

U.S. CHEMICAL SAFETY BOARD

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AL SOLUTIONS DUST FIRE AND EXPLOSION
UPDATE ON FREEDOM INDUSTRIES

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PUBLIC MEETING

+ + + + +

WEDNESDAY,
JULY 16, 2014

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U.S. CHEMICAL SAFETY BOARD MEMBERS PRESENT:

RAFAEL MOURE-ERASO, Ph.D., Chairperson,
U.S. Chemical Safety Board
MARK A. GRIFFON, Member, U.S. Chemical Safety
Board

STAFF PRESENT:

DANIEL M. HOROWITZ, Ph.D., Managing Director
RICHARD C. LOEB, General Counsel
JOHNNIE BANKS, CFEI, Supervisory Investigator
LUCY TYLER, CSP, Investigator

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C E R T I F I C A T E

MATTER: AL Solutions Dust Fire and Explosion
Update on Freedom Industries
Public Meeting

DATE: July 16, 2014

I hereby certify that the attached transcription of pages 1 to 135 inclusive are to the best of my belief and ability a true, accurate, and complete record of the above referenced proceedings as contained on the provided audio recording.

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P R O C E E D I N G S

(12:00 p.m.)

CHAIRPERSON MOURE-ERASO: Good
afternoon and welcome to this public meeting
of the U.S. Chemical Safety Board, the CSB.

I am Rafael Moure-Eraso,
Chairperson of the Board and joining me today
is Board Member Mark Griffon.

Also joining me at this table is
the general counsel of the Chemical Safety
Board Mr. Richard Loeb and to my right there
is the CSB staff that prepared the reports and
who's -- and also more CSB staff that is
around here that facilitated this meeting.

I am going to ask the team lead of
the CSB staff to introduce each and every
member of the team when we get to the point of
the presentation.

The CSB for everybody that has
known us during the past has known that we are
an independent non-regulatory federal agency
that investigates major chemical accidents on

1 fixed facilities.

2 We are an investigatory agency.

3 The investigations examine all aspects of
4 chemical accidents including physical causes
5 related to equipment design as well as
6 inadequacies in regulations that are designed
7 to supposedly prevent these accidents.

8 We also look at inadequacies on
9 industry standards and inadequacies on safety
10 management systems that rule the operation of
11 process and safety in a chemical operation.

12 Ultimately we use safety
13 recommendations which are designed to prevent
14 similar accidents in the future. And they are
15 given, the recipients of our recommendations
16 are each one of these groups that I mentioned
17 before, industry, regulators and organizations
18 that prepare and work on voluntary standards.

19 Today we are following the agenda
20 that you saw at the entrance. The meeting
21 today is divided in two parts. In the first
22 part we are going to present the result of our

1 investigations in the accident in AL
2 Solutions, and we are going to have some
3 comments from the Board, and we are going to
4 ask for some questions from people present
5 here to address the accident of AL Solutions.

6 After those presentations we are
7 going to take a vote to decide on if the Board
8 will finally approve the results of -- the
9 findings and the recommendations of the
10 investigation.

11 Once we finish that vote we will
12 have an intermission and then we proceed to
13 make a presentation on the Freedom Industries
14 action or Freedom Industries investigation.
15 That is going to be done by the same team that
16 produced the report in AL Solutions.

17 And after that presentation that
18 is basically a progress report of our
19 investigation we will have some comments and
20 questions of anybody that would like to say
21 something.

22 I remind you that we have to limit

1 the comments to three minutes per person so
2 that everybody has a chance to have their say.
3 And we beg of you not to take anymore of that
4 time.

5 You are welcome to submit for us
6 some written comments if you would like.

7 You probably saw at the entrance
8 there are copies of our report. It's called
9 "The AL Solutions, Inc., Metal Dust Explosion
10 and Fire."

11 This report, the accident occurred
12 in December 2010. As you will see in the
13 second page it's dedicated to the three men
14 that lost their lives in that incident in
15 December 9, 2010.

16 At this time I will have to ask
17 for a moment of silence to remember these
18 three individuals that were killed as a result
19 of the accident in New Cumberland, West
20 Virginia in AL Solutions.

21 I will now read their names.
22 James Eugene Fish, Jeffrey Scott Fish and

1 Steven Swain.

2 (Moment of Silence)

3 CHAIRPERSON MOURE-ERASO: Thank
4 you. So we continue with the agenda as I
5 described it before.

6 I remind you about the public
7 comment period that we would like to ask you
8 to divide your comments. If you have comments
9 for AL to present it in the first part of the
10 meeting, and if you have comments for Freedom
11 Enterprises to present it in the -- after the
12 intermission.

13 Before we begin we always point
14 out some basic safety information that we --
15 you have to be aware that in addition to the
16 door that you entered there are some emergency
17 doors on the side. We have two in this side
18 and three on the other side. If we need to
19 evacuate the room be aware of these emergency
20 exits.

21 I will also ask to please mute
22 your cell phones so that we don't interrupt

1 the proceedings.

2 The December 9, 2010 accident at
3 the AL Solutions is the object of our
4 investigation.

5 This facility milled and processed
6 two metals, titanium and zirconium. And in
7 the course of a fire and explosion three
8 people were killed and a contractor was
9 injured.

10 The incident is one of nine
11 serious combustible dust incidents
12 investigated by the CSB since 2003.

13 These explosions and fires across
14 the United States has caused 36 deaths and 128
15 injuries. This is in the past 10 years.

16 The CSB investigation determined
17 that AL Solutions experienced a history of
18 fatal dust fires and explosions.

19 The CSB learned that the AL
20 Solutions facility had fatal fires and
21 explosions involving metal dust in 1995 and in
22 2006 in addition to the 2010 explosions that

1 we investigated.

2 Also, from 1993 until the accident
3 in 2010 there were at least seven fires that
4 required responses from the local fire
5 department.

6 The CSB is calling on the industry
7 that manufacture and handle metal dust and
8 combustible dust in general to take action to
9 prevent these kind of combustible dust
10 incidents.

11 In July 2003 the CSB identified
12 its 2006 recommendation to develop a
13 combustible dust standard as the first issue
14 in its most wanted chemical safety improvement
15 outreach program.

16 It is my view that had OSHA
17 implemented the first CSB recommendation for
18 a combustible dust standard in 2006, and if
19 industry had followed the requirements of such
20 a standard many of the severe dust incidents
21 that followed including AL Solutions may have
22 been prevented.

1 The time is now for OSHA to take
2 action to prevent these tragic accidents.

3 On the issue of this investigation
4 if anyone would like to comment publicly on
5 the investigation there is a sheet that I am
6 asking you to sign so that we can know who is
7 going to be talking.

8 And as I said, I will request that
9 you plan your remarks for three minutes.

10 Now, I would like to recognize my
11 fellow Board member Mark Griffon for some
12 opening statements. Mark?

13 MR. GRIFFON: Thank you, Mr.
14 Chairman.

15 Today we are here to discuss two
16 incidents that occurred in West Virginia.

17 First of all, I would like to
18 express my condolences to the friends and
19 family of the three workers that were killed
20 in the incident at the AL Solutions facility.

21 This is yet another tragedy
22 resulting from a combustible dust explosion,

1 an issue for which the Board since 2006 has
2 recommended that a federal safety standard is
3 needed.

4 It is very troubling that we are
5 here reporting on yet another combustible dust
6 incident and reissuing a recommendation for a
7 federal safety standard.

8 I agree with the Chairman that the
9 time for action is now.

10 For the Board's part I plan to
11 work with my colleagues on the Board to
12 continue to advocate for the development of
13 such a federal combustible dust standard.

14 The Freedom Industries incident
15 was a very different type of incident. This
16 incident so clearly illustrates how industrial
17 safety intersects with environmental and
18 public health issues.

19 The impact on this community was
20 tremendous and still the community is left
21 with many questions.

22 Our focus at the CSB is to look at

1 the causes that led to the spill of the
2 hazardous chemicals which ultimately got into
3 the drinking water.

4 While we are not conducting
5 studies of the health and environmental
6 impacts of the spill, we will be reviewing the
7 available information regarding health impact
8 and looking at possible gaps in regulations
9 which address the public's exposure to toxic
10 materials and the environmental impact of such
11 materials.

12 I look forward to the hearing
13 today and hearing both on the AL Solutions
14 report and also on our investigative team's
15 update on the Freedom Industries
16 investigation. Thank you, Mr. Chairman.

17 CHAIRPERSON MOURE-ERASO: Thank
18 you. I would like also to recognize that two
19 members of the families of workers that were
20 killed in the AL Solutions incident are here
21 present with us.

22 And I would like to tell them that

1 we appreciate that they came here to hear us.
2 And I personally give them my condolences.
3 They are here.

4 Also, Senator Rockefeller has been
5 one big supporter of our Chemical Safety Board
6 historically and we have been in constant
7 contact with him at his office informing of
8 our investigations.

9 And we have been requested by Mr.
10 Wes Holden from the Office of the Senator that
11 he would like to give a message from Senator
12 Rockefeller. So Mr. Holden, please.

13 MR. HOLDEN: Thank you, Mr.
14 Chairman. On behalf of Senator Rockefeller I
15 want to thank the Chemical Safety Board for
16 their final report and recommendations
17 regarding the investigation into the December
18 2010 explosion at AL Solutions in New
19 Cumberland, West Virginia, that took the lives
20 of three people, Jeffrey Fish, James Fish,
21 Steven Swain.

22 Completing that investigation is

1 not a simple task and we are very grateful for
2 their work.

3 As we all know when the 2010
4 explosion occurred the employees at AL
5 Solutions were working with titanium powder,
6 a highly flammable substance.

7 Because this is a highly flammable
8 industrial powder it is more difficult for
9 fire fighters to extinguish the fire and any
10 hot spots before they could reach the
11 employees trapped inside.

12 This tragic incident combined with
13 the Freedom Industries chemical spill further
14 highlights the utmost importance of chemical
15 safety.

16 Over six months have passed since
17 the January spill. And as everyday activities
18 such as bathing, cooking slowly resume we
19 appreciate the people who are still working on
20 the ground day by day to understand what
21 happened.

22 The information they are gathering

1 is vital to understanding the next steps we
2 need to take toward implementing the right
3 safeguards so we can protect our communities
4 from accidents like this in the future.

5 As I said, I firmly remain
6 committed to getting answers to many
7 unanswered questions related to the January
8 spill.

9 I'm committed to working to
10 strengthen regulations and to properly funding
11 and staffing oversight agencies, two of the
12 utmost components in preventing a disaster
13 like this from happening.

14 Following the January spill at
15 Freedom Industries site I immediately called
16 on the Chemical Safety Board to investigate
17 the spill.

18 I also asked my colleagues on the
19 Senate Appropriations Committee on the Fiscal
20 Year 2014 federal funding package to allocate
21 \$11 million for the Chemical Safety Board's
22 operations.

1 As a result of the misguided
2 federal budget cuts, or sequestration, I knew
3 the funding constraints placed on the Chemical
4 Safety Board like all of our federal agencies
5 and operations would severely restrict the
6 Board's ability to fully respond to my
7 request.

8 Fortunately, Congress passed the
9 2014 spending bill with my request for full
10 Chemical Safety Board funding despite an
11 attempt by the House of Representatives to
12 slash nearly \$2 million from the Board's
13 already anemic budget.

14 In addition to calling for an
15 investigation of the spill I took action
16 legislatively by joining Senators Joe Manchin
17 and Barbara Boxer in introducing the Chemical
18 Safety and Drinking Water Protection Act,
19 legislation that would require a regular
20 inspection of chemical storage tanks.

21 I also introduced two bills with
22 Senator Brian Schatz that seek to hold

1 companies like Freedom Industries accountable
2 when spills of non-hazardous substance like
3 MCHM occur and provide state and federal
4 governments with funding to help cover the
5 cost of cleaning up the chemical spill.

6 I want to thank the Chemical
7 Safety Board for swiftly responding to this
8 incident as they have done many times in the
9 past for West Virginia, and for their
10 transparency throughout this process.

11 It is my hope that the Chemical
12 Safety Board's recommendation following the AL
13 Solutions incident and the conclusion of the
14 Freedom Industries investigation we have
15 implemented with this agency.

16 And again, thank you on behalf of
17 Senator Rockefeller for allowing me to make
18 this statement at this time.

19 CHAIRPERSON MOURE-ERASO: Thank
20 you very much, Mr. Holden.

21 I also would like to thank the
22 staff of Senator Manchin and Congressman

1 Capito that are attending the meeting today.
2 We really appreciate you being here. We have
3 worked very closely with your offices in
4 informing you of our activities.

5 At this time I would like to
6 introduce the investigative team. With us
7 here is a person that is becoming very well
8 known in the State of West Virginia. That is
9 Mr. Johnnie Banks which is the supervisory
10 investigator for both the AL Solutions and
11 Freedom Enterprises here.

12 Mr. Banks is based in Washington,
13 D.C. and he came to the agency, to the CSB
14 after 22 years working for the Chevron Texaco
15 Corporation Refinery in Richmond, California,
16 prior to joining us.

17 He is a graduate of the University
18 of California at Berkeley and he is a
19 certified fire and explosion investigator.

20 With him is Ms. Lucy Tyler who is
21 a certified safety professional and has
22 participated in several CSB investigation and

1 support the development of significant
2 recommendations for combustible dust
3 regulations and changes to various industry
4 standards.

5 She holds a bachelor of science
6 degree in industrial health and safety from
7 the Pennsylvania State University.

8 Also with us is Mr. Mark Wingard.
9 He is a graduate of Clemson University with a
10 bachelor of science in chemical engineering.

11 Mr. Wingard has worked with the
12 Johnson & Johnson Company doing research and
13 development for active pharmaceutical
14 ingredient production and worked as a waste
15 management engineer at the Savannah River
16 nuclear facility.

17 Also with us is Ms. Christine
18 Morgan which -- that is perhaps the better
19 well known in our organization as the soul of
20 recommendations. She is right now in charge
21 of the recommendations department for the time
22 being and she has a lot of input on the type

1 of investigations that we do in our
2 recommendations, and also in the following up
3 of the recommendations to ensure that they are
4 acted upon on the groups that we make
5 recommendations to.

6 I would like now to ask Mr. Banks
7 to start the program of -- and add whatever he
8 wants to what I have said to the presentation
9 of his team and do the AL Solutions
10 investigation presentation. Mr. Banks?

11 MR. BANKS: Mr. Chairman, Board
12 Member Griffon, Mr. Loeb, ladies and
13 gentlemen, good afternoon.

14 The AL Solutions investigation
15 team has prepared several findings from our
16 investigation of the combustible dust
17 explosion which occurred at the AL Solutions
18 facility in New Cumberland, West Virginia.

19 This incident occurred on December
20 9, 2010 and resulted in the death of three
21 workers and one worker injury.

22 Following this presentation the

1 Board will vote and we'll also provide a brief
2 update on the Freedom Industries incident
3 investigation.

4 Before I start I'd like to take a
5 moment to just go over our agenda which the
6 Chair has touched on.

7 We'll begin with the team's
8 presentation of the investigation findings
9 from the AL Solutions case.

10 The team will then entertain
11 questions from the Board. The public will be
12 invited to offer comments on the case. And
13 the Board Members will then vote on the team's
14 proposed findings and recommendations.

15 After the Board vote we'll have a
16 short intermission and the team will then
17 present an update on the Freedom Industries
18 incident investigation.

19 And finally, we'll have a closing
20 comment from the Chair.

21 Now, before I start I'd like to
22 again introduce the team that has been

1 involved with the AL Solutions and a portion
2 of the team from the Freedom Industries case.

3 The team includes myself, Johnnie
4 Banks. I'm the incident investigation team
5 lead, Mr. Mark Wingard is one of our
6 investigators, and Ms. Lucy Tyler who is also
7 one of our investigators.

8 Rounding out the team today is Ms.
9 Christina Morgan who is our recommendations
10 specialist and who will follow through on the
11 recommendations once the investigative phase
12 has been closed out. Her department will make
13 sure that those recommendations are indeed
14 brought to closure and that they're recorded
15 as such.

16 In looking at the presentation the
17 team will discuss the company background and
18 provide an overview of the facility, and
19 present an incident animation that shows the
20 details of the incident, the investigation
21 findings and then we'll introduce the proposed
22 recommendations at the end of the

1 presentation.

2 In looking at AL Solutions, the AL
3 Solutions processes titanium and zirconium
4 scrap metal into pressed compacts that
5 aluminum producers use as alloy additives.

6 AL Solutions obtains scrap
7 titanium and zirconium from manufacturers and
8 end users, adds the pressed compacts to
9 furnaces or molten metal to increase the
10 strength of aluminum alloys.

11 At the time of the incident AL
12 Solutions owned and operated two processing
13 facilities. The primary office and production
14 facility was located in New Cumberland, West
15 Virginia.

16 AL Solutions also has a facility
17 for milling in Washington, Missouri.

18 When the incident occurred in 2010
19 AL Solutions employed 23 workers at the New
20 Cumberland facility and 2 at the Washington
21 facility. After the incident AL Solutions
22 stopped production at the New Cumberland

1 facility and has a new production facility
2 located in Pennsylvania.

3 Now, as shown here the New
4 Cumberland facility lies on the east bank of
5 the Ohio River in the northern panhandle of
6 West Virginia. It lies approximately 40 miles
7 west of Pittsburgh, Pennsylvania.

8 The New Cumberland site contains a
9 main production facility, a warehouse, outside
10 storage area, laboratory and office area.

11 Now, the next portion of the
12 presentation will be conducted by my colleague
13 Mr. Wingard who will walk you through the
14 process overview and other aspects of
15 operation.

16 MR. WINGARD: Thank you, Mr.
17 Banks.

18 Shown in this slide is a process
19 overview, simplified flow diagram of the AL
20 Solutions process.

21 AL Solutions took raw material,
22 shown here, from drums shipped by suppliers,

1 broke this metal down and removed the oxide
2 layer in a mill, blended the milled metal and
3 then pressed it into compacts for sale.

4 This process required four
5 operators, one supervisor who ran the mill,
6 one operator to operate the blender, and two
7 operators to run the three presses that formed
8 the compacts.

9 At the time of the AL Solutions
10 incident employees were processing titanium
11 zirconium scrap metal.

12 Titanium is a widely used metal
13 with unique flammability characteristics.
14 Fine titanium particulates are easily ignited
15 in air and can ignite spontaneously under
16 certain conditions.

17 An AL Solutions material safety
18 data sheet for titanium powder recommended
19 having procedures in place to keep the powder
20 away from static charges, sparking equipment
21 and ignition sources.

22 Zirconium also carries a

1 significant flammability hazard and it can
2 also auto-ignite in air at room temperature.

3 Under certain conditions dust
4 clouds, very small concentrations of zirconium
5 can be explosible.

6 After the incident the CSB
7 commissioned combustible dust testing of
8 materials from the AL Solutions facility to
9 determine whether the metal powder contributed
10 to the fire and explosion.

11 This testing determined that
12 zirconium and titanium samples in use at AL
13 Solutions were combustible and could produce
14 a fire or metal dust deflagration.

15 CSB investigators observed and
16 documented the production building after the
17 incident and concluded that the fire damage
18 and deformations caused by the explosion over-
19 pressure were consistent with a metal dust
20 explosion.

21 Most solid organic materials as
22 well as some metals and even some non-metallic

1 inorganic materials will burn or explode if
2 finely divided and dispersed in sufficient
3 concentrations.

4 Even seemingly small quantities of
5 accumulated dust can cause catastrophic
6 damage.

7 Like all fires, a dust fire occurs
8 when fuel, in this case the combustible dust
9 is exposed to heat in the presence of oxygen.

10 Removing any one of these elements
11 of the classic fire triangle which is shown
12 here eliminates the possibility of a fire.

13 A dust explosion requires two more
14 elements, dust dispersion and confinement.
15 Suspended dust burns more rapidly and
16 confinement enables pressure buildup. Removal
17 of either the suspension or the confinement
18 element can prevent an explosion although a
19 dust fire can still occur.

20 We'll now show an animation of the
21 December 2010 incident.

22 (Whereupon, the animation was

1 played)

2 MR. WINGARD: That was an excerpt
3 from a video. The full video will be
4 available on the CSB website soon after this
5 meeting.

6 AL Solutions employees noted
7 mechanical problems with the blender in the
8 days prior to the explosion.

9 As stated in the video, blender
10 paddles were striking the wall of the blender,
11 causing scoring that was evident after the
12 incident.

13 Despite the fact that the blender
14 was striking the wall AL Solutions did not
15 effectively repair or replace the blender to
16 avoid exposing combustible metal dusts to
17 sparks or heat produced by the mechanical
18 impact from the paddles.

19 On the day of the incident the
20 blender likely contained a substantial
21 quantity of zirconium dust.

22 Indications of burned residue and

1 char on the ceiling above the blender and the
2 presence of burning deposits on the wall
3 behind the blender suggest that zirconium
4 particulates lofted from the blender and
5 ignited other materials in the room.

6 As stated previously, after the
7 incident the CSB collected samples with
8 titanium and zirconium from various areas of
9 the processing unit at the New Cumberland
10 facility.

11 Combustibility testing was carried
12 out in accordance with NFPA 484. This testing
13 concluded that the metal powder was
14 combustible and capable of causing a dust
15 flash fire or explosion.

16 The CSB investigation found that
17 AL Solutions had no dust collection system to
18 collect and control metal dust accumulating
19 from the process.

20 Instead, operators relied on the
21 use of water sprays and wash-downs to manage
22 dust accumulations.

1 However, this practice is not
2 recommended for water-reactive materials such
3 as zirconium and titanium dust due to the
4 hazards associated with the formation of
5 hydrogen gas when metals are heated.

6 Additionally, AL Solutions lacked
7 any mechanical ventilation system to control
8 hydrogen gas accumulations which could
9 potentially lead to explosive atmospheres.

10 Prior to the 2010 incident the New
11 Cumberland facility experienced two fatal
12 incidents involving the ignition of metal
13 dust.

14 From 1993 until the December 2010
15 incident the New Cumberland Volunteer Fire
16 Department responded to at least seven fires
17 at AL Solutions.

18 Through interviews the CSB learned
19 that several other fires occurred at the New
20 Cumberland facility that did not result in a
21 fire department response.

22 In fact, almost all employees

1 reported to CSB investigators that they had
2 witnessed one or more fires in the production
3 building.

4 In August of 1995 one employee was
5 killed and another was injured in an explosion
6 and fire at the New Cumberland facility.

7 A leaking propane tank and
8 undetermined ignition source caused this fire.
9 The propane tank ignited, generating a blast
10 wave that lofted titanium dust within the
11 production building. This dust ignited and
12 caused a secondary explosion that further
13 ignited dust in the building.

14 In July of 2006 a supervisor was
15 fatally injured while cleaning out the inside
16 of the mill tank when residual metal in the
17 mill ignited.

18 OSHA conducted an investigation as
19 a result of both of these incidents and levied
20 fines on the facility for serious safety
21 violations.

22 However, citations did not mention

1 industry standards such as NFPA 484 to address
2 the failure to control metal dust hazards.

3 I'll now turn the presentation
4 over to Lucy Tyler.

5 MS. TYLER: AL Solutions is not
6 the only facility that has suffered fatalities
7 and injuries from combustible dust incidents.

8 From 2008 until 2013 the CSB has
9 identified 50 combustible dust incidents that
10 resulted in 29 deaths and 161 injuries.

11 One notable dust incident outside
12 that time frame was the CTA Acoustics dust
13 explosion that resulted in seven deaths in
14 2003.

15 Many of these incidents have been
16 investigated by the CSB and repeated
17 recommendations have been made to OSHA to
18 promulgate a combustible dust standard.

19 However, these recommendations
20 have not been addressed.

21 In the aftermath of three
22 catastrophic dust incidents in 2003 that

1 claimed the lives of 14 workers the CSB
2 launched a combustible dust hazard study and
3 recommended that OSHA develop a general
4 industry standard for combustible dust in
5 2006.

6 Since 2006 the CSB has recommended
7 that OSHA publish a final combustible dust
8 regulation for general industry based on NFPA
9 Standard 654 and 484.

10 Despite these repeated
11 recommendations and fatal dust incidents since
12 the issuance of the recommendation OSHA has
13 not issued a final dust standard.

14 OSHA has recognized the need and
15 importance of the standard, and in the past
16 has made steps towards promulgating the
17 standard, but it has been delayed.

18 And you can see from this timeline
19 here in November 2006 the CSB made the
20 original recommendation to OSHA to develop a
21 combustible dust rule. And in April 2009 OSHA
22 announced that they would begin rulemaking.

1 In September 2009 at the
2 completion of the Imperial Sugar investigation
3 the CSB recommended OSHA proceed expeditiously
4 with the dust rule.

5 In April 2010 OSHA called the dust
6 standard a long-term action but postponed some
7 of the next steps of the rulemaking process.

8 In June 2012 OSHA stated that it
9 could not commit to a date for the proposed
10 rule, but it remains a top priority for the
11 agency. That was two years ago.

12 Since then OSHA has scheduled and
13 rescheduled the next steps of the rulemaking
14 process.

15 The CSB incident screening
16 department has collected and verified
17 combustible dust incidents from 2008. And
18 from 2008 to 2012, over that time frame that
19 the rulemaking has been delayed 50 combustible
20 dust incidents that resulted in fatalities and
21 injuries took place in general industry.

22 Here is a graph that depicts the

1 number of the combustible dust incidents,
2 injuries and fatalities since the re-issuance
3 of the combustible dust National Emphasis
4 Program, or NEP, after the catastrophic sugar
5 dust explosion at Imperial Sugar in 2008.

6 And you can see from the chart
7 here that there is no visible decline in the
8 number of incidents or the severity of
9 incidents over this time frame. And this data
10 is based on dust incidents collected by the
11 CSB's incident screening department.

12 In July 2013 the CSB voted and
13 declared that OSHA's response to the previous
14 combustible dust recommendation was
15 unacceptable because OSHA has yet to develop
16 even a proposed rule on combustible dust
17 hazards more than four years after it
18 committed to start rulemaking.

19 The 2006 recommendation to OSHA
20 was classified as open-unacceptable in the
21 July 2013 CSB public meeting.

22 The need for an OSHA combustible

1 dust standard became the first item on the CSB
2 most wanted chemical safety important program
3 adopted by the Board at the July meeting.

4 If OSHA had implemented the first
5 CSB recommendation for the standard in 2006
6 many of the severe dust incidents that
7 followed, including AL Solutions, may have
8 been prevented.

9 In the next portion of this
10 presentation I will read the investigation key
11 findings.

12 Key finding number one for AL
13 Solutions. The explosion in the production
14 building was caused by combustible titanium
15 and zirconium dusts that were processed at the
16 facility.

17 Number two. The explosion likely
18 originated in a blender containing milled
19 zirconium particulates and ignited by
20 frictional heating of the zirconium arising
21 from defective blender equipment.

22 Key finding three. The hydrogen

1 gas produced by the reaction of molten
2 titanium and zirconium metal and water,
3 possibly from wash-down operations or the
4 water deluge system may have also contributed
5 to the explosion.

6 Number four. Testing conducted
7 after the incident determined that titanium
8 and zirconium samples collected from the AL
9 Solutions facility were combustible and were
10 capable of causing an explosion when lofted
11 near an ignition source.

12 Key finding five. AL Solutions
13 did not mitigate the hazards of metal dust
14 explosions through engineering controls such
15 as a dust collection system. Specifically, AL
16 Solutions did not adhere to the practices
17 recommended in NFPA 484 for controlling
18 combustible dust hazards.

19 Key finding six. The West
20 Virginia area office of OSHA did not conduct
21 a combustible dust NEP inspection at the AL
22 Solutions facility before the 2010 incident,

1 despite the company's history of metal dust
2 incidents.

3 The combustible dust NEP
4 inspections are based on a randomized
5 selection of facilities regardless of previous
6 incidents unless initiated by a complaint or
7 a referral.

8 And finally, key finding seven.
9 Combustible dust incidents continue to occur
10 throughout susceptible industries, but the
11 next steps of the OSHA rulemaking process for
12 promulgating a general industry combustible
13 dust standard have been delayed.

14 And now our recommendation
15 specialist Christy Morgan will come to the
16 podium to read our draft recommendations.

17 MS. MORGAN: As a result of this
18 investigation the investigative team is
19 proposing that the CSB reiterate one of its
20 previous recommendations to the Occupational
21 Health and Safety Administration and issue
22 four new recommendations, two to AL Solutions,

1 Inc., at the corporate level and two to the
2 new AL Solutions facility now operating in
3 Burgettstown, Pennsylvania.

4 First, I will discuss the
5 recommendation that the staff is posing for
6 reiteration.

7 The CSB continues to believe that
8 an OSHA general industry standard for
9 combustible dust is needed to prevent future
10 tragedies caused by dust explosions.

11 Therefore, staff are proposing
12 that the Board reiterate its 2006
13 recommendation calling for the development and
14 issuance of an OSHA general industry standard
15 for combustible dust.

16 As Ms. Tyler mentioned, the Board
17 voted to designate this recommendation and
18 three related recommendations with the status
19 open-unacceptable response in July 2013.

20 The Board also voted at that time
21 to designate a general industry standard for
22 combustible dust as the agency's first most

1 wanted chemical safety improvement.

2 It should be noted that this will
3 be the first time in the history of the agency
4 that the CSB has reiterated one of its
5 previous safety recommendations.

6 The text of this recommendation is
7 as follows.

8 "Issue a standard designed to
9 prevent combustible dust fires and explosions
10 in general industry.

11 "Base the standard on current
12 National Fire Protection Association, or NFPA,
13 dust explosion standards including NFPA 654
14 and NFPA 484, and include at least hazard
15 assessment, engineering controls,
16 housekeeping, building design, explosion
17 protection, operating procedures and worker
18 training."

19 In addition to proposing that the
20 Board reiterate this 2006 recommendation to
21 OSHA, the team is proposing that the Board
22 issue four new recommendations.

1 The first recommendation is to AL
2 Solutions, Inc., and it reads as follows.

3 "For all new and existing
4 equipment in operations at AL Solutions
5 facilities that process combustible metal dust
6 or powders apply the following chapters of
7 NFPA 484, 2012 edition, standard for
8 combustible metals: Chapter 12 Titanium,
9 Chapter 13 Zirconium, Chapter 15 Fire
10 Prevention, Fire Protection and Emergency
11 Response, and Chapter 16 Combustible Metal
12 Recycling Facilities."

13 The second proposed recommendation
14 to AL Solutions reads as follows.

15 "Develop training materials that
16 address combustible dust hazards and plant-
17 specific metal dust hazards, and then train
18 all employees and contractors. Require
19 periodic, for example, annual, refresher
20 training for all employees and contractors."

21 The first proposed recommendation
22 to AL Solutions' Burgettstown, Pennsylvania

1 facility is as follows.

2 "Prohibit the use of sprinkler
3 systems and water deluge systems in all
4 buildings that process or store combustible
5 metals."

6 And our last recommendation also
7 to the AL Solutions Burgettstown facility
8 reads as follows.

9 "Conduct a process hazard analysis
10 as defined in NFPA 484 Section 12.2.5 and
11 submit a copy to the local fire department or
12 the enforcing authority for the fire code."

13 Mr. Chairman, this concludes the
14 staff's presentation on the AL Solutions
15 incident.

16 CHAIRPERSON MOURE-ERASO: Thank
17 you very much, Ms. Morgan. And following our
18 agenda we will have an opportunity for the
19 Board to ask questions to the investigative
20 team. So, Mr. Griffon, do you have any
21 questions?

22 MR. GRIFFON: Yes. Thank you, Mr.

1 Chairman. Just a couple of questions.

2 The report makes a few
3 recommendations that we just went through here
4 to AL Solutions Company.

5 I'm just curious if you know what
6 they've done since 2010. Have they put any
7 controls in place? Any training? Is there
8 any update on what they've done since the
9 incident?

10 MR. WINGARD: They have made
11 changes in the Burgettstown. Still doesn't
12 seem to us that it's in line with NFPA 484.

13 A lot of it was eliminating --
14 making it more automated. So eliminating the
15 frequency of time people spend in contact with
16 the process itself. And so really, instead of
17 eliminating the combustible dust hazard they
18 eliminated just people as much as possible.

19 MR. GRIFFON: And anything on the
20 training front? Or was it mainly moving
21 employees away from the operation that was the
22 focus?

1 MR. WINGARD: I think it's mainly
2 moving people away from the operation. But I
3 can't speak to the training now.

4 MR. GRIFFON: And just one other
5 one on the OSHA recommendation. You know, I
6 totally support reissuing the recommendation
7 for a federal standard. And it's been out
8 there for a long time.

9 I think we have to play a more
10 active role in advocacy for this. It's on our
11 most wanted list. I think the Board has to
12 move on that as well.

13 But I'm just curious what OSHA has
14 done. I know it's mentioned a little in the
15 report, but what OSHA has done short of
16 issuing a standard obviously. They had some
17 activities. I just wondered if you could tell
18 us a little about that.

19 MS. TYLER: Yes, sure. Over the
20 last couple of weeks we've had a couple of
21 discussions with OSHA in discussing the
22 reiterated recommendation.

1 And we've learned through those
2 discussions that in addition to working toward
3 the combustible dust rule OSHA has been
4 involved in several activities to increase
5 awareness of combustible dust among industry,
6 emergency responders such as fire fighters as
7 well as their compliance officers. And all of
8 this guidance to date has been -- it's non-
9 regulatory.

10 But starting in 2008 after
11 Imperial Sugar they published a fact sheet on
12 some general combustible dust hazards.

13 They mailed alert letters to
14 30,000 employers across the country that
15 handle combustible dust.

16 They published a combustible dust
17 hazard communication guide, a manual for fire-
18 fighting precautions.

19 And they've had some additional
20 training for compliance officers and
21 compliance assistance staff, and that's
22 ongoing as part of the National Emphasis

1 Program that they developed in October 2007.

2 And additionally, they've created
3 a combustible dust website through osha.gov
4 which has all the resources for combustible
5 dust. So that's some of the activities that
6 they've been involved in.

7 MR. GRIFFON: Thank you, thank
8 you. And just one follow-up on that. Did AL
9 Solutions -- would they have received any of
10 these communications? The 30,000 that you
11 mentioned, would AL Solutions have received
12 this information before the 2010 incident?

13 MS. TYLER: I'm not 100 percent
14 certain that they did, but know that the
15 30,000 letters that were sent out are based on
16 the industry code classifications that would
17 likely be handling the I guess most highly
18 hazards combustible dust materials. And we do
19 know that their industry code was on that list
20 I believe under the standard industrial
21 classification list. So it is possible that
22 they may have received it but I'm not 100

1 percent certain.

2 MR. GRIFFON: Yes, I'd be
3 surprised if they didn't. But anyway, thank
4 you for answering those questions.

5 CHAIRPERSON MOURE-ERASO: Thank
6 you, Mr. Griffon.

7 I just would like to follow up
8 with a question in that vein. The
9 recommendations that have come from the
10 federal government on combustible dust so far
11 has been recommendations that the users or the
12 people handling combustible dust should
13 volunteer to embrace them and use them or not.
14 And it is voluntary for people to do it since
15 there is not a federal regulation that will
16 compel them to do it.

17 So my question to you is how will
18 an OSHA combustible standard that is a
19 regulation will have contribute to prevent an
20 explosion like happened in AL Solutions.

21 MS. MORGAN: In 2006 the CSB's
22 recommendation to OSHA in creating the

1 combustible dust rule was to incorporate the
2 provisions that exist in NFPA 484 and 654.
3 They are industry consensus standards that
4 have provisions for preventing dust explosions
5 or fires.

6 So we feel that if OSHA were to
7 incorporate this into a combustible dust rule
8 companies would have defined requirements to
9 follow and they would be enforceable
10 requirements for the prevention of dust
11 accumulations for engineering controls, for
12 flame-resistant clothing, all the types of
13 company practices that you would expect
14 employers to follow when handling combustible
15 dusts.

16 CHAIRPERSON MOURE-ERASO: Thank
17 you very much. At this time we would like to
18 ask if anybody from the public would like to
19 make some comments on the AL Solutions
20 investigation.

21 As we normally do here I'm going
22 to ask our managing director if he could like

1 to direct the discussion and to invite people
2 to make any statement. A three-minute
3 statement, please.

4 I would like to remind everybody
5 that we'll request that you make your comments
6 on AL Solutions now and that you make -- you
7 have any comments on Freedom Enterprise to
8 please wait until the end of the presentation
9 that will happen after the intermission.

10 So, Dr. Horowitz.

11 DR. HOROWITZ: Thank you, Mr.
12 Chairman.

13 The first commenter is John
14 Morawetz of the International Chemical Workers
15 Union.

16 MR. MORAWETZ: Thank you. One,
17 just a comment on process. Sitting here I
18 just got the report when I got here. I'm
19 trying to look at the report, hear the
20 presentations and figure how to formulate
21 questions.

22 So on a statement which I think

1 I've said before on process it would be very
2 helpful for the public, all interested
3 parties, family members to get a copy of the
4 report in advance, maybe embargoed, not for
5 publication, so we can make comments and look
6 at it thoughtfully to have some input on then
7 the final vote and final deliberation.

8 It's also possible I would hope
9 that you could also say there's a vote
10 provisionally perhaps based upon the comments
11 that all of us may or may not present and you
12 analyze them and you figure out where you want
13 to go with that.

14 I'll also -- I have a number of
15 points in trying to follow this that I would
16 like to make and I'll put them in writing. I
17 know there's a limit of three minutes.

18 I was a little bit puzzled in
19 looking at all the recommendations that, first
20 of all, fully supporting the OSHA combustible
21 dust standard, long overdue, that all the
22 other recommendations are only for AL

1 Industry.

2 One of the strengths of the
3 Chemical Safety Board historically has been
4 that your reports are for the industry. Your
5 reports are broad and they're far-reaching.

6 I know, for instance, the
7 explosion in Hawaii, the fireworks explosion,
8 that it was a very good recommendation about
9 the contracting out, and how contracting by
10 the federal government should take into
11 account a company's history in health and
12 safety.

13 So, I would wonder in particular
14 whether there's a combustible metal recycling
15 industry, group, et cetera, organization that
16 our recommendations could be made to beyond AL
17 Industry. I don't know whether anybody wants
18 to respond?

19 MR. BANKS: I believe we made some
20 recommendations along those lines in a recent
21 report.

22 I think we did make such

1 recommendations for education in our Hoeganaes
2 report. And I'll just ask the team to clarify
3 if that is so.

4 There are certain industry
5 organizations that handle combustible metals
6 or powdered metals.

7 MR. MORAWETZ: So, limited in time
8 I would just hope you look at this and take a
9 look at whether some of those other
10 recommendations are equally as valid industry-
11 wide, the findings on combustible dust.

12 I'd also just in order also say
13 that you have a finding though from West
14 Virginia OSHA office but no recommendations.
15 I wonder whether there should be
16 recommendations? I don't know.

17 The Fire Marshal's Office. There
18 was no finding. State budgets are in a
19 crisis. It's very difficult. But should
20 there be a finding or a recommendation? I
21 don't know.

22 And lastly, I don't know whether

1 any state plans beyond federal OSHA, whether
2 sometimes state OSHA plans are at the
3 forefront of taking action before federal
4 OSHA.

5 I don't know if any state plans a
6 combustible standard or recommendations, but
7 at a minimum these reports should cover what
8 the current status is in general for the state
9 plans. Thank you.

10 DR. HOROWITZ: Thank you. Any
11 other commenters on AL Solutions?

12 CHAIRPERSON MOURE-ERASO: Hearing
13 none I think we'll move to the next point in
14 the agenda, that is the vote on the report.

15 I make a motion as a Board Member
16 to approve the report on AL Solutions as
17 presented.

18 The formal way of doing the motion
19 is I move that the Chemical Safety Board
20 approve the Investigation Report No. 201131WB
21 entitled "Metal Dust Explosion and Fire at AL
22 Solutions, Inc., in New Cumberland, West

1 Virginia that Occurred on December 9, 2010,"
2 including all findings, recommendations and
3 associated figures, progress contained or
4 referenced in the July 16, 2014 case as
5 studied.

6 Do I hear a second for this
7 motion?

8 MR. GRIFFON: I second the motion.

9 CHAIRPERSON MOURE-ERASO: Okay, so
10 do we have a discussion on the motion? No
11 discussion. So I call on Mr. Loeb, our
12 general counsel, to proceed with the vote.

13 MR. LOEB: This will be a quick
14 vote, I imagine. Mr. Griffon?

15 MR. GRIFFON: Yes.

16 MR. LOEB: Mr. Chairman?

17 CHAIRPERSON MOURE-ERASO: Yes.

18 MR. LOEB: The motion is approved.

19 CHAIRPERSON MOURE-ERASO: Thank
20 you very much. I would like to thank the
21 people that talked here today around AL
22 Solutions, especially our representatives of

1 our elected officials and also the persons
2 that presented comments on the details of the
3 report.

4 Now, I would like to call for a
5 10-minute break and we'll reconvene to discuss
6 the Freedom Enterprise progress report. So
7 we'll take a 10-minute break. Thank you.

8 (Whereupon, the above-entitled
9 matter went off the record at 1:02 p.m. and
10 resumed at 1:15 p.m.)

11 CHAIRPERSON MOURE-ERASO: We are
12 going to proceed. I am going to ask Mr.
13 Johnnie Banks to take over the podium and
14 provide us with an update on the CSB Freedom
15 Enterprises investigations.

16 So, Mr. Banks.

17 MR. BANKS: Thank you, Mr.
18 Chairman.

19 I will now provide an update on
20 the Freedom Industries investigation just to
21 give folks a sense of where we are with that
22 investigation.

1 On January 9, 2014, 10,000 gallons
2 of 4-methylcyclohexanemethanol, or MCHM, mixed
3 with 5.6 percent propylene glycol phenol
4 ethers, or POPULATION HEALTH, was released
5 into the Elk River due to the failure of a
6 tank, the secondary containment.

7 The mixture leaked from a 48,000
8 capacity aboveground storage tank, or AST, at
9 the Etowah River terminal facility.

10 The MCHM and PPH mixture entered
11 the soil and eventually migrated to the Elk
12 River by moving through the soil, gravel and
13 water systems located under the facility until
14 finally reaching water.

15 The Freedom facility was located
16 about 1.5 miles upstream from intake of West
17 Virginia American Water Company.

18 The company provides water to over
19 580,000 citizens in West Virginia including
20 residents and industrial clients.

21 When the leak occurred at Freedom
22 up to 300,000 residents and industrial users

1 in 9 counties were impacted.

2 Now, the West Virginia Department
3 of Environmental Protection received odor
4 complaints early on the morning of January 9,
5 2014, and arrived onsite at 11:15 that day and
6 identified the release at the base of T-396.

7 It wasn't until 5:45 p.m., or over
8 five hours later that the West Virginia
9 American Water Company issued a do not use
10 order. And at 9:30 that night the Governor
11 issued a state of emergency order to West
12 Virginia.

13 The following morning, January 10,
14 President Obama declared a federal disaster
15 area for the nine counties impacted by the
16 leak.

17 In the days following the release
18 there were several announcements communicated
19 to the public regarding water usage.

20 On January 13, the West Virginia
21 American Water company advised the flushing of
22 water systems.

1 On January 15, the CDC issued a
2 water advisory for pregnant women to drink
3 bottled water.

4 On January 21, Freedom revealed
5 that PPH was in the mixture released into the
6 water supply in addition to the MCHM.

7 On February 5, a spokesman from
8 the CDC, or Centers for Disease Control,
9 announced that the water was appropriate for
10 use. However, odor complaints continued and
11 many area schools reported closures over the
12 following days and weeks.

13 On February 21, the CDC issued a
14 statement that described the water as safe.
15 However, the CSB found the message to be
16 obscure and it was not widely communicated.

17 In late February, the Governor of
18 West Virginia lifted the state of emergency
19 order. And in March the CDC announced that no
20 adverse health effects in MCHM in
21 concentrations below 10 parts per billion.

22 So the Governor's office has

1 lifted the water advisories and the CDC has
2 declared the water safe for drinking.
3 Residents continue to distrust the information
4 that the water is safe.

5 A lingering odor remained in the
6 water after CDC declared the water was
7 appropriate for use.

8 The long-term health impacts of
9 MCHM and PPH at low concentration remains
10 unknown.

11 Now, I'll turn the proceedings
12 over to Ms. Tyler for this part.

13 MS. TYLER: Thank you. From
14 January 9 to January 23, 2014, the West
15 Virginia Bureau of Public Health reviewed 369
16 records of patients who had symptoms and
17 reported exposure to the water.

18 Thirteen of the three hundred
19 sixty-nine patients were hospitalized. The
20 rest were treated and released with
21 intravenous fluids and medications to reduce
22 the effects of exposure such as nausea and

1 skin irritations.

2 People were most commonly exposed
3 to the chemicals in the water from bathing and
4 showering. Other routes of exposure were
5 ingestion and inhalation, and some patients
6 reported exposure to more than one possible
7 type for their symptoms.

8 In preliminary health impact data
9 provided by the Kanawha County Health
10 Department common complaints included nausea
11 38 percent, skin rash 28.5 percent and
12 vomiting 28 percent.

13 The Kanawha County Health
14 Department reported that these symptoms are
15 consistent with known health effects of MCHM.
16 And those are based on very limited animal
17 studies.

18 One of the preliminary findings
19 related to the public health impact is that
20 there is limited toxicological information on
21 MCHM, PPH and their chemical constituents.

22 The CSB reviewed toxicological

1 data from MCHM manufacturer and found that
2 there is little data available on exposures at
3 low concentrations. Almost all the studies
4 for MCHM include short-term exposures to high
5 doses of MCHM.

6 Also, the material safety data
7 sheets, or MSDSs, did not provide information
8 on the potential health hazards to assist in
9 a timely notification of water usage
10 restrictions.

11 And now Mr. Banks will return to
12 the podium to discuss the tank inspections at
13 Freedom Industries.

14 MR. BANKS: Thank you. The CSB
15 commissioned an inspection of the tank from
16 which the tank leak occurred and similar tanks
17 at the Freedom Industries facility.

18 Testing included a scanning of the
19 tank, the interior, the surrounding topography
20 of the facility and the riverbank, and
21 portions of the tank were cut out and set for
22 metallurgical examinations which are yet to be

1 conducted.

2 We've got a short video that shows
3 some of the work that went on I'd like to
4 share with you.

5 (Whereupon, the video was played)

6 MR. BANKS: This is some activity
7 just prior to openings being cut into the tank
8 for access for removal of portions of the
9 metal.

10 This is the tank where the leak
11 was most prominent.

12 This is the technique that was
13 used to cut the samples. It's a high-pressure
14 water-cutting technique which minimized the
15 risk to the folks that were doing the work.
16 In the presence of possible flammable
17 atmospheres they use a high-pressure water
18 system and were able to conduct all the
19 cutting that we wanted on the tanks.

20 The tanks themselves, this is the
21 area of the main section of the tank where the
22 holes were noted.

1 Here we have the two holes. One
2 is about three quarters of an inch in
3 diameter, the other a little bit less than a
4 half an inch. And as you'll see in later
5 slides there is a series of other
6 characteristics that indicate potential
7 failure sites as well.

8 This is the technique that was
9 used to cut the samples that are called
10 coupons. They are round sections of the tank
11 that we gathered. There were other
12 representatives from plaintiffs and the
13 company there also to observe the removal of
14 these pieces of equipment.

15 And post cutting we did a pretty
16 thorough inspection of the site to make sure
17 that all the samples that we needed for steps
18 moving forward were gathered.

19 Now, preliminarily one of the
20 early findings in this case, the inspections
21 were conducted in accordance with the best
22 practices today which are the test methods as

1 found in API 653.

2 The API 653 inspection clearly
3 indicated that the holes in T-396 were a
4 mechanism for the large spill that occurred on
5 January 9, 2014. And these are those two
6 holes that I just pointed out, the two-quarter
7 inch hole and the little bit more than half an
8 inch.

9 But then you'll also see that
10 there is some pitting observed here which
11 indicates areas that would have potentially
12 failed as well.

13 In this slide there, there was a
14 deformation in the tank wall. And we've cut
15 this section of the tank out and we'll subject
16 this to analysis as well to determine if there
17 might have been any leaking that occurred
18 there prior to January 9.

19 The final determination on the
20 failure mechanism will be made through
21 forensic examination of the metals that we
22 have extracted from the tanks at a lab that

1 we've selected for the tests to be conducted.

2 We'll examine the corrosion
3 modeling by an AST, aboveground storage tank
4 expert. And preliminarily there is growing
5 evidence that the holes did not originate from
6 outside the tank but from within due to the
7 characteristics that we noted earlier where --
8 as you will note here this hole is bored
9 through. This hole is a little bit smaller
10 and these are ones that appear to be forming.

11 So as we proceed with this
12 investigation we're going to subject this
13 portion of the tank to a really close analysis
14 to determine if a failure did occur of the
15 corrosion from the inside.

16 To date we have not found any
17 records of inspections that would indicate a
18 rigorous, programmatic, regular inspection
19 frequency.

20 And the lack of engineering
21 inspections that would prescribe the frequency
22 and the rigor is something that is noteworthy

1 for our findings so far.

2 Tank 397, another tank that also
3 contained MCHM and PPH mixture had a hole in
4 it. And this to us indicates that there was
5 the possibility of a leak from that tank as
6 well. That's an area of interest for us
7 moving forward that we will pursue to
8 determine if this hole was leaking material,
9 and if so, the amounts that might have been
10 leaked from the tank prior to or after or up
11 to January 9 of this year.

12 Due to the extensive corrosion the
13 CSB suspects that the leaks existed prior to
14 January 9.

15 One of the key indicators from
16 these findings is that the multiple pitting
17 and metallurgical damage to 396 and other
18 tanks in the MCHM service.

19 This is the hole that was observed
20 in T-397 and an area that we will continue to
21 pursue. This is the deformation that I noted
22 earlier on the tank wall.

1 In this slide we've got the
2 depiction of the API 653 diagram of the
3 corrosion that was observed on T-396 which is
4 located here.

5 But if you'll note, on T-395 there
6 were areas of concern as well and 397 where
7 the hole which was located right in this area.

8 And it's important to note that
9 these API 653 tests were conducted by multiple
10 API 653-proficient experts.

11 The CSB commissioned our own
12 expert but there were several other API 653
13 inspectors onsite that day. And they used
14 their own independent devices, but they have
15 a marking system to denote where the corrosion
16 was.

17 And because the -- for good or
18 bad, the conditions were kind of wet, so as
19 one API 653 inspector would conclude his work,
20 his work would be obscured because the surface
21 of the tank was wet and the chalk markings
22 would be obliterated.

1 But over the course of the two
2 days that these tests were conducted it looked
3 like a child's hopscotch area in terms of the
4 number of areas that the corrosion were noted
5 by the independent inspections that were
6 ongoing.

7 So, these are key indicators to us
8 that there was a serious corrosion problem
9 growing in all the tanks and just manifested
10 itself in 396 the worst. But 397 is showing
11 signs of that type of failure, the multiple
12 pitting, the pattern that we noted in 396.

13 And then the fact that there were
14 possibly holes in the roof that led to water
15 entering into the tank and pooling in areas.
16 There was an odd shape that's associated with
17 the holes in 396. We think that the water may
18 have laid there and kind of facilitated the
19 corrosion that we noted.

20 Moving forward, as we continue
21 with the investigation we'll subject the metal
22 the we've extracted from these tanks to a

1 metallurgical examination.

2 We will hope to bring about a
3 computer modeling of the release. And that
4 would take into consideration the topography
5 of the site itself, the lay of the land so to
6 speak, and help to determine why the material
7 would flow the way that it did, how it would
8 find access to the Elk River.

9 We'll examine any information that
10 speaks to the public health impact that's of
11 import to this agency, but one that we would
12 consign to agencies and organizations that are
13 proficient to speak to those issues. But we
14 have a keen interest in following those
15 developments.

16 We would also look at the
17 regulation of aboveground storage tanks to see
18 the applicability of existing rules and if
19 there is a need to strengthen or implement new
20 rules.

21 We would look at the tank siting
22 of a chemical plant with this close to a water

1 intake system. Obviously that's something of
2 keen interest to us.

3 We'll also look at the evolution
4 of the water treatment intake systems, the
5 nature of that process and any changes that
6 might be necessary moving forward.

7 And then also the emergency
8 planning and notification process that took
9 place when this incident occurred.

10 These are some of the key areas
11 that we will be pursuing as we move forward.

12 That concludes the update on the
13 Freedom Industries investigation but we're
14 happy to entertain any questions that the
15 Board might have.

16 CHAIRPERSON MOURE-ERASO: Thank
17 you, Mr. Banks.

18 First of all, I -- on the things
19 that you observed and presented I think it's
20 important to note that the underlying root
21 cause of many of our investigations,
22 especially the ones that you have been

1 involved yourself, including these last two in
2 West Virginia is the lack of thorough
3 inspections and hazard reviews. And the need
4 for instructive regulations in areas where we
5 find that volunteering, that self-policing is
6 not preventing the accidents.

7 The Board looks forward to the
8 team's final report that will examine
9 regulatory oversight of aboveground storage
10 tanks in West Virginia and the U.S.

11 Thank you for your presentation,
12 Mr. Banks. And now we will see if there is
13 some questions from the Board to you.

14 Mr. Griffon, do you have any
15 questions to the team?

16 MR. GRIFFON: Thank you, Mr.
17 Chairman. Just a couple of questions.

18 One is on the metallurgical
19 testing. And I was just wondering if you
20 could expand a little more on what we expect
21 to find out with the metallurgical testing.

22 I think it's primarily to confirm

1 or test our hypothesis that the corrosion came
2 from within the tank, not the other way
3 around. But are there other learnings that we
4 might gain from the testing?

5 MR. BANKS: I think in addition to
6 the obvious we want to determine where the
7 failure most likely originated from.

8 But the fact that you have a tank
9 of vintage that extends beyond earlier than
10 World War II we're looking at the metals that
11 were used there and considering what type of
12 metallurgy might be appropriate for this type
13 of service now.

14 We're hoping to consider the
15 changing of the material from a petroleum-
16 based process to one that's seemingly not of
17 that type but still had a detrimental effect
18 on the waterways and the intakes to the West
19 Virginia Water Treatment Association.

20 MR. GRIFFON: Thank you. And
21 these other questions are more on some of the
22 information on the toxicity issues and things

1 like that.

2 I'm trying to square -- there's a
3 couple of slides we have in here. I'm just
4 trying to square this in my mind.

5 On the water advisory time line we
6 say that there's no adverse -- or I'll restate
7 that. I think CDC determined that there were
8 no adverse health effects below 10 parts per
9 billion.

10 And then later in our finding, the
11 first finding slide, we say there's limited
12 information on long-term health impact at low
13 concentrations.

14 I'm just trying to square those
15 two statements in my mind. Can you help me
16 with that?

17 MS. TYLER: The statement that we
18 made about the fact that there is little
19 information available is based on our review
20 of the manufacturer's toxicology reports.

21 And from that information we
22 learned that they had all animal studies for

1 acute or short-term exposures to MCHM at high
2 concentrations.

3 So with that we concluded so far
4 in our investigation that there is very
5 limited information available that we have
6 reviewed thus far for low concentrations, the
7 type of exposures that would have been in the
8 water over several days or several weeks.

9 MR. GRIFFON: Okay. And I think
10 this sort of -- my next question builds on the
11 last one.

12 The Bureau of Public Health and
13 CDC apparently are continuing work on this
14 matter. Is there any update? I mean I know
15 we're not doing the study of those issues, but
16 we're following it as Johnnie indicated.

17 Can you give us an update on what
18 actions the West Virginia Bureau of Public
19 Health, or CDC, or I think there's another
20 group, West Virginia Testing Assessment
21 Project. Can you give us a brief update on
22 where they're going with their investigations?

1 MR. BANKS: Sure. We've been
2 working closely with the West Virginia
3 Department of Public Health from previous
4 incidents. But this may vary.

5 But it's, as I said, a keen
6 interest for us. There was the release of
7 information I think last week of the effects
8 of MCHM not being or being more severe than
9 was originally reported.

10 So those areas that we're looking
11 to try to wrap our arms around and see and
12 engage the significance of those findings. We
13 rely on the expertise that those bodies have
14 within to provide the type of information that
15 the public is requesting and in need of to
16 make decisions on whether -- how they feel
17 about the state of affairs regarding the
18 water.

19 The Bureau of Public Health,
20 Department of Public Health, the TAP project,
21 those are all ongoing processes. So we'll
22 continue to partner with them to gather

1 information and through those collective
2 activities I think we'll provide some
3 information that the public can find useful.

4 MR. GRIFFON: Thank you. And just
5 the last question, and I think this may have
6 been said in the presentation but I think it
7 might bear repeating.

8 The actions that you list at the
9 end of your presentation. One was the
10 consideration of public health impact.

11 And perhaps you mentioned this
12 already, but can you maybe restate for me as
13 well as the audience what the CSB's role in
14 that.

15 In other words, I don't think
16 we're -- we're certainly not in a position to
17 be doing a health study. But I think -- what
18 are we going to do in that regard regarding
19 health impacts, public health impacts?

20 MR. BANKS: We are not, you know,
21 public health experts. But I think we will
22 examine the reports that come from these

1 bodies that have the expertise. Those facts
2 will be -- I think we are in a position to
3 disseminate that information certainly.

4 But we rely on them to have
5 resources and the wherewithal to give the
6 public the information that they need to make
7 the decisions on usage moving forward.

8 MR. GRIFFON: And I'm hopeful also
9 that in doing, in reviewing this information
10 that will give us some insights as to possible
11 gaps in how public health and environmental
12 impact are regulated. So I think that's
13 probably part of the equation.

14 We'll consider this data that's in
15 front of us but then we'll also look and see
16 how the overall system should be changed.
17 Thank you very much.

18 MR. BANKS: Thank you.

19 CHAIRPERSON MOURE-ERASO: Thank
20 you, Mr. Griffon.

21 I have a question for the panel
22 too. It seems that the issue of storage of

1 chemicals near waterways is not a West
2 Virginia problem but is a nationwide problem.

3 And one of the issues that you are
4 looking at and that you have talked about in
5 this preliminary investigation is how an
6 inspection of the integrity of these tanks
7 will be necessary.

8 And my question is are there
9 specific regulations that give instructions to
10 operators on how to inspect the tank and how
11 to find out if the corrosion might or might
12 not be a problem? Or are these voluntary
13 regulations? Or what do we know so far about
14 in this issue?

15 MR. BANKS: Well, using API 653
16 guidance there's a prescribed methodology for
17 examining tanks that are in service that if
18 followed and adhered to these type of failures
19 can be detected early, the corrections made
20 and there's no impact on the environment or
21 the community when something like this
22 happens.

1 I think one of the observations
2 that I came away from in observing the testing
3 with the various API 653 inspectors was that
4 they were finding areas of concern. And had
5 one of the tanks been emptied and an API 653
6 inspection conducted in all likelihood the
7 potential failures might have been found and
8 we're not having this conversation.

9 So, it speaks to being proactive
10 in considering the potential impact of a
11 failure of a tank such as these in proximity
12 to a water intake for such a large population.
13 It's a tributary to the Kanawha River, the
14 intake to the West Virginia American Water
15 Company. There's a number of different issues
16 there that loom as large and significant for
17 our agency in terms of impact of an event like
18 this on the community.

19 CHAIRPERSON MOURE-ERASO: Thank
20 you, Mr. Banks.

21 And another question that I have
22 is I understand that OSHA responded to this

1 situation and they issued some citations.

2 Could you refresh my memory about how did OSHA
3 participate in this?

4 MS. TYLER: Yes. OSHA just
5 recently issued three citations to Freedom
6 Industries. There were two Serious and one
7 Other Than Serious citations totaling \$11,000
8 as of now.

9 The citations include, one, they
10 had a violation for not having railings on an
11 elevated platform at the facility.

12 Another one was the walls of the
13 dyked area or the secondary containment were
14 not liquid-tight.

15 And the third one was there was
16 improper labeling of the storage tank. In
17 particular, it was containing MCHM but it was
18 labeled as containing something else. Those
19 were the citations.

20 CHAIRPERSON MOURE-ERASO: Thank
21 you very much.

22 At this time I would like to open

1 the floor for public comment. I would like to
2 ask Dr. Horowitz to lead the discussion.

3 DR. HOROWITZ: Thank you, Mr.
4 Chairman.

5 The first commenter is it looks
6 like Janet J.T. Thompson. And Ms. Thompson,
7 if you could please spell your name for the
8 transcriber and state your affiliation if you
9 would be so kind.

10 MS. THOMPSON: J-A-N-E-T T-H-O-M-
11 P-S-O-N. I'm just representing community
12 citizens of counties involved in the state.

13 Initially I thought I would be
14 coming here to -- not having ever came to a
15 findings and recommendation before. I kind of
16 thought it would be like the county where we
17 make our comments. So I thought we'd be
18 discussing the criminal aspect of Freedom
19 hiding this spill because it's obvious from
20 the information that it's been going on longer
21 which is verified with the tanks.

22 And I thought, well, there will be

1 conversation on the bankruptcy fraud, there's
2 conspiracy on that because the information is
3 out about that.

4 But now that I understand it's
5 about your investigation my concern is this.
6 Freedom -- the Etowah terminal facility, the
7 DEP was supposedly monitoring it since about
8 2005 regarding remediation with the Quaker
9 Pennzoil, the diesel and everything. So I'm
10 not quite sure how this went on for so long.

11 And also, I don't know if you have
12 anything to do with this but it was 400,000
13 gallons of seven chemicals located there. So
14 I basically get my information from the
15 papers.

16 So I'm trying to figure out are
17 the chemicals removed? And if so, why is
18 there still a smell not of the licorice by
19 Washington Manor next to the water plant and
20 in front of Freedom even now? Not the
21 licorice smell, but a strong chemical smell.

22 I don't know if you have anything

1 to do with that but that's our concerns.

2 And I'm mostly concerned about the
3 children because of the families who didn't
4 know about the spill and don't understand the
5 chemical issues regarding it. You say there's
6 no tests and -- our tests as regarding to what
7 the effect is.

8 I'm just concerned that this is
9 still an ongoing thing. And why would the
10 water company change filters before the plant
11 was tore down?

12 So I don't know if you all have
13 anything to do with that but those are my
14 concerns and comments.

15 MR. BANKS: Regarding the nature
16 of our investigation as we make known in any
17 venue that we give oversight of what we do,
18 we're an independent agency. And by that we
19 are independent of other entities that are
20 investigating this case.

21 There are other agencies and
22 organizations that have an enforcement or a

1 penalty component to their findings. Ours is
2 by design independent and non-blaming, non-
3 punishing so that we can get to the facts.

4 And we have conducted our
5 investigation in that vein from the very
6 outset.

7 I think the note that you make of
8 the odors, that is to be expected. That's not
9 making excuses for anything.

10 But they have started the process
11 of removing these tanks from the site. They
12 have cut holes in the tank and there is
13 material that -- residue.

14 And so I don't know that that's
15 what you're smelling but it's very likely what
16 you're smelling.

17 There's a very high likelihood
18 that when the MCHM tanks come up that there
19 will be a reintroduction of the smell of
20 licorice into the atmosphere. It would be
21 prudent for folks to -- to give folks a heads
22 up that that's in the offing, that the tanks

1 are coming up and they may smell MCHM.

2 All of the concerns that you
3 raised, the concerns of the children, we're
4 concerned for everybody. We have a concern
5 for providing information that is as accurate
6 as we can possibly make it so that folks can
7 make informed decisions on what they need to
8 do.

9 And that's our commitment and will
10 continue to be.

11 DR. HOROWITZ: Next is Maya Nye,
12 People Concerned About Chemical Safety.

13 MS. NYE: Hello, Mr. Chairman.
14 Thank you for once again coming to town, Board
15 Members and trustee staff, investigators.
16 It's always reassuring to see you here because
17 we know that there will be a thorough
18 investigation of what happens at yet another
19 chemical disaster.

20 I want to reiterate Brother John's
21 point from the Chemical Workers Union from the
22 previous presentation and just say that

1 hopefully the information will be available to
2 the public prior to the meeting to be able to
3 give thoughtful comment that you can then
4 utilize when making your decisions whether or
5 not to pass the report.

6 I also, I heard you mention that
7 lack of inspections and review are a major
8 issue. That's something that we have
9 reiterated time and time again. So it's good
10 to hear that that is something on your radar.

11 And that volunteer programs, it
12 seems it's very apparent that those do not
13 work.

14 And speaking to Mr. Griffon, to
15 your point about what is the role of the
16 Chemical Safety Board in addressing the public
17 health concern.

18 Well, the issue is that we need to
19 have accurate scientific information in order
20 to determine what the hazards are.

21 And in this case it's becoming
22 clearer and clearer that we do not have that

1 information. As highlighted by the reports
2 recently from Dr. Welton and the information
3 that he previously put out.

4 So it's very concerning to hear
5 that potentially this chemical could be 2 to
6 6 times more hazardous than reported, than
7 voluntarily or self-reported from industry.
8 So that's very important.

9 I wonder if you will take into
10 consideration any sort of additional financial
11 penalties, in making recommendations on
12 increasing the financial penalties that are
13 given to industry. Because time and time
14 again slaps on the wrist show that it doesn't
15 prevent future chemical disasters.

16 And going back to the point on the
17 lack of information about this chemical, the
18 information that was utilized to make public
19 health decisions was based on the information
20 that was provided by Eastman Chemical.

21 That information is also what is
22 reported on the material safety data sheets

1 which workers use to determine exposure
2 limits, all kinds of issues. So it's very,
3 very important that we have accurate data and
4 it just proves that we need checks and
5 balances.

6 I obviously have a whole lot to
7 say but maybe I'll present some written
8 comments. Thank you for being here once
9 again.

10 DR. HOROWITZ: Thank you. Next is
11 Vernon Haltom, Coal River Mountain Watch. And
12 could you spell your name for the transcriber,
13 please?

14 MR. HALTOM: Vernon, V-E-R-N-O-N,
15 Haltom, H-A-L-T-O-M as in Mary. And I am with
16 Coal River Mountain Watch and the Appalachian
17 Community Health Emergency Campaign.

18 On January 9 I watched the news
19 that evening and was appalled when the news
20 report stated that this chemical was non-
21 toxic.

22 And I thought of all the people,

1 our friends and members who were in the
2 affected area who might take that seriously
3 and think that, well, if it's non-toxic it
4 should be okay.

5 And that information was put out
6 by the Department of Environmental Protection.
7 And I think that was somewhat irresponsible in
8 making that statement so early in the crisis.

9 As we found this chemical is far
10 from non-toxic and we're still just learning
11 about it.

12 I think it's also important to
13 note that this was not merely the result of
14 the corrosion of one tank or two tanks, but a
15 culture of resistance to regulation and
16 enforcement of regulations statewide.

17 The previous Governor Joe Manchin
18 once told a coal industry gathering that he
19 didn't want his inspectors going out with a
20 ball bat, cease and desist order and fines.

21 That guidance has not been lifted
22 to my knowledge and that culture is still what

1 has permeated the regulatory agencies in West
2 Virginia so that they do not take their job
3 seriously.

4 They do not conduct inspections in
5 a timely manner or in an effective manner, and
6 they do not issue appropriate fines and cease
7 and desist orders when those things are
8 appropriate. There is no deterrence to this
9 sort of bad behavior.

10 And we've seen the slaps on the
11 wrist that Freedom Industries has received and
12 that's par for the course in West Virginia.

13 The coal industry has many, many
14 violations. This chemical and others leak
15 into streams and is pumped into well water
16 supplies throughout the coal fields where
17 mountaintop removal occurs and in many places.
18 And it doesn't make the news because it is so
19 routine.

20 So I do hope that the
21 recommendations include, one, that the state
22 regulators insist and instill a culture of

1 making people's health and safety the top
2 priority, not an afterthought, not after the
3 disaster has occurred, and place that health
4 and safety ahead of industry profits and
5 convenience.

6 Now, we need to institute the
7 precautionary principle in West Virginia. Not
8 wait until people are sick and dead and their
9 heirs possibly sue a polluting industry and
10 settle for pennies on the dollar years down
11 the road.

12 And I appreciate your time and
13 thank you for coming and making your results
14 known. Thank you.

15 DR. HOROWITZ: Thank you. Next is
16 John Morawetz from the National Chemical
17 Workers Union.

18 MR. MORAWETZ: And for the record
19 it's M-O-R-A-W-E-T-Z.

20 One, thanks for the staff and the
21 Board for some information. In terms of
22 process it's very interesting.

1 It's the first public meeting I've
2 been to that's an update, not a final report.
3 It gives us some insight as to where the staff
4 are going with the report. It's helpful
5 information and helpful also for you to hear
6 from the public.

7 So as an idea of where the process
8 may go I think you may want to consider -- I
9 know it's expensive for everybody to be here,
10 but a few investigators coming to a public
11 meeting, releasing what's going on could be
12 helpful in the future.

13 Two is I work in Cincinnati, Ohio.
14 We are painfully aware of problems that happen
15 upstream of the Ohio River, Kanawha River.

16 In this instance we -- the gates
17 for the water intake are upstream of
18 Cincinnati on the Ohio River and about --
19 we're used to this. A week after the spill
20 they closed the gates. They get the water
21 from inland in Ohio and that's what feeds our
22 system. And then they're closed again. I

1 also personally drank a lot of bottled water.

2 Our particular involvement is that
3 the Chemical Workers works very closely with
4 American Federation of Teachers. And AFT
5 approached us with their West Virginia
6 affiliate for information because on January
7 10th or 11th, maybe 12th, somewhere around
8 there, the custodians who are represented by
9 the West Virginia Teachers Association were
10 asked to purge the lines in the schools.

11 So we came up with a fact sheet
12 which I've given to Johnnie Banks and to the
13 Board Members, Chairman Moure-Eraso and Member
14 Griffon.

15 And also the Bureau of Public
16 Health in West Virginia basically copied it
17 within a day and put the same thing out. And
18 we're very pleased to be able to help get
19 information out.

20 I'm looking at it now sitting here
21 and realizing at that point in time the
22 recommendation was 1 part per million. The

1 recommendation now is 10 parts per billion.
2 The numbers are very strange. Ten parts per
3 billion is -- with the recommendation
4 originally it was 1,000 parts per billion. So
5 basically it was dropped by 2 orders of
6 magnitude divided by 100.

7 And I remember controversy among
8 toxicologists. And what underlies this all?
9 We don't have enough information. It was pure
10 MCHM. You hear all these discussions. We
11 don't know and regretfully all too often
12 there's a rush to "it's safe" without a sort
13 of reasoned discussion, what evidence do we
14 have, and what can we do to have a safe,
15 precautionary principle for people, whether
16 it's workers or the community that could be
17 exposed.

18 Because every community situation,
19 you scratch the surface, there's a worker
20 situation. Every worker situation, sooner or
21 later it's going to be an environmental
22 exposure. So we should look at all of those.

1 I would say also in terms of the
2 root cause analysis I was very pleased in I
3 think Johnnie's presentation or Lucy's -- I
4 think it was Johnnie Banks' -- that there was
5 a question of siting of the facilities.

6 From the beginning I was shocked
7 to hear that a mile upstream of a water intake
8 for any community let alone a city can have
9 this possibility. It seems to me we need to
10 grandfather in some zoning situation, a
11 question that the CSB has dealt with before,
12 NDK Crystal. There was an explosion that was
13 -- this facility was close, within a couple
14 hundred feet of Interstate 90. A trucker was
15 killed.

16 There should be some question of
17 zoning, not just West Virginia, but where do
18 we want to have facilities that have thousands
19 of gallons of toxic chemicals that are this
20 close to our water intake.

21 I also hope that in your report
22 you'll talk about the odor threshold.

1 Clearly, is it adequate. What are the warning
2 properties there? And thank you very much for
3 your time.

4 DR. HOROWITZ: Thank you, Mr.
5 Morawetz. And next is David Christianson. Go
6 ahead, sir.

7 MR. CHRISTENSEN: My name's Dave
8 Christensen. I'm a retired chemical engineer,
9 registered.

10 DR. HOROWITZ: Sir, would you mind
11 spelling it for the transcriber?

12 MR. CHRISTENSEN: Certainly. C-H-
13 R-I-S-T-E-N-S-E-N.

14 I'm a retired chemical engineer,
15 registered professional engineer, 37 years in
16 the chemical business. Half of that in
17 process risk assessment. That's my
18 background.

19 And my point is that, to use a
20 West Virginia expression, let's not get bore-
21 sighted. Consider what we're looking at here.

22 MCHM and PPH are not unique

1 chemicals in the lack of knowledge of them.
2 In fact, I think the majority of them out
3 there in the chemical business do not have
4 complete toxicology data.

5 Animal studies are not -- and most
6 of the time that's the limit. So it's not
7 unusual to be confronted with this. That's my
8 point on bore-sighted. Let's just not focus
9 on these two chemicals.

10 The other point is that we heard -
11 - we talk about concentrations, 10 parts per
12 billion, 1 part people million. How many
13 chemicals do we have in our water supply at
14 the 10 part per billion level? It would be a
15 list as long as this room.

16 How many of those do we have
17 toxicology information on? How many of them
18 are in the same state as the two chemicals
19 that we're talking about?

20 So that's really my message. It's
21 a broader issue than just these two chemicals.

22 DR. HOROWITZ: Thank you. Thank

1 you for the comment. Next is John Robinson,
2 KCHD.

3 MR. ROBINSON: Actually I thought
4 that was an attendance sheet so I signed in on
5 the wrong page.

6 (Laughter)

7 MR. ROBINSON: For the record.
8 But thank you.

9 DR. HOROWITZ: Okay. Did you have
10 a comment?

11 MR. ROBINSON: Actually I'm here
12 to ask if there will ever be any studies done
13 on the species that live in the river and how
14 that might affect the environment as well.

15 DR. HOROWITZ: Do you want to
16 speak to that? Environmental impacts?

17 MR. BANKS: I think early on there
18 was an assessment of fish. And there were no
19 fish-kill recorded. And that was early, early
20 on in the investigation. I've not heard of
21 anything subsequent to that, but again, those
22 are areas of expertise that are beyond our

1 scope of our investigation. But those are
2 things that can help to develop really a solid
3 base of information from which folks can learn
4 and grow from.

5 DR. HOROWITZ: There's one that
6 I'm just having trouble with the handwriting
7 so if you don't notice your name called please
8 come up after the other three. And it's just
9 a little hard to decipher here.

10 And then next I think is Vivian
11 Stockman, OVEC.

12 MS. STOCKMAN: Yes, that's
13 Stockman, S-T-O-C-K-M-A-N. OVEC is Ohio
14 Valley Environmental Coalition.

15 Thank you for your investigation
16 here. We definitely need the scrutiny.

17 As the Chairman of the Board noted
18 your investigation so far shows that the self-
19 policing does not work. And it shows that the
20 state government, the DEP is failing to do its
21 job of inspections and enforcement of
22 regulations.

1 I'm struck especially by the
2 statement in the press release from the
3 Chairman which says the accident was a
4 disaster of the highest magnitude, was
5 preventible and must be averted in any other
6 community to prevent disasters in other
7 communities.

8 I think in one case or several
9 cases we're a little too late. I'm thinking
10 of the communities of Rawl, Lick Creek,
11 Merrimac and Sprigg in Mingo County and
12 Prenter in Boone County where waste from coal
13 plants has poisoned the well water. So that's
14 what this MCHM chemical was.

15 And we're finding there's probably
16 dozens if not close to a hundred of different
17 type of chemicals used in the coal prep
18 plants.

19 So I'm just wondering if there is
20 any possibility of a recommendation of another
21 study looking into these plants and what
22 chemicals are used at the plants.

1 And no more proprietary formula
2 secrets. We need to know where the chemicals
3 are stored, how those tanks are investigated,
4 how they're inspected rather at the prep
5 plants.

6 We need monitoring of the effluent
7 coming out of these plants. And I'm just
8 fearful that the MCHM type chemicals have
9 already leached into the waterways and
10 communities in the areas that I've mentioned
11 and elsewhere where there's coal slurry
12 impoundments, underground coal slurry
13 injections and these prep plants.

14 I'm afraid this same type of
15 disaster is unfolding in these areas. So I
16 appreciate it if there's any possibility to
17 extend some sort of investigation to all the
18 chemicals used at those plants.

19 DR. HOROWITZ: Thank you. Next is
20 Chris Hale, Friends of Water.

21 MR. C. HALE: Hello. Chris Hale.
22 And just want to thank you for being here. We

1 need you.

2 To echo a couple of earlier
3 comments with regard to the fees that they're
4 paying their attorneys per month are about
5 roughly \$2,500 more than the OSHA fine to put
6 that number in perspective. And we find that
7 troubling.

8 We do want to thank you here and
9 this comment is more directed toward our
10 regional and state leaders to finally
11 implement the recommendations.

12 The Chemical Safety Board was here
13 in 2008, 2011 and in 2014. And the cycle of
14 carelessness and industrial negligence needs
15 to stop now.

16 And I will too say that I have
17 family members down river in Louisville,
18 Kentucky. So this didn't only affect
19 Cincinnati. They also had to shut off the
20 mains in Louisville. And this is a great
21 concern. Thank you.

22 DR. HOROWITZ: Thank you, Mr.

1 Hale. And the next is Kenneth Hale, NAACP.

2 MR. K. HALE: No relation to Chris
3 that I know of.

4 Historically, Charleston has been
5 known as the chemical capital of the world.
6 And for us in the NAACP it's a concern that
7 environmental justice is not happening in the
8 way that protects its citizens.

9 You've given some figures from
10 your documents and your findings of 10,000
11 gallons being spilled, and the tanks have the
12 capacity of 48,000. And folks can speculate
13 because of the lack of inspections and the
14 lack of reports from Freedom Industries that
15 the amount of spill could have been greater.

16 That's not my concern. That's not
17 what I'm a resident expert on.

18 My concern as far as the NAACP and
19 the citizens of West Virginia, we thank the
20 City of Charleston for using the fire
21 departments as distribution points for those
22 to pick up water.

1 But it seemed to have a lack of
2 concern for those who could least afford to
3 purchase water. And the areas that were
4 mentioned by J.T., Washington Manor, Orchard
5 Manor, Littlepage, South Park, all are located
6 near community centers which could have been
7 used and made available by the city to
8 distribute water to the poor and indigent
9 folks of the City of Charleston.

10 And when you consider the fact
11 that it was a week later or even possibly
12 further that folks were able to get to the
13 water or even -- and even have notice.
14 Because not everybody has a TV or a radio in
15 their home. The indigent folks I'm talking
16 about. So they may not have even known that
17 the water was not even potable.

18 And the concern is we need a plan.
19 And I say "we" West Virginia, City of
20 Charleston needs a plan that takes these
21 things into consideration of how water will be
22 dispersed.

1 And not only the water and what
2 happened with the chemical plant. We have a
3 lot of chemical tanks going up and down our
4 tracks which could easily spill into our water
5 system.

6 So when you're looking at above
7 storage tanks I think you also need to look at
8 another industry and that would be the
9 railroad industry, and how they store their
10 tanks, and what type of things. Because this
11 could happen again and especially in this
12 community.

13 And again, we've got a lot of
14 chemical plants, Monsanto, DuPont, all around
15 here. And again, when you're looking at
16 Freedom Industries I think you need to take a
17 closer look at all the industries around the
18 valley. Thank you.

19 DR. HOROWITZ: Thank you. And is
20 there anyone else in the audience who'd like
21 to comment who hasn't signed up? Yes, sir.

22 MR. PRICE: Yes, I'm Phil Price

1 with Neoteric Associates.

2 My question was relating to the
3 very first slide that mentions two chemical
4 components in the spill. And yet public
5 domain data from Tennessee Eastman and Dow
6 Chemical easily indicates 10 compounds in the
7 spill.

8 My question is has this group
9 actually done LCMS and GCMS analyses to
10 produce accurate qualitative and quantitative
11 analyses of a retained sample of what was
12 actually spilled. Or are we merely taking
13 Freedom's word for it as to what was in the
14 tank?

15 DR. HOROWITZ: Fair question.

16 MR. BANKS: We obtained samples of
17 the MCHM-PPH mixture early on. That
18 information has not been processed in the lab
19 as yet. We are in the process of winding up
20 our information- and data-gathering portion of
21 the investigation.

22 Now we have to make sense of it

1 all. I mean, we go out there and we have a
2 relatively small team of folks that have been
3 assigned to this investigation since January.

4 And the bulk of that has been
5 conducting interviews, photo documenting,
6 getting the metal and the samples.

7 Okay, so now comes the really
8 heart and soul of what we do is making sense
9 of it all. So that's the next step in the
10 process.

11 So we do have samples that we have
12 gathered with our partners at OSHA and the
13 plan is to get the results from that.

14 DR. HOROWITZ: Any others? Yes,
15 ma'am. Or -- either one.

16 MS. LEWIS: My name is Conni
17 Gratop Lewis. For the transcriber, C-O-N-N-I
18 Gratop G-R-A-T-O-P Lewis L-E-W-I-S.

19 Like J.T. and Kenneth I'm here on
20 behalf of the citizens of Charleston. And
21 this, what I have to offer is some guidance
22 for the staff as they move forward.

1 It is not sufficient in studying
2 the health impacts to rely on the Bureau of
3 Public Health or the West Virginia State
4 Health Department. You must talk to the
5 Kanawha Charleston Health Department.

6 There were approximately, the best
7 studies indicate 100,000 of the 300,000 people
8 most impacted who reported -- who had physical
9 symptoms.

10 They may have gone to their
11 individual private doctor. They may have
12 decided they weren't sick enough to report to
13 a hospital emergency room or to a clinic like
14 MedExpress.

15 When the state health department
16 and the CDC commented on the health impacts
17 they were extremely dismissive. In fact, they
18 were insulting to the thousands of citizens
19 who were impacted although perhaps not
20 seriously.

21 DR. HOROWITZ: Thank you. And I
22 believe we are in contact with that health

1 department.

2 MR. BANKS: I was remiss in not
3 mentioning the fact that we have been in close
4 contact with Kanawha County Health Department
5 as well.

6 So it's the whole suite of folks
7 that are looking at this incident. We have
8 had some dialogue with most if not all of
9 them. And we value their input. And so it's
10 multiple sources to get information on this
11 incident.

12 DR. HOROWITZ: Thank you for the
13 comment and clarification. And yes, ma'am, I
14 think you had a comment too.

15 MS. SODARO: My name is Linda
16 Sodaro, L-I-N-D-A S-O-D-A-R-O. I'm a
17 community member who went through this like
18 everybody else.

19 And I noticed that you talked
20 about water coming into the tank and causing
21 corrosion at the bottom of the tank.

22 Did you consider water coming

1 under the tank as Freedom has tried to point
2 the fingers at the airport?

3 MR. BANKS: Yes. We've not ruled
4 anything out. What we do is we gather as much
5 physical evidence as we possibly can and draw
6 conclusions based on that evidence.

7 The evidence based on our
8 observations and input from our tank expert is
9 that the corrosion occurred from within the
10 tank based on the slide that we showed there
11 of the development of two holes and then the
12 gradual lessening of pits that were issuing
13 forth from those first two holes. Which does
14 indicate that there may have been some
15 deformation in the tank floor that allowed
16 water to pool there, which would tend to
17 increase the corrosion.

18 But those are things that we want
19 to make an absolute determination of through
20 our forensic examination of this metal at the
21 lab.

22 So those are things that we hope

1 to really make a really firm declaration on.

2 MS. SODARO: I have another
3 question.

4 DR. HOROWITZ: Go ahead.

5 MS. SODARO: Are you going to be
6 able to determine exactly how long the spill
7 was going on? Because I know for a fact I
8 tasted it in the water in the middle of
9 December. And I thought it was my filter
10 pitcher that needed the filter changed. So I
11 know it was in there before, well before
12 January 9.

13 MR. BANKS: We're in the process
14 of coming back to the site to grab soil
15 samples which will help us to determine the
16 permeability of the soil which kind of
17 indicates the retention characteristics. How
18 readily would material that is leached into
19 that soil migrate out towards the Elk River.

20 So those are things that will help
21 us to determine leak rates and possibly step
22 back and take a look at how long the leak

1 might have occurred.

2 I'm -- not absolute surety at this
3 stage of the game, but if we can determine the
4 amount of retention characteristic in the soil
5 we may be able to make those things available.

6 MS. SODARO: I thank you for being
7 here because living in fear of your water is
8 no way to live. Thank you.

9 DR. HOROWITZ: Thank you. Any
10 others?

11 MS. THOMPSON: Could I just ask
12 Mr. Banks one more question?

13 DR. HOROWITZ: Sure. Can you come
14 up to the microphone?

15 MS. THOMPSON: Mr. Banks, I
16 appreciate you all too, but as I stated
17 earlier, Freedom site indicates they held
18 seven different chemicals, 400,000 gallons.

19 So my question is will you check
20 all the tanks for holes? And be sure that
21 none of the other seven, because you had three
22 you checked, aren't leaking.

1 And if so, will you do that and
2 then we have even more on our mind that
3 there's other chemicals that actually came out
4 of those? Because all the tanks were leaking.
5 Will you do that? I mean, I don't know. I
6 hope you do.

7 MR. BANKS: We have not done that
8 and there are no plans to do that.

9 What we do is we're looking for a
10 root cause for this event which was the
11 release of a significant amount of MCHM and
12 PPH into the Elk River that impacted 300,000
13 people.

14 We -- if there were indications
15 that there were other chemicals in the water
16 that were detected obviously we would look at
17 those other tanks.

18 But we have limited resources and
19 so what we've done is to wrap our arms around
20 what we see is clearly the source of the
21 problem.

22 And we don't rule out the

1 possibility of other things but we're not
2 seeing any other constituents that were
3 involved.

4 Now, if we were to see that there
5 are some tanks there that are marked glycerin,
6 for instance. If we were to see that there
7 was a pronounced quantity or concentration of
8 glycerin in the water then we would look at
9 those tanks as well.

10 DR. HOROWITZ: Any others? Yes,
11 sir. Come back.

12 MR. K. HALE: I know this is
13 turning into a discussion now because one of
14 our concerns was not just the chemical spill
15 but what type of impact to the intake system
16 to West Virginia water would these chemicals
17 have on its filtering system, you know, things
18 of that nature.

19 So what I'm concerned is our
20 drinking water, our potable water. So I mean,
21 it was two or three months later before this
22 oh, we need to change our filters at West

1 Virginia American Water.

2 Maybe the spill had been stopped
3 but the water intake process and what was
4 being distributed to the community could still
5 be unsafe if these chemicals, MCHM and PPH
6 could affect or get into the water system
7 itself.

8 So there's still some questions
9 about West Virginia American Water, whether
10 they're taking all due diligence in relieving
11 us. Because again, they won't -- in
12 Charleston still feel unsafe to drink the
13 water.

14 And then creating a second intake
15 system from another water source. You know,
16 those questions have been asked.

17 So whatever information you all
18 come out I think needs to go to the Public
19 Service Commission in your report to indicate
20 whether West Virginia American Water has done
21 its due diligence.

22 DR. HOROWITZ: Any others? I

1 think that's it, Mr. Chair.

2 CHAIRPERSON MOURE-ERASO: Thank
3 you, Dr. Horowitz.

4 I would like to thank all of you
5 here in the room for your attendance at this
6 public meeting. And I also would like to
7 thank the CSB team that is sitting here in the
8 front for their dedication to both of these
9 two projects.

10 I also want to mention my fellow
11 Board Member Mark Griffon for his comments
12 here today.

13 And all of us share a strong
14 interest in preventing these tragic explosions
15 and chemical releases in the future.

16 I also would like to reiterate my
17 recognition and thanks to Senator Rockefeller
18 for his consistent support for -- to obtain
19 for the agency the necessary resources to
20 conduct our mission.

21 Moving forward with our Freedom
22 Industries investigation we will all be

1 working together with the staff to see that
2 the important recommendations are developed to
3 prevent future accidents that affect the
4 health and safety of local residents and
5 businesses and their implications for the
6 nation.

7 I would again like to thank all of
8 you today and to the audience and the staff.

9 With that this meeting is
10 adjourned.

11 (Whereupon, the above-entitled
12 matter went off the record at 2:34 p.m.)

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