U.S. Chemical Safety and Hazard Investigations Board

Business Meeting

October 29, 2020

CSB Headquarters Office - Washington, DC

U.S. CHEMICAL SAFETY BOARD MEMBERS PRESENT: KATHERINE LEMOS, Chairman & CEO

STAFF PRESENT:
Amanda Johnson, Recommendations Specialist
Mark Kaszniak, Senior Recommendations Specialist
Charles Barbee, Director of Recommendations
Stephen Klejst, Executive Director - Investigations and Recommendations
Harold Griffin, Investigator
OPERATOR: Good day, everyone, and welcome to today’s Chemical Safety Board public business meeting. At this time, all...at this time, all participants are in a listen-only mode. Later, you will have an opportunity to ask questions during the public comments session. You may register to ask a question at any time by pressing the * and 1 on your touchtone phone. Please note this call may be recorded.

It is now my pleasure to turn today’s program over to Chairman Lemos. Please go ahead.

CHAIR LEMOS: Thank you, Gretchen. Good morning. We will now call to order this business meeting of the U.S. Chemical Safety and Hazard Investigation Board, referred to as the CSB. I’ll start by introducing myself, 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. Somebody may not be on mute. Feedback issue. There we go. Okay. I’ll continue now.

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

We have a super agenda for today. I’ll first provide an overview of our new investigations. We’ll then turn to recommendation and open investigation updates. And we’ll close out the meeting with your public comments.

So, in terms of new investigations, since our last public business meeting on September 2\textsuperscript{nd}, the CSB has launched two chemical incidents. The first was on September 14\textsuperscript{th} to a thermal decomposition event at the Bio-Lab facility in Conyers, Georgia.

The company is a manufacturer of pool and spa treatment products. And no injuries were reported. However, Interstate Highway 20 was closed temporarily, due to smoke produced from the event and that is a qualifying criteria.

Second was to a fire that occurred at the Evergreen Packaging Mill in Canton, North Carolina. And this incident
occurred during a scheduled maintenance event doing repair work
to a process unit. Two contractors were fatally injured as a
result of the incident. The CSB investigators will be in North
Carolina this week to continue their interviews.

I’d like now to highlight recent recommendation status
changes. In FY21, so which started this month, in October, the
board has voted on ten recommendations from the following
investigations and studies.

AL Solutions fatal dust explosion. There were four
recommendations. Public safety at oil and gas storage
facilities. There was one recommendation. Gas well blowout and
fire at Pryor Trust Well 1H9. We have status update for two
recommendations. Kleen Energy natural gas explosion, one
recommendation update. Motiva Enterprises sulfuric acid tank
explosion, one update. And Veolia Environmental Services
flammable vapor explosion and fire, one recommendation status
change.

I am pleased to turn over the session to our recommendations
staff who will discuss some of these actions in more detail.
First up is Recommendation Specialist Amanda Johnson. She will
review a recommendation that came out of the Kleen Energy natural
gas explosion. Please proceed, Ms. Johnson.
SPECIALIST JOHNSON: Thank you, Chairman. Just an incident recap. On February 7, 2010, an explosion occurred during the planned cleaning of new piping at Kleen Energy, a combined-cycle natural-gas-fueled power plant. So, it was under construction in Middletown, Connecticut. Immediately prior to the explosion, workers were conducting a gas blow. Natural gas and debris were subsequently vented into a congested area where the gas accumulated and found an ignition source, causing an explosion, which resulted in six fatalities and injured at least 50 additional personnel.

As part of its investigation, the CSB reviewed the American Society of Mechanical Engineers, or ASME, Voluntary Industry Consensus Standard B31.1, Power Piping, which addresses the design, material, fabrication, erection, test, inspection, operation, and maintenance of piping systems typically found in the electric power-generating stations, industrial and institutional plants, geothermal heating systems, and central and district heating and cooling systems.

The CSB noted in its review that the standard was silent on the use of flammable gas for cleaning purposes and offered no guidance about the technical or safety aspects of pipe cleaning procedures. As a result of these findings, the CSB issued Urgent
Recommendation 3 to ASME, which states “to make appropriate changes to the 2010 versions of power piping, ASME B31.1., to require an inherently safer fuel gas piping cleaning methodology in favor of gas blows. At a minimum…at a minimum for the cleaning or flushing methods discussed in B311, Paragraph 122.10 require the use of inherently safer alternatives such as air blows and pigging with air as the mode of force in lieu of the use of flammable gas.

The CSB has noted that the main purpose of this recommendation was to make those who use Standard B311 aware of safe cleaning practices, such as those provided in National Fire Protection Association or NFPA Standard 56, which is standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems.

Ultimately, to satisfy this recommendation, ASME incorporated NFPA 56 by a reference in B311. Section 100.1.4 now states “This code does not provide procedures for flushing, cleaning, startup, operating, or maintenance.” Code users are advised, however, that the cleaning and purging of flammable gas systems may be subject to the requirements of NFPA Standard 56.

Appendix F also lists NFPA Standard 56 as a mandatory reference standard.
Therefore, based on these actions taken by ASME, CSB has closed this recommendation as Closed, Acceptable.

CHAIR LEMOS: Sorry about that. I was on mute. Thank you, Ms. Johnson. I do have a few questions for you.

SPECIALIST JOHNSON: Sure.

CHAIR LEMOS: Immediately prior to the explosion at Kleen Energy, workers were conducting a gas blow, quote-unquote. Can you briefly describe what, exactly, a gas blow is for those of us that are unfamiliar with this process?

SPECIALIST JOHNSON: Sure. So...sure, so during a gas blow, natural gas is forced through piping at a high volume and pressure, to remove debris. And then the natural gas and debris are released directly to the atmosphere.

At Kleen, the natural gas and debris were vented to the atmosphere in a congested area, near the facility’s power generation building. The accumulated natural gas then found an ignition source. And the CSB concluded that the venting of natural gas in this manner was inherently unsafe because of the intrinsic fire and explosion hazards.

HILLARY: Thank you, Ms. Johnson. Can we please proceed with the next presentation? I believe it will be Mr. Kaszniak.
SENIOR SPECIALIST KASZNIAK: Hello, good morning. Thank you, Hillary. The recommendation I’m going to discuss first is...which was made to the Environmental Technology Council, as a result of CSB’s investigation at the Veolia Environmental Services flammable vapor explosion that occurred on May 4th in 2009.

In this incident, a flammable vapor cloud was released from a solvent recovery process which ignited and exploded at a state-permitted treatment, storage, and disposal hazardous waste facility which was processing waste for industrial and municipal customers of environmental services in West Carrollton, Ohio.

As part of this investigation, the CSB reviewed industry standards and found that there were none that provide guidance to treatment, storage, and disposal facilities to operate safely. The CSB reached a similar conclusion in a previous investigation of a 2006 fire at Environmental Quality, another waste facility that was located in Apex, North Carolina.

Based on the lack of these industry standards, the CSB made a recommendation to the Environmental Technology Council, which states, “Develop and issue standardized guidance for processing, handling, and storage of hazardous waste, to reduce the
likelihood of fires, explosions, and releases of hazardous waste treatment store...and hazardous waste at hazardous waste treatment, storage, and disposal facilities. Include the incident findings, consequences, conclusions, and recommendations from the CSB investigations of the Environmental Quality facility, as well as the Veolia EHS technical solutions facility.”

In 2011, the...the Environmental Technology Council submitted the guidelines to the CSB Board and they were reviewed. And the Board concluded that...that...that they were limited in scope and communicated to ETC, that is Environmental Technology Council, that they needed to be revised to include other serious hazards, such as flammables and toxics, before the Board would consider closing this recommendation as Acceptable Action.

In February of this year, ETC responded to the CSB that they had revised their guidance documents and...to address the concerns that the Board had...had noted earlier, and that they provided a copy of these revised guidelines to the CSB for review. The ETC also advised the CSB that these guidelines were available on their website, to their members, in the Members Only section of their website for their member companies.

So at...upon review of these new guidelines, the CSB determined that they met all the requirements of the CSB
recommendation and the Board voted to change status of the
recommendation to Closed, Acceptable Action.

HILLARY: Thank you for that presentation, Mr. Kaszniak. I
believe we may have some questions from our Chairman. Chairman,
please proceed with your questions if, hopefully, you can hear
me.

STEVE: I’ll address the questions to Mr. Kaszniak at this
point, until we resolve the technical issues with the Chairman’s
connection.

Mr. Kaszniak, please share with us why did the CSB issue a
recommendation to the Environmental Technical...Technology Council.

SENIOR SPECIALIST KASZNIAK: Yeah, sure, Steve. During this
investigation of the incidents at the hazardous waste treatment
facilities, the CSB determined that there were no industry
standards that applied to the operating of these facilities
safely. Requiring individual companies involved in these
incidents to develop such programs was an obvious choice. But
would have had little impact on the entire industry.

So the CSB began searching for an alternative recipient for
this recommendation. The agency’s research led us to the
Environmental Technology Council, which represents about 80% of
the companies operating hazardous waste facilities in the United
States and whose stated mission is to protect public health and
the environment...and the environment, by properly managing and
disposing of waste and waste residues. They agreed to develop a
training program that could be used by all their member
companies.

STEVE: Very good, thank you. This certainly helps explain
why the ETC was the recipient of the recommendation, given the
widespread communication channels that they have to advance our
safety advocacy issues. So thank you for that response.

Another question. I understand that this is...this
recommendation is superseding an earlier recommendation made to
the ETC. How did that come about?

SENIOR SPECIALIST KASZNIAK: In that case, our initial
recommendation was made to the ETC after the 2007 explosion at
Environmental...Environmental Quality that resulted in a fire.
While ETC was in the process of developing its training to
satisfy that recommendation, the Veolia explosion occurred in
Ohio in 2009. And rather than issuing ETC a second
recommendation to address that explosion, the CSB decided to
supersede that first recommendation, to ensure that the lessons
learned from both explosions would be covered in the training
that was being developed by ETC.
STEVE: Thank you. And one final question in...in your presentation. Are there other efforts underway to improve safety at treatment, storage, and disposal facilities for hazardous waste?

SENIOR SPECIALIST KASZNIAK: Steve, yes, there are. The...the National Fire Protection Association began working on a standard in 2017 to safeguard against fire and explosion hazards associated with treatment, storage, disposal, generation, and transportation of hazardous waste.

Several ETC members are currently serving as members on that committee, charged with developing that standard.

STEVE: Well, thank you for those responses. I very much appreciate that. Mr. Kaszniak, we can now move on to the second presentation that we have scheduled for the Motiva Enterprises sulfuric acid tank explosion recommendation change, R12. So, Mr. Kaszniak, please proceed.

SENIOR SPECIALIST KASZNIAK: Thank you, Steve. This...this recommendation was issued to the American Petroleum Institute as a result of the Motiva Enterprises sulfuric acid tank explosion, which occurred on July 17th, 2001.

In that...in that incident, at the...at the Delaware City refinery of Motiva, a work...contractor work crew had been
repainting a catwalk which was located above a spent sulfuric acid process tank that contained residual, flammable material. When a spark from their hot work took ignited flammable vapors that were released from a hole in the corroded tank.

In that situation, one worker was killed and eight others were injured, and the tank released 264,000 gallons of spent sulfuric acid, which quickly overcame a secondary containment, resulted in significant environmental damage when approximately 99,000 gallons of sulfuric acid reached the Delaware River and killed fish and other aquatic life.

And as part of the CSB investigation, there was a thorough evaluation of the storage tank design elements and components. And the CSB determined that the inerting system that had been installed on the tank was not properly designed and, due to the holes in the tank, was not working properly. And, as a result, a spark ignited the combustible fuel/air mixture that was in the headspace of the tank that likely would not have been present if the inerting system was working properly.

So, as part of its investigation, the CSB also examined regulatory and industry consensus standards that applied to the
inerting of flammable liquids inside storage tanks. And upon reviewing the applicable API consensus standards, the CSB determined that they lacked important safety information. As a result, the Board issued a recommendation to API to incorporate this information in future revisions of their standards and recommendation practices.

The recommendation text actually reads, “Ensure that API-recommended practices address the inerting of flammable storage tanks such as spent hydrogen sulfide tanks, to include the following. Number one, circumstances where inerting is recommended. And number two, design of inerting systems such as proper sizing of inerting equipment, appropriate inerting medium, and instrumentation, including alarms.”

In February of 2020, the API responded to the CSB that it had completed this recommendation by updating four of its standards and recommended practices to address the concerns raised in the CSB recommendation pertaining to inerting practices.

Basically, they revised Standard API 653, entitled Tank Inspection, Repair, Alteration, and Reconstruction, to include better safe working practices and welding safety practices with regard to inerting and design criteria for tanks. They revised
API Standard 2000, which is entitled, "Venting Atmospheric and Low-Pressure Storage Tanks," to discuss inerting practices and provide design criteria.

They revised Standard 2015, which is, "Requirements for Safe Entry in Cleaning Petroleum Storage Tanks," to discuss inerting in the context of vapor freeing, degreasing, cleaning, and inspecting the storage tanks. And finally, they revised Recommended Practice 2009, "Safe Welding, Cutting, and Hot Work Procedures in Petroleum and Petrochemical Industries," to discuss inerting while purging and while doing hot work, and added an appendix to discuss inerting of vessels.

Based on all these changes, the CSB Board voted to close this recommendation as an Acceptable Action.

CHAIR LEMOS: So thank you so much, Specialist Kaszniak. A few questions for you. Can...can you briefly explain... I have learned a lot about this lately, but can you tell me what is inerting and why it’s important?

SENIOR SPECIALIST KASZNIAK: Sure, Dr. Lemos. Inerting system is a process that replaces the air that is normally present in an...in the open headspace above the liquids being stored or moved in vessels, tanks, and pipelines, with an inert gas, such as nitrogen.
As many of these liquids may be flammable, reactive, or may degrade in the presence of air, this practice helps to prevent fires and explosions, stop undesired chemical reactions, keep moisture away from product, and ensure safety while maintenance tasks are being performed.

CHAIR LEMOS: Wow, that...that seems really important. And I appreciate the detailed description.

Another question. You know, we issued...the CSB issued the recommendation to API in 2002. Do...do you have any thoughts as to why it took API so long to implement the recommendations that we requested?

SENIOR SPECIALIST KASZNIAK: Yes, Dr. Lemos. This recommendation applies to several API standards and recommended practices, all of which needed to be changed. These standards and practices are on various staggered revision cycles that range from three to five years. And API made changes...they changed initial changes during the normal review cycle, issued their updated revisions and then communicated these efforts to the CSB.

The CSB reviewed what API had done initially and determined that, while the changes they made were good, they did not meet the intent listed in the CSB recommendation. So this prompted
API to make additional changes during the next staggered,
scheduled revision cycle for these standards.

STEVE: We may be having some technical difficulties again...

CHAIR LEMOS: Thank you...

STEVE: Oh, there we go. Thank you, Chairman.

CHAIR LEMOS: Sorry about that. Thank you...thank you, Mr.

Kasznia. And I...I do understand and appreciate the...the efforts
of all of those folks who contributed to the standards-making
process. Having been a part of that in the past, it is...it
requires a lot of effort and a lot of putting all the right minds
together to get it right. And...and we appreciate that.

So now we have Director of Recommendations, Mr. Charles
Barbee, to speak about several recommendations from the Pryor
Trust gas well blowout and fire. So, please proceed, Director
Barbee.

DIRECTOR BARBEE: Thank you, Chairman Lemos. What I’ll do
is I’ll go over briefly the...the background of the incident. And
then...and I apologize for doing it, but I will read the
recommendations verbatim so you know what those recommendation
recipients received. And then we’ll talk about how they...how they
were...the status changed.
So on January 22\textsuperscript{nd}, 2018, a blowout and rig fire occurred at Pryor Trust Gas Well Number 1H9, located in Pittsburg County, Oklahoma. The fire resulted in the fatalities of five workers who were inside the drillers’ cabin on the rig floor. The blowout occurred approximately three-and-a-half hours after removing drill pipe, or "tripping," of the well. The cause of the blowout and rig fire was the failure of both the primary barrier, which is a hydrostatic pressure produced by the drilling mud, and the secondary barrier, which is human detection of the influx and activation of the blowout preventer. These barriers were intended to be in place to prevent a blowout.

As a part of the investigation, the U.S. Chemical Safety Board examined the well drilling practices and procedures of Patterson-UTI Drilling and the CSB...the CSB identified issues with Patterson-UTI’s rig tripping procedures, alarm philosophy, well control practices, flow checks, and the effectiveness of the company’s safety management system.

Consequently, the Board issued five recommendations to Patterson-UTI. As I said before about this investigation, it is one of my favorites. I mean a lot of things came out of it. We issued 19 recommendations and, as I said, five of those went to Patterson-UTI. And the last time we...we had a public meeting, we
actually addressed three of those, which are Closed, Acceptable, which is...is fantastic.

There are two remaining recommendations and I will read them both. One is Recommendation 8. The other one is Recommendation 11.

Recommendation 8, we asked them...we asked Patterson-UTI to determine an alarm philosophy and alarm rationalization for rig operations. Based on that philosophy and rationalization, specify necessary alarms, at a minimum, for (1) drilling, (2) tripping, (3) circulating, and (4) rig floor activities where no drill pipe is in the well. And additionally, we asked them to develop a policy implementing the alarm philosophy and rationalization.

Recommendation 11 is a little bit more detailed. We asked them to update the Patterson metrics program to track leading and lagging indicators to measure the effectiveness of the overall safety management system. Specifically focus on measuring the effectiveness of the following safety management system components:

(a) The effectiveness of the flow check policy, including the frequency that flow checks are performed when required by Patterson policy;
(b) The frequency that flow checks are documented and approved as recommended in Recommendation 10;

(c) The effectiveness of the management of change program, for both equipment and procedural changes, including real-time procedural changes;

(d) The frequency that alarms are set at the required set points;

(e) The frequency that drilling rig alarm horns or the entire alarm system is turned off; and

(f) The frequency that trip sheets are filled out properly.

We’ve been communicating very, very well with Patterson-UTI and they have agreed to implement two recommendations and they laid out a detailed timetable of how that would play out. And, as a result, the Board voted to change the status of both of them to Open, Acceptable Response or Alternate Response.

Thank you.

CHAIR LEMOS: Thank you, Director Barbee. As you have mentioned, we have made, you know, five recommendations to Patterson-UTI and they have gone above and beyond, I would say, of those recipients of recommendations. They really have done a great job. And I know they’ve made significant progress on these two.
So can you tell me why this recommendation is so important? Or why these two recommendations are so important?

DIRECTOR BARBEE: Absolutely. One of them deals with this thing that we called nuisance alarms in the...in the past. And...and that’s sort of a misnomer. I mean all...all alarms are important. But can you imagine sitting in a drilling booth and just having hundreds of alarms coming at you? And it may not have anything to do at all with the operation that you’re currently working on.

As a result, our investigators, when they...they went through and saw this particular issue, they did ask that an alarm rationalization and an alarm philosophy be developed. And there are a couple of standards out there that...that have already done that. And we’re asking them to mirror that.

And this...what that does is it...for the alarms on the operation that that particular drill is working on, is focused on those particular issues and not have to deal with something that may not be either as significant or have anything to do with what that person’s doing.

As far as the leading and lagging indicators, when you have a safety management system, it really pays to...to determine how successful it is and these are the...the indicators that would do that for you.
So, like I said, both very, very important and the recommendation recipient, Patterson-UTI, has agreed to implement these recommendations.

CHAIR LEMOS: Thank you so much, Director Barbee. Another question. You know, as responsive as Patterson-UTI has been, and in implementing even parts of these recommendations that they are able to at this time, why have the two recommendations not yet been fully implemented?

DIRECTOR BARBEE: Ah. Well, with regards to the alarm philosophy and alarm rationalization, they’re actually working with the company that provides that technology to them. And so they’re...they’re trying to make sure that the...the technology matches their operations. And they’re actually...they’re interactive very, very well with them.

So until...until there’s a final product from them, they can’t actually implement. And then again, like I say, once they implement it, that’s when the policy kicks in to...to make sure that they’re doing it. So that’s for that piece.

For Recommendation 11, it’s just...it’s a really, really significant change. And so they’ve made substantial progress in monitoring the Patterson metrics for tracking the effectiveness of the flow checks, management of change, and the completion of
the drill sheets...or trip sheets, I’m sorry. But they still need to establish the monitoring and metrics pertaining to the alarm frequencies. And that...that sort of ties back to that other recommendation.

So, like I say, in addition to the...in addition to it being very, very significant, it’s also...it’s sort of waiting on that...The technology’s there, but they’re just...they’re finishing the...the details. So they’re...they’re waiting on those details.

CHAIR LEMOS: Thank you so much, Director Barbee. I know you also have another topic to discuss today, which is regarding the public safety at oil and gas storage facilities. And if you can...if you can talk about that, that would be wonderful. That’s Recommendation 3.

STEVE: Okay, Chairman, if it’s...if it meets with your approval, if we could move to the investigation section and then when Director Barbee resumes conversation with us, to revert back to his presentation?

CHAIR LEMOS: Absolutely. So we are going to be... And Director Barbee is doing the AL Solutions as well, right?

STEVE: Yes. He actually... I’m not sure when he may have lost communication. So we may need to repeat the second presentation.
CHAIR LEMOS: Got it, okay. If someone can call him because he’s not reading [the text] message, just to let him know to hang up.

I’ll move on to the open investigations. Again, we apologize, everybody on the phone. Communications these days is at a high premium in demand and it’s... I’m...I’m super pleased that it worked really well last time and this time, we’re working through some challenges.

But moving on to our open investigations, I am pleased to announce that we have a factual update that we are releasing today on the TPC accident in Port Neches [inaudible] Director Klejst who will introduce the product, as well as the presenter, which is Presenter Griffin.

DIRECTOR KLEJST: Thank you, Chairman. The Office of Investigations completed the factual update that was prepared in connection with the incident that took place at the TPC Group facility in Port Neches, Texas, in November of 2019. This incident involved a release of hydrocarbon that resulted in a fire event that then led to multiple explosions at the facility.

With us today is the investigator in charge, Harold Griffin, and Mr. Griffin will provide you with a summary of the key facts of the investigation, as we have it developed at this point. At
the completion of his presentation, he will be prepared to answer
any questions you may have on the factual update.

Mr. Griffin, if you can please begin with your presentation.

INVESTIGATOR GRIFFIN: Thank you, Director Klejst. A quick
recap. On November 27th, 2019, just before 1:00 a.m., a major loss
of containment event occurred at the Port Neches operations
facility in Port Neches, Texas. The release produced a flammable
vapor cloud that engulfed the facility’s main process area known
as the South Unit. A short time later, the vapor cloud ignited,
causing an explosion that significantly damaged the facility and
injured three personnel working at the facility. Outside of the
facility, the explosion damaged nearby homes and buildings and
several people were treated for minor injuries.

Multiple fires ensued within the plant, triggering
additional explosions throughout the day. Flammable...flammable
vapors continued to release from damaged equipment and the fires
burned for over a month.

The facility produced a chemical known as butadiene, which
is mainly used to manufacture synthetic rubber. Butadiene is a
highly flammable and highly reactive chemical. One of the
undesirable reactions is the formation of a solid material known
as popcorn polymer, which can form when oxygen reacts with butadiene.

The danger with popcorn polymer is that it grows at an extremely high rate, exponentially, in fact, and is capable of producing a great deal of pressure inside process equipment and piping. Popcorn polymer usually forms in process areas that contain a high butadiene content. It can also form in process areas containing little to no flow, also known as dead legs.

The CSB has learned that there was a history of popcorn polymer formation within this unit. And the CSB has also learned that a significant dead leg existed in the unit for over 80 days leading up to the incident.

The CSB is continuing to conduct its investigation of this incident and at the conclusion of the investigation, the CSB will publish a final investigation report discussing the facts, conditions, and circumstances of the event, the cause or probable causes, and may issue safety recommendations to prevent the recurrence of similar incidents. Thank you.

CHAIR LEMOS: Thank you, Investigator Griffin. I do have a few questions. As you notice, I like to ask questions. The first one is... Is popcorn polymer problematic throughout the industry?
INVESTIGATOR GRIFFIN: Yes, Chairman, in the factual update that will be released today we present examples of past events, where the buildup of popcorn polymer has ruptured equipment, leading to the losses of containment. In fact, the potential for pop...for the buildup of popcorn polymer exists at any facility with equipment containing a high concentration of butadiene.

CHAIR LEMOS: And so what are the next steps of this investigation? It seems like you’ve really uncovered a lot, which is exciting and...and encouraging. Can you tell me what the next steps are for the investigation?

INVESTIGATOR GRIFFIN: Well, the investigation team will perform additional interviews as necessary. We’ll continue to examine documents and review industry standards and guidance documents, and finalize our causal analysis. We’re currently drafting the final investigation report and recommendations, which we are planning to publish in 2021.

CHAIR LEMOS: Much appreciated. I mean that’s... I’m super excited to get the factual update out. And before I go on to the rest of the open investigations, I want to circle back to see if we can hear Chuck. Chuck, I believe where we all dropped off the phone call was at your second presentation regarding the public safety at oil and gas storage facilities. If we can hear you, I
know that’s number two and three and you were talking so
wonderfully, although we couldn’t hear you.
So if we can hear you now, it would be a great time to go
over the public safety at oil and gas storage facilities
Recommendation 3.

DIRECTOR BARBEE: Thank you, Chairman Lemos. Can you hear
me?
CHAIR LEMOS: Yes, yes, sir.

DIRECTOR BARBEE: Okay, alright. I will tell you I gave a
tremendous presentation before. This will only sort of... It
won’t be quite as good, I don’t imagine. But I will do my best.

CHAIR LEMOS: I think since you practiced it, it’ll probably
be even better.

DIRECTOR BARBEE: Alright. So, like before, what I’ll do is
I’ll go into the background. October 31\textsuperscript{st}, 2009, two teenagers,
aged 16 and 18, were fatally injured when a petroleum storage
tank exploded in an oilfield near Carnes, Mississippi. Six
months after that, a group of young adults and teenagers were
exploring a similar tank site in Weleetka, Oklahoma, when an
explosion and fire fatally injured one of those individuals.

Then two weeks later, a 25-year-old man and 24-year-old woman
were on top of an oil tank in rural New London, Texas, when the
tank exploded, killing the woman and seriously injuring the man.

Now, as a result of these, in April 2010, the U.S. Chemical
Safety Board initiated a safety hazard study into
the causes of these tragic incidents. All three incidents
involved rural, unmanned oil and gas storage sites and lacked
fencing and signs and other things.

One of the big issues is that the CSB identified
26 similar incidents between 1983 and 2010. Of these incidents
resulted in 44 fatalities and 25 injuries as a part of this
safety study. Interestingly enough, all of the victims were 25
years of age or less.

So, as a result of the study, the CSB issued six
recommendations, one to EPA, one to API, one to NFPA, and then
three to some of the states. They involved Mississippi, Texas,
and Oklahoma.

Specifically, for the State of Oklahoma, the recommendation
states amend state oil and gas regulations to...

a) Protect storage tanks at explosion...exploration and
production sites from public access by requiring sufficient
security measures, such as full fencing with a locked gate, hatch
locks on manned...tank manways, and barriers securely attached to
tank external ladders and stairways.

b) Require hazards signs or placards on or near tanks that
identify the fire and explosion hazards using words and symbols
recognizable by the general public.

c) Require the use of inherently safer tank design features
such as flame arrestors, pressure vacuum vents, floating roofs,
vapor recovery systems or an equivalent alternative, to prevent
the ignition of a flammable atmosphere inside the tank.

Now, we’ve had several communications back and forth with
the Oklahoma Corporation Commission since we issued the
recommendation in 2011.

One thing we’d like to note is that while the OCC apparently
cannot implement new regulations on their own without legislative
approval, they do have the authority to propose those changes and
that’s what we’re asking them to do, propose them and then
implement them.

And unfortunately, to date, they...they just haven’t taken
action in that direction. So, as a result, recommendation staff,
we recommended and the Board voted to change the status of this
recommendation to Open, Unacceptable Response or No Response
Received. Thank you.
CHAIR LEMOS: Wow, that is a... I mean this seems really important to protect the public and...especially with the... I mean the statistics regarding the number of folks and the age of the folks is...is...you know, this is something we really need to work with the states to address.

So you may have already gone over this, but can you just reiterate what hazards do oil and gas sites pose to members of the public?

DIRECTOR BARBEE: Absolutely. These sites typically contain aboveground storage tanks and oil and water separators that periodically discharge flammable or toxic vapors, in particular hydrogen sulfide. The tanks also have hatches which allow access to the tanks for inspection and gauging purposes. Introduction of any ignition source, like perhaps...like smoking or even just a static spark, could produce a fire explosion.

Security at many of these sites is minimal. They lack fencing. The hatches aren’t secured. Things like that. And the hazards are not really well-known in members of the public who may access these sites. And as we’ve seen, they have accessed these sites. That would be why.
CHAIR LEMOS: Got it. And so why did the CSB issue this recommendation to the State of Oklahoma, seeing as the events occurred in various states that you discussed in the study?

DIRECTOR BARBEE: Well, interestingly enough, 27% of these incidents occurred in the State of Oklahoma, resulting in 12 fatalities and two injuries. Oklahoma is one of only five states that has over a million people who live near oil and gas sites. About half the state’s population lives within one mile of a site. So that would be why.

CHAIR LEMOS: That is...that is so relevant. And I appreciate you providing those facts for us because one would wonder why we’re singling out that particular state. And that makes it, you know, utterly clear.

Now, I know that you also presented super well on...on this next one. But I’m going to ask you to redo it and...and this has to do with AL Solutions. It was a fatal dust explosion. And perhaps you can, you know, tell us about that again.

DIRECTOR BARBEE: Absolutely, my pleasure. On December 9th, 2010, a metal dust explosion and fire occurred at AL Solutions, Inc., their facility in New Cumberland, West Virginia. This resulted in three employee fatalities and one contractor injury. And ultimately caused the shutdown of the plant.
The CSB, we found during our investigation that AL Solutions did not follow the requirements of the prevailing national consensus standard, which is the National Fire Protection Association, or NFPA, Standard 484. This is the standard for combustible dust metals. And you…you would follow this standard in order to control combustible dust metals at your site.

CSB found that AL Solutions did not sufficiently train employees in combustible dust hazards either.

So, after the incident, AL Solutions constructed two new manufacturing facilities in Burgettstown, Pennsylvania. So, the CSB issued two recommendations to AL Solutions corporate, as well as two specifically to Burgettstown, Pennsylvania, facility, in order to prevent similar incidents at the new facility.

Now, what I’ll do is I’ll read the…read those recommendations verbatim. So in this particular case, we only issued four recommendations and all four of them went to AL Solutions. So the first one, R-1, says for all new and existing equipment and operations at AL Solutions facilities that process combustible metal dusts or powders, apply the following NFPA 484-2012, Standard for Combustible Metals. And in this particular case, we’re specifically targeting Chapter 12, Titanium; Chapter 13, Zirconium; Chapter 15, Fire Prevention, Fire Protection, and
Emergency Response; and Chapter 16, Combustible Metal Recycling Facilities.

Recommendation 2 to AL Solutions Inc. was to develop training materials that address combustible dust hazards and plant-specific metal dust hazards and then train all employees and contractors. We wanted them to require periodic or annual refresher training for all employees and contractors.

And then specific to the AL Solutions Burkettstown facility, Recommendation 3 said, "prohibit the use of sprinkler systems and water deluge systems at all buildings that process or store combustible metals."

And Recommendation 4 said, "conduct a process hazard analysis as defined in NFPA 484-2012, Section 12.2.5, and submit a copy to the local fire department or the enforcing authority for the fire code."

We had several communications back and forth and it...and in the end, they...the just were not responsive. And so, unfortunately, we proposed, and the Board voted, to close all four of these recommendations as, "Unacceptable Action or No Response Received." Thank you.

CHAIR LEMOS: Thank you, Director Barbee. And...and this sounds unusual from my experience of, you know, closing all four
recommendations, especially to one particular recipient of...as
Closed Unacceptable.

Can you help outline for us the interactions that you’ve had
with AL Solutions, with regards to our recommendations?

DIRECTOR BARBEE: Absolutely. We...we issued the
recommendations initially in July of 2014. We sent out the
initial notification like we always do, to the CEO. And then we
typically receive a response that says who the point of contact
is, as well as what they intend to do.

So we got a response and they basically said they did it.
So then we send a follow-up letter that says, okay, could you
maybe provide some supporting documentation? So then we were
directed to an attorney who said, “You know, we had to deal with
OSHA violations. And so we have all this information.” And we
received very similar information from that attorney three or
four different times. And eventually he just stopped
communicating with us.

CHAIR LEMOS: Okay, so...so AL Solutions let us know that they
have completed the recommendation actions. And so this is really
helpful because there are other recipients that may be on the
line that...that want to understand all the lengths that we go
through to try to help the recipients in our closure of these acceptably.

So if they’ve already done the work, to close it, we still need some proof of action. And I personally did review the...the documentation from the attorney and from OSHA. But that wouldn’t be documentation that...that, you know, indicates that these things have been completed. And...and from my understanding of the request that you outlined, this is...this is not a unreasonable request.

But at this point, for...for either AL Solutions or other industry or recipients in the future, is there anything that the company can do that would allow the CSB to reevaluate these recommendations, perhaps for a better outcome?

DIRECTOR BARBEE: That is an excellent question, Chairman Lemos. I’ve actually wanted to communicate something like this for a very long time.

A Closed Unacceptable status is not a permanent thing, provided you reinitiate contact with us and actually provide the information that we ask for. We typically communicate with some of our...our federal regulators and...and we...we tell them the same thing. And this is an opportunity to [reiterate that] to all the recipients.
Yes, if you go back and you provide the information that we asked for... Or, let’s say you didn’t implement it originally and you...you come back and you decided, hey, I’d really...I really think that’s a good idea and I want to...I want to do that. Just reestablish communication with us and we’ll open up a dialog. We’ll review the information. And if it meets the intent of that recommendation, we will absolutely propose a status change that is more favorable.

Unfortunately, if it winds up staying in the Closed Unacceptable category, should a similar incident arise, we tend to talk about these things again because they are still very valid. However, it’s always nice to come out and say, “Hey, this person actually implemented this recommendation and here’s how successful it was.” Thank you, ma’am.

CHAIR LEMOS: Excellent. So I have a...another question for you, Director Barbee, on this. I believe we have a Board Order that explains the process. And I get a lot of questions, you know, about what is the process? How can we close it out? How long does it take? And I know that a Board Order may not capture all the complexity in our interaction, depending on the nature of the request. Some things like policy changes naturally take much
longer amount of time. Some things like reinforcing training may be a shorter timeline.

But...but do you think, you know, referring our audience and our stakeholders to that Board Order would provide them the type of information they might be looking for when they ask me those questions?

DIRECTOR BARBEE: Oh, absolutely. And it is posted on our website. And it does go through the things that we’re required to do in our evaluation, as well as the various status changes and what you have to do or...or the criteria of each of those. So we are policy followers in the government. And so we...we do tend to follow our policy and it lays it out very, very well.

CHAIR LEMOS: Excellent. So I don’t know that you know the Board number offhand and I...I know this is a pop-up question. But our Board Orders for all of those online are publicly available on our website and you can see...see all of that and this guidance. So, again, I don’t know that you know offhand exactly which Board Order number. You do know? Okay.

DIRECTOR BARBEE: Well, of course, I know. That would be my Board Order. That would be Board Order 22. That covers the recommendations program.

CHAIR LEMOS: Thank you, Director Barbee.
DIRECTOR BARBEE: Yes, ma’am.

CHAIR LEMOS: That...that’s great. So anybody who would like to look at that guidance, again, I can’t tell you how many times I’ve been asked that in the last five months. And that can help. So there...there is opportunity for industry or other participants, such as AL Solutions, to, you know, come back into good graces with regards to the recommendations, which is...which is super.

So, thank you, Investigator Griffin. You provided us an overview of the factual that will be released today on the website. And it has a lot of beautiful pictures. I wish we could have shown today, although you did a really good job describing the popcorn polymer and I learned a lot about that.

So, I really appreciate that.

I want to emphasize that we have a super-busy first quarter. FY21, as you know, has started in October for us government folks. In addition to this new factual report, we plan to close and release several reports. And the first two anticipated are the Kuraray and Aghorn investigations. And, obviously, there are more in the queue. Many have been asking about other ones and we...you know, because investigation is the nature of the investigation, we don’t have specific dates. But I can tell you
that the first two we anticipate, because we’re very close to
being finished, are Kuraray and Aghorn.

Now, as a reminder from last month’s public meeting, we will
review the final report findings and recommendations for any
closed investigations through a public board meeting. And we’ll
schedule that so that... so that all can understand the facts and
the findings and how we came to our conclusion.

So with that, I would like to open the floor up for public
comments related to the CSB’s activities. If you are on the
phone and wish to make a public comment, please follow the
operator’s cues, Gretchen’s cues, and the operator will unmute
your line. And you may also submit a public comment by email to
meeting@csb.gov and all of these public comments will be included
in the official record, whether they are received via
meeting@csb.gov, or if you speak today.

I would ask that you please present your comments within
three minutes to provide folks enough time. And so, let’s go to
the phone now to see if we have any public comments.

OPERATOR: At this time, if you would like to make a public
comment, please press the * and 1 on your touchtone phone. You
may remove yourself from the queue at any time by pressing the #
key. Once again, that is * and 1 to make a public comment. We
will pause for a moment, to allow comments to queue.

CHAIR LEMOS: Gretchen, can you...can the audience still hear
me? This is Dr. Lemos.

OPERATOR: Yes, they should be able to hear you.

CHAIR LEMOS: Excellent. So anybody who would like to
speak, we request that you state your full name and any
association that you might have with an organization so that we
can do a better job at tracking it.

OPERATOR: Alright, we’ll take our first public comment from
Steve Sallman, United Steelworkers. Your line is open. Please
go ahead.

[NO AUDIBLE RESPONSE]

OPERATOR: Your line is open. Please go ahead.

STEVE SALLMAN: Yes, thank you. I was on mute. I
apologize. Thank you for the opportunity to speak today. I
wanted to thank the CSB and especially the team who responded to
the double contractor fatality at the Evergreen Packaging mill in
Canton, North Carolina. It is a USW-represented facility. And
although we don’t represent the workers, we believe there are a
lot of opportunities to learn and improve.
And, as you know, there have been a lot of pulp mill fatalities and incidents. So we hope this will not only improve things for the industry, but also for all people who are exposed to the hazards in those pulp mills.

We also ask that, you know, that the CSB looks back to the Pixel Energy...or excuse me, Pixelle paper mill in Jay, Maine, if there’s any similarities with what’s going on at Evergreen Packaging and such, with digesters, tanks, and such.

And then I also wanted to flag and appreciate the work that’s been done around management of change that I heard on the phone today. I just wanted to bring attention that any management of change should involve employees and their representatives.

And I also appreciated hearing about alarm fatigue. And I would flag that we learned a lot from the BP Texas City refinery and when it comes to alarm fatigue.

So I think there’s a lot of things that could be shared from those learnings.

And then I’ll finish with my question is... Will the CSB tentatively schedule the public meetings for 2021 and be putting those out before the end of the calendar year? And I thank you for the time.
CHAIR LEMOS: Thank you so much, Steve. Really appreciate you listening to the call and all of those very positive comments.

I will say that the public meetings are...per CFR are every quarter, and they’re regularly scheduled. I don’t know that they’re...unless we changed the CFR, that would not change. From my understanding. Is that correct, Director Klejst?

DIRECTOR KLEJST: Yes, that’s...that is correct.

CHAIR LEMOS: Yeah, excellent. So...so we anticipate continuing to have them. We’ve had some...some discussions, just to let you know, about...because we’ll be having public meetings or Board meetings for the investigation closures, how many meetings would be appropriate to have for the...this sort of meeting... I think it still warrants it if we continue to, you know, talk about our...our status and our...making progress on recommendations.

I learn an immense amount from these recommendation reviews. I think they’re super important, not just closing an investigation. So I imagine we would continue to still do that. But there’s a... You know, there’s also a certain number of meetings that we’re going to...going to have, to close out investigations.
Thank you so much for your question. I really appreciate it.

STEVE SALLMAN: You’re welcome. We just wanted to make sure that we got plenty of time, advance notice to be able to schedule to attend the public meetings, was…was the point of the question.

OPERATOR: We’ll take our next public comment from Alexa [inaudible]. Your line is…or from the House of Representatives.

Your line is open. Please go ahead.

ALEXA: Hi, I’m Alexa. Sorry, I just wanted to ask a clarifying question. Because I see that the CSB has 13 open investigations right now, as of August 2020. And only the TPC Group explosion was discussed on this call. And I know you mentioned that Aghorn and the Kuraray would…the reports would be coming out soon. But I was just wondering if there was a discussion of the other ten incidents that are open. Or if that will be for a later meeting. Sorry. I know we all like cut out for a bit and I didn’t know if maybe I just missed something.

CHAIR LEMOS: No, you didn’t. So all of the status for our open recommendations…I mean, sorry, open investigations are on the webpage. If there’s anything public we can say about them, it’s when we update a factual or close a recommendation. And so
there’s nothing new to report. So that’s…that’s why we didn’t include that in the discussion today.

As you may know, we have been extremely assertive about our hiring, and Director Klejst has done a great job with his team in backfilling a lot of our open investigator positions. So, I feel like we’re well on our way to really make a lot of progress in FY21. A lot of these investigations, they changed hands and you need to bring somebody else up to speed.

So we’re…we’re very enthusiastic and supportive of that…you know, of the…of those products and the mission products really coming out. And with all the transparency that…that we have to offer, not just through a public meeting, but all the transparency through online materials and supporting documents.

Does that answer your…

ALEXA: Thank you. Yeah, I appreciate it.

CHAIR LEMOS: Thank you for calling.

OPERATOR: We’ll take our…we’ll take our next public comment from Michael Walls from American Chemistry. Your line is open.

Please go ahead.

MICHAEL WALLS: Thank you very much. Dr. Lemos, thanks to you and to the staff for the updates on the recommendation status, as well as your ongoing investigations.
One question and then one quick comment. The question goes to the...the Board’s reporting regulation that was made final or went into effect in March of this year. I was wondering if, at some...either at some future public meeting or in the context of the information the Board provides on the website, you expect to provide some public data and information on the reports you are receiving, at least on their number and nature, and you know, an understanding of how the Board is assessing those reports, compared to its past practice.

The very quick comment is simply to note that on the Board’s website landing page, on the lower left-hand corner, there is typically a link to current investigations. And the TPC explosion appears at the...at the bottom there. When you actually click on the TPC link, it takes you to the information related to the Pryor Trust gas well incident. So I’d just note that. I know the Board’s very interested in ensuring easy access to the data and information it has. And so I just wanted to point that out.

Thank you again very much for you...for your...for all your work and that of the staff. Our industry, of course, continues to very much support the work of the CSB. Thank you.
CHAIR LEMOS: Thank you so much, Michael. Really appreciate your pointing out the...the link issue. Obviously, we’re excited about getting the TPC factual out today and so that’s helpful.

In terms of the incident reporting rule, we’ve had a lot of questions about this and we do intend, according to the current regulation, to provide a yearly update as of the month that it went into effect. We are pulling together and summarizing in the comments and questions for clarifications that will result in...could likely result in some additional guidance. We don’t have a timeframe on that yet, but we’re...we’re really... I feel like we’re...we’re coming close to, you know, summarizing most of the common themes.

So we are working internally to do that. We’re working also with some incident reporting specialists on our databases. And so we look forward to reporting just...you know, outcomes in a future call. And appreciate your interest in this matter.

MICHAEL WALLS: Thank you very much.

OPERATOR: Once again, that is * and 1 to make a public comment. It appears that we have no more further comments at this time. I will now turn the program back over to Katherine.

CHAIR LEMOS: Thank you so much, Gretchen. And thanks to those of you who provided a comment and all the other folks who
may be listening. Thanks for your patience today with some of our technical challenges. And we do look forward to, in the future, your being able to see us and our materials and pictures as we describe some of these things. And, as you know, we want to get that right as well. And that’s...that’s really critical.

So, in closing, thanks to everyone for attending today’s meeting. I want to thank my incredible staff, the Directors, and all the technical team and supervisors that are on the line today and that worked to not just to pull these products together but to help present it in a way that we could do the radio style version. Thank you, Director Barbee, for your double...double-double presentation.

I mean all of these things are so critical and important to our mission. I’m really happy to be able to highlight all the different elements of investigations. Sometimes people only focus on just the probable cause. And the entire lifecycle of the investigative process is...is critical and is in our mandate.

So I urge you to continue monitoring our website. And if you haven’t already done so, to sign up for CSB news alerts. And this concludes our first business meeting for FY21. Our next business meeting will be in January. I don’t have the date for
that yet but I can imagine it will be close to the end of January, for planning purposes.

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. And I appreciate all of you as our community, in helping us to make the chemical industry safer.

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