U.S. Chemical Safety and Hazard Investigations Board

Business Meeting

April 2, 2021

Conducted Remotely

U.S. CHEMICAL SAFETY BOARD MEMBERS PRESENT:

Katherine Lemos, Chairman & CEO

STAFF PRESENT:

David LaCerte, Acting Managing Director

Stephen Klejst, Director of Investigations and Recommendations

Chuck Barbee, Director of Recommendations

OPERATOR: Good morning and welcome to the Chemical Safety Board Public Business Meeting conference call. My name is Amira and I'll be the operator for today's call. At this time, all participants are in a listen-only mode. Please note this conference is being recorded. I'll now turn the call over to Dr. Katherine Lemos. Katherine, you may begin.

CHAIR LEMOS: Thank you so much, and 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.

And 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 accidents or incidents in the future. It's only been four weeks since our last public meeting on the 3rd of March, but we have some good news to impart regarding progress towards our priorities and goals, which warrants an earlier meeting for the second quarter of FY21.

Last month I shared our Management Priorities and Challenges, CSB's accomplishments for the first quarter of FY21, and what to expect from the CSB as an agency moving forward. You can find those exact notes on our website, as we will post these notes after the meeting.

So, I'll start the meeting by providing an update to our progress on all these three fronts, as aligned with our priorities. And, for details during this meeting, we will hear from our Acting Managing Director, David LaCerte, and our Director of Investigations and Recommendations, Mr. Steve Klejst, and his staff.

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

So, 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 ten more safety recommendation status changes, three of which we will highlight in today's meeting.

In addition, I mentioned that the draft investigation report that was prepared by staff for the incident occurring in Odessa, Texas, in October 2019 at the Aghorn Operating facility, which is a waterflood station, was being prepared for Board review process. So, we are now in the Board review process and anticipate having this complete and scheduling a virtual Board Meeting in four to six weeks.

Our second priority is to drive efficiency of operations within the agency, expanding our workforce and improving business partnerships. Last month, I also mentioned the need to hire both technical and support staff. And I'm pleased to announce that we've submitted four investigator positions to our human resources business partner since that last meeting. These positions are expected to be posted on USA Jobs shortly, with another round of investigator positions to follow.

A special thanks goes out to Tracy Mayo in Human Resources here at the Chemical Safety Board 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.

Now, since the start of my term one year ago, I've typically mentioned this next topic under management challenge…challenges, which is, "Board Member Roles and Responsibilities." We have invested many hours over the past year investigating the best approach for the CSB moving forward, benchmarking with other agencies that are in our domain. I'm pleased to report that we now have finalized changes in response to the EPA Inspector General report dating back to at least 2018.

This is a major step forward for the efficiency of the agency. It 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 that will join us to be successful.

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

DIRECTOR LACERTE: Thank you, Dr. Lemos. The EPA Inspector General's 2020 Management Challenges Report identified several issues when it comes to the Chemical Safety Board's 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 Deputy General Counsel for drafting and producing the bulk of what is to be the update for 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 also 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 have 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 amongst prospective Board Members. We are eager to onboard additional Board Members from the new administration after appointment and after 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, and I turn it back over to Chairman Lemos. I think Dr. Lemos might have some technical problems. So, I'll kind of take over until she can…

CHAIR LEMOS: I'm sorry. [audio glitch] mute, so sorry about that.

DIRECTOR LACERTE: No worries.

CHAIR LEMOS: Can you hear me now?

DIRECTOR LACERTE: Sure thing.

CHAIR LEMOS: Before turning the meeting over to Director Klejst, who leads our Investigations and Recommendations Team, I'd like to first express my appreciation to our Investigators and Recommendations staff for their diligence and thorough review and consideration of every incident we take on and every recommendation response received. I'd also like to give a special thanks to our support staff, without which we would not be able to function.

As an agency, we also want to thank recipients of recommendations that have been responsive to our request 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.

DIRECTOR KLEJST: Thank you, Chairman Lemos. Chairman Lemos mentioned that we advanced ten new safety recommendation status changes this month. In the past few moments…in a few moments we will share details of the three…these three that warrant our review for the public meeting.

The Office of Recommendations is also working to finalize evaluations of the next group of updated responses received from recommendation recipients. The 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 by the CSB's investigation of the incident that occurred on October…in October of 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 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 be highlighting at this meeting.

Director Barbee.

DIRECTOR BARBEE: Thank you, Executive Director Klejst. 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. And here's the 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 determined the most probable cause of the incident was a pump[that] heated nitrous oxide above its safe operating limits during the initial loading of the 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, or "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.

As part of this investigation, the CSB issued six recommendations, only three of which remain open. And a number of…or the number of recommendations issued to this recipient, CGA, the Compressed Gas Association, are three. And those are the three that remain open.

So, the first of the three recommendations, which is 2016-4-I-FL-R2 reads: "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,* that is applicable to the nitrous oxide industry. This 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 multiples sources. In addition to the Center for Chemical Process Safety, or "CCPS," it also includes information from the European Industrial Gases Association 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 April 1st, 2021, the Board voted that the status be changed to "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…the second of the three recommendations we'll discuss is 2016-4-I-FL-R3. It says: "Ensure effective flame arrestor design. Modify Compressed Gas Association 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."

The CGA published a third edition of CGA G-8.3, Safe Practices for Storage and Handling of Nitrous Oxide, 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 devices…where a safety device is used to quench 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 April 2021, the Board voted to close this recommendation [as] "Acceptable Alternative Action."

The third of the three recommendations, which is 2016-4-I-FL-R4 reads: "Require Pump Run-Dry Safety Interlocks Apply ISA-84. Modify Compressed Gas Association standard CGA G-8.3, Safe Practices for Storage and Handling of Nitrous Oxide, to reference and require applying International Society of Automation 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, in November of 2019. The newest edition clarifies that the requirements for dry-running protection are considered critical for safety, and 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 April 2021, the Board voted to close this recommendation as "Acceptable Action."

CHAIR LEMOS: Thank you, Dr. Barbee…Director Barbee. I have a few questions, as you know me by now. What is the big-picture significance of CGA implementing the first recommendation, which

was R2, to develop and implement a safety management system standard for nitrous oxide?

DIRECTOR BARBEE: Dr. Lemos, very good question. As previously stated, as a part of our investigation, the CSB reviewed relevant industry standards from the Compressed Gas Association and determined that the safety…or that safety in the nitrous oxide manufacturing industry would greatly benefit from the risk reduction provided by a process safety management system.

However, 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…within the industrial and medical gases industries. This increases safety far beyond what the CSB intended, and we want to recognize CGA's actions.

CHAIR LEMOS: I appreciate that, Director Barbee, because as we know, PSM and RMP have many different facets and…and different elements, depending on whose guidance you look at. But that

enhancing or completing something beyond what we asked for is…is noteworthy and I appreciate that.

Another question is: Why did you choose to highlight the recommendations to the…the Compressed Gas Association?

DIRECTOR BARBEE: Well, over the years, we've issued recommendations to the Compressed Gas Association in five of our investigations. In 1998, the Union Carbide Corporation nitrogen asphyxiation incident, we issued them one recommendation. In 2005, Praxair flammable gas cylinder fire, we issued them a recommendation. In 2006, the Valero Refinery asphyxiation incident, we issued them a recommendation. In 2010, the DuPont Corporation toxic chemical releases, we issued them two recommendations. And in 2016, AirGas facility fatal explosion, we issued them three recommendations.

The Compressed Gas Association has always been a very positive group to work with and have been very responsive in implementing recommendations in a relatively short amount of time. With the closing of these recommendations, the last open recommendations in the 2016 AirGas facility fatal explosion investigation 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.”

CHAIR LEMOS: Thank you, Director [Barbee], and to our Recommendations teams…or 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 and we [say] thank you to the entire team, our stakeholders, and Federal agency partners that are making this happen.

Now I’ll move on to our third priority for the agency, which is, "Strengthen stakeholder and Federal counterpart relationships to maximize our resources."

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

You will have the opportunity to hear directly from our technical staff as they walk through the facts, the analysis, conclusions, and probable cause statement, as well as recommendations.

And, 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. And this is setting the pace for a more transparent CSB moving forward.

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

This concludes the agenda items for our second public business meeting for FY21. 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, which was in the notice for today's public meeting.

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.

OPERATOR: Thank you. And thank you, ladies and gentlemen. This concludes today's conference. Thank you for participating. You may now disconnect.