Safety and Hazard Investigation Board – referred to as the CSB.

My name is Dr. Katherine Lemos, the Chairman and CEO for the agency.

Today we meet in open session, as required by the Government in the Sunshine Act, **to discuss operations and agency activities.**

- Due to the continued impact of the COVID pandemic, this meeting is being conducted remotely.

The CSB is an independent, non-regulatory federal agency that investigates major chemical incidents at fixed facilities.

The investigations examine and evaluate a wide range of aspects, to include:

- equipment and system design,
- regulations, industry standards and guidance,
- training, operations, and procedures, and
- human and organizational factors.

With the **facts**, we conduct analysis to determine the probable cause and contributing factors of the event and may also issue **safety recommendations** for the purpose of preventing similar incidents in the future. It’s been only four weeks since our last public meeting on 03 March, but we have some good news to impart regarding progress towards our priorities and goals, which warrants an earlier meeting for the 2<sup>nd</sup> quarter of FY21.

Last month I shared our Management Priorities and Challenges, CSB’s accomplishments for the first quarter FY21, and what to expect from the CSB as an agency moving forward.

- I’ll start the meeting by providing an update to our progress on all three fronts, as aligned with our priorities.
- For details, we will hear from our Acting Managing Director, David LaCerte, and our Director of Investigations and Recommendations, Steve Klejst, and his staff.

Our top priority as an agency **is to focus on the mission:** To drive chemical safety change, we need to continue delivering high-quality safety product to the community.

Last month we announced that, in the first quarter of FY21, we had made progress on 28 recommendation status changes. I'm pleased to report that, in the past month, we've made progress on 10 more safety recommendation status changes, three of which we will highlight today.

In addition, I mentioned that the draft investigation report was prepared by staff for the incident that occurred in Odessa, TX in October 2019 at the Aghorn Operating facility – a Waterflood Station. We are in the board review process and anticipate having this complete and scheduling a virtual Board Meeting in 4-6 weeks.

Our second priority is to **Drive efficiency of operations** within the agency, expanding our workforce and improving business partnerships.

I mentioned the need to hire both **technical and support staff**. I'm pleased to announce that we've submitted 4 investigator positions to our HR business partner that are expected to be posted on USA Jobs shortly, with another round of investigator positions to follow.

A special thanks to Tracy Mayo in HR for her efforts in working to get these requests finalized.

We expect to have as many of these new investigators as is possible start this fiscal year.

Since the start of my term one year ago, I've mentioned this next topic under management challenges: **Board Member Roles and Responsibilities**.

We have invested many hours over the past year, investigating the best approach for the CSB moving forward. I'm pleased to report that we have now finalized changes in response to the IG reports dating back to at least 2018.

- This is a major step forward for the efficiency of the agency,
  - will allow me to focus on my work as a board member and Chairman,
  - as well as provide a governance architecture that allows new board members to be successful.

I will now turn the meeting over to David LaCerte, our Acting Managing Director, to provide more detail.

**LACERTE: IG Report and BO 28**

Thank you Dr. Lemos.

The EPA Inspector General's 2020 Management Challenges Report identified several issues when it comes to CSB "Board Member Roles and Responsibilities." The Agency concurs with the EPA IG and CSB Management has focused on addressing these challenges, as mentioned in several public meetings over the past year.

A special thanks is due to the recently retired career *Deputy General Counsel* for drafting and producing the bulk of what is the update to Board Order 28, Board Members Roles and Responsibilities.

The new Board Order more closely aligns board member roles and responsibilities to our enabling legislation, which requires all board members to be appointed on the basis of:

- technical qualification, professional standing, and demonstrated knowledge in the fields of
- accident reconstruction, safety engineering, human factors, toxicology, or air pollution regulation.

The new Board Order

- allows board members to better focus on their mission through engaging in technical reviews, stakeholder collaboration and community outreach, and
- empowers the Chairman **and** CSB staff through delegation to act in the administration of the agency.

The new Board Order provides for:

- an express process in the instance of Board Member misconduct, and
- adopts several best practices from similarly situated and constructed agencies, most notably the NTSB.

We are thankful for the discussions with the EPA IG, and to those agencies we consulted in our benchmarking process.

We hope these newly defined lanes will minimize the longstanding prior issues of board infighting to promote a more collegial and collaborative practice among prospective board members. We are eager to onboard additional board members from the new administration after appointment and Senate confirmation, and we are pleased to implement this board order so that they can hit the ground running to accomplish their objectives.

Thank you.

**I will now turn the meeting back to Chairman Lemos.**

Thank you, Mr. LaCerte.

I'll now move on to our third priority: **Strengthen stakeholder and federal counterpart relationships** to maximize our resources.

Last month I discussed what to expect from the CSB moving forward, and I focused on **transparency and communication**. As promised, we will be holding a public Board Meeting to close the Aghorn investigation report.

You'll hear directly from our technical staff as they walk through the facts, analysis, conclusions, probable cause statement, and recommendations.

Although I'm currently the only board member, we will follow the process as if there were more board members, and I will pose questions to the team. I'm pleased to announce that we will be able to hold this board meeting virtually, so that you can see the process live. This is setting the pace for a more transparent CSB moving forward.

Once again, I refer you all to the CSB.gov website for recent Board activities, to include closed notations and the status of investigations.

Before turning the meeting over to Director Klejst, who leads our investigations and recommendations teams:

- I'd like to first express my appreciation to our investigators and recommendations staff for their diligence in thorough review and consideration of every incident we take on, and every recommendation response received.
- As an agency, we also want to thank recipients of recommendations that have been responsive to our requests for status and interactions.
- We know that recommendations are an important tool for the CSB, and that our independent and objective advocacy for change directly drives chemical safety.

Director Klejst, you have the floor.

Thank you, Chairman Lemos.

Chairman Lemos mentioned that we advanced 10 **new safety recommendation status changes** this past month.

- In a few moments we'll share details of three of these that warrant our review for the public.

The Office of Recommendations is also working to finalize evaluations of the next group of updated responses received from recommendation recipients.

- Staff's proposed actions for the Board's consideration will be completed within the next several weeks.
- We look forward to providing an update at our next quarterly meeting.

As we announced last month, the Office of Investigations completed the draft report prepared on the CSB's investigation of the incident that occurred on October 2019 at the Aghorn Operating facility in Odessa, TX.

- The draft report was submitted to the Board for review and comment.
- After the board completes its review and comments, a public Board Meeting will be convened to share the outcome of the investigation.

I will now turn it over to our Director of Recommendations, Mr. Barbee, to present THREE of our **recently closed safety recommendations** we'd like to highlight this meeting.

**Airgas R2, R3, and R4 to the Compressed Gas Association:**

**R2: C-ERA**

**R3: C-AAA**

**R4: C-AA**

The three recommendations we will highlight come from the CSB's Airgas Facility Fatal Explosion investigation. All three of the recommendations we are discussing were issued to the Compressed Gas Association (CGA).

**Incident Brief:**

On Sunday, August 28, 2016, at approximately 12:10 p.m., a nitrous oxide trailer truck exploded at the Airgas manufacturing facility in Cantonment, Florida. The explosion fatally injured the only Airgas employee present and heavily damaged the facility, halting nitrous oxide manufacturing at Cantonment indefinitely. The U.S. Chemical Safety and Hazard Investigation Board (CSB) determined the most probable cause of the incident was a pump heated nitrous oxide above its safe operating limits during the initial loading of a trailer truck. This most likely started a nitrous oxide decomposition reaction that propagated from the pump into the trailer truck, causing the explosion.

The CSB investigation found that Airgas lacked a safety management system to identify, evaluate, and control nitrous oxide process safety hazards. The CSB reviewed relevant industry standards by the Compressed Gas Association (CGA) and determined that safety in the nitrous oxide manufacturing industry would greatly benefit from the risk reduction provided by a process safety management

system, proper flame arrestor design, and the application of international automation standards to pump run-dry safety interlocks.

**Number of recs issued in the investigation:** 6 issued, only 3 remain open.

**Number of recs issued to that recipient:** CGA - 3 issued, they were the last 3 remaining open recommendations.

**The first of the three recommendations, which is 2016-4-I-FL-R2 reads:**

**Recommendation Text:**

***Safety Management System for Nitrous Oxide Manufacturing***

*Develop and implement a safety management system standard for nitrous oxide manufacturing, to manage known process safety hazards, including nitrous oxide decomposition, which includes appropriate elements based on chemical industry good practice guidance, such as CCPS Guidelines for Risk Based Process Safety, Essential Practices for Managing Chemical Reactivity Hazards, and Guidelines for Implementing Process Safety Management.*

In May 2020, CGA published CGA P-86, *Guidelines for Process Safety Management (CGA P-86)* that is applicable to the nitrous oxide industry. The document has 21 elements that fully implement a process safety management system necessary to manage known process safety hazards such as nitrous oxide decomposition, as well as identify, assess, and manage other hazards.

It is also highly significant to point out that the scope of CGA P-86 extends far beyond addressing the hazards associated with nitrous oxide. In fact, the scope was expanded to address all processes within the industrial and medical gases industries. Additionally, the process safety management elements found in the CGA P-86 come from multiple sources. In addition to the Center for Chemical Process Safety (CCPS) it also includes information from the European Industrial Gases Association (EIGA) to make it a globally harmonized publication. These actions provide increased safety over several industry segments that includes the international community. This significantly exceeds what the recommendation intended and by far surpasses the objectives envisioned by the Board.

As a result, on 01 APR 2021 the Board Voted: **Closed – Exceeds Recommended Action**. Any time a recommendation recipient receives this status, the CSB wants to recognize them for it. Great job, Compressed Gas Association!

**The second of the three recommendations, which is 2016-4-I-FL-R3 reads:**

**Recommendation Text:**

***Ensure Effective Flame Arrestor Design***

*Modify Compressed Gas Association (CGA) standard CGA G-8.3, Safe Practices for Storage and Handling of Nitrous Oxide to require testing of safety devices, such as strainers used as flame arrestors, for*

*applications where a safety device is used to quench a nitrous oxide decomposition reaction. To ensure that these safety devices meet the intended purpose, the user should test the safety device by simulating conditions of use. In addition, require users to document the required performance standard or test protocol followed.*

CGA published the third edition of CGA G-8.3, Safe Practices for Storage and Handling of Nitrous Oxide (CGA G8.3) in November of 2019. The newest edition advises that equipment used shall be designed, constructed, and tested in accordance with the regulatory requirements and prohibits the modification of filters or strainers with steel wool or similar packing to make flame arrestors. Additionally, G-8.3 focuses on preventing decomposition reactions and subsequent propagation from loss of prime and excessive temperatures and provides guidance on safety devices for those purposes. Lastly, it applies to existing facilities and equipment. As such, to comply with this guidance, if your equipment has been modified, you are required to correct it.

Instead of requiring testing of safety devices, such as strainers used as flame arrestors, for applications where a safety device is used to quench a nitrous oxide decomposition reaction, G-8.3 directs that nitrous oxide equipment be used for its intended purpose and prohibits modification of safety devices to quench decomposition reactions. It focuses on preventing decomposition reactions and its subsequent propagation. Though not the specific action prescribed in the recommendation, the action taken is directed at preventing the hazard in lieu of mitigating the consequences of a decomposition reaction and its propagation. Therefore, it is an acceptable alternative as it provides an equivalent level of safety and meets the safety objectives envisioned by the Board.

As a result, on 01 APR 2021 the Board Voted: **Closed - Acceptable Alternative Action.**

**The third of the three recommendations, which is 2016-4-I-FL-R4 reads:**

**Recommendation Text:**

***Require Pump Run-Dry Safety Interlocks Apply ISA-84***

*Modify Compressed Gas Association (CGA) standard CGA G-8.3, Safe Practices for Storage and Handling of Nitrous Oxide to reference and require applying International Society of Automation (ISA) standard ISA-84, Functional Safety: Safety Instrumented Systems for the Process Industry Sector to safety interlocks such as the nitrous oxide pump “run-dry” shutdown.*

CGA informed the CSB that they published the third edition of CGA G-8.3, Safe Practices for Storage and Handling of Nitrous Oxide (CGA G8.3) in November of 2019. The newest edition clarifies that the requirements for dry running protection are considered critical for safety, references ISA -84 and requires its application in evaluating safety interlocks such as dry running protection for pumps in the nitrous oxide industry.

As a result, on 01 APR 2021 the Board Voted: **Closed - Acceptable Action. Q1 – What is the big-picture significance of CGA implementing the first recommendation (R2), to develop and implement a safety management system standard for nitrous oxide?**

A1 – As previously stated, as a part of our investigation, the CSB reviewed relevant industry standards from the Compressed Gas Association (CGA) and determined that safety in the nitrous oxide manufacturing industry would greatly benefit from the risk reduction provided by a process safety management system. In response, CGA published CGA P-86 which provided detailed guidance on 21 elements that fully implement a process safety management system necessary to manage known process safety hazards such as nitrous oxide decomposition, as well as identify, assess, and manage other hazards. But the amazing part is that they expanded the scope to cover all processes with the industrial and medical gases industries. This increases safety far beyond what the CSB intended, and we want to recognize CGA’s actions.

**Q2 - Why did you choose to highlight the recommendations to the Compressed Gas Association?**

A2 – Over the years, we have issued recommendations to the Compressed Gas Association in five of our investigations:

- 1998 - Union Carbide Corp. Nitrogen Asphyxiation Incident (1 rec)
- 2005 - Praxair Flammable Gas Cylinder Fire (1 rec)
- 2006 - Valero Refinery Asphyxiation Incident (1 rec)
- 2010 - DuPont Corporation Toxic Chemical Releases (2 recs)
- 2016 - AirGas Facility Fatal Explosion (3 recs)

The CGA has always been a very positive group to work with and have been very responsive in implementing recommendations in a short amount of time. With the closing of these recommendations, the last open recommendations in the 2016 AirGas Facility Fatal Explosion are now closed; as well as the last of the recommendations issued to CGA. We want to thank CGA for their diligence and dedication and say, “Keep up the great work.”

Thank you, Mr. Barbee.

Chairman Lemos, thank you for the opportunity to provide this update on the staff’s accomplishments.

Thank you, Director Klejst, and to our Recommendations Team. Once again, I know a lot of time and effort goes into these recommendation status changes. The CSB is investing a lot of effort to advance recommendations front. Thank you to the entire team, our stakeholders, and Federal agency partners that are making this happen.

This concludes the agenda items for our second public business meeting for FY 21. **In closing**, I want to thank everyone for attending today’s meeting. I urge you to continue monitoring our website, and to submit any comments or questions at [public@csb.gov](mailto:public@csb.gov) .

All of us share a strong interest in preventing chemical incidents in the future, and we need to work together as a community to do so.

Thank you for your attendance, and with that, this meeting is adjourned.