

UNITED STATES CHEMICAL SAFETY  
AND HAZARD INVESTIGATION BOARD

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PUBLIC MEETING

+ + + + +

WEDNESDAY,

NOVEMBER 20, 2002

+ + + + +

The meeting came was held in Suite 400,  
2175 K Street, N.W. Washington, D.C., at 9:30 a.m.,  
Carolyn Merritt, Chairperson, presiding.

PRESENT:

CAROLYN MERRITT, Chairperson

IRV ROSENTHAL, Ph.D., Member

JOHN BRESLAND, Member

GERALD POJE, Ph.D., Member

ANDREA K. TAYLOR, Ph.D., Member

CHRIS WARNER, ESQ., General Counsel

CHARLES JEFFRESS, Chief Operating Officer

LISA LONG, Chemical Incident Investigator

MIKE MORRIS, Chemical Incident Investigator

STEPHEN WALLACE, Chemical Incident

Investigator

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P-R-O-C-E-E-D-I-N-G-S

(10:00 a.m.)

CHAIRPERSON MERRITT: Good morning, and welcome, everyone.

On behalf of the U.S. Chemical Safety and Hazard Investigation Board, I welcome you here today to our Board meeting, which is being held in Washington, D.C., and we are Web casting live, and we welcome all of those who are joining us on the Internet at [www.csb.gov](http://www.csb.gov).

And with that I'd like to officially open the meeting, and as you may know or may not know, I'm Carolyn Merritt, and I'm the CEO and Chair of the Chemical Safety Board.

The other Board members here today are Dr. Andrea Kidd Taylor, Dr. Gerry Poje, John Bresland, and Dr. Irv Rosenthal.

Also with us this morning is Chris Warner, our General Counsel, and Charles Jeffress, who's our Chief Operating Officer.

In my short time here at the agency, I've been pleased to find that everyone here at CSB, Board and staff alike, share a common purpose: to conduct high quality incident investigations and hazards investigations, and to identify root and

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1 contributing causes for incidents or potential  
2 hazards.

3 We develop recommendations to various  
4 entities who have the authority, responsibility, and  
5 resources to prevent recurrence or occurrence of  
6 chemical releases and accidents in the chemical  
7 industry.

8 The agency staff and Board alike worked  
9 with those entities in a timely and effective  
10 implementation of recommendations, believing that  
11 they ultimately will prevent chemical releases and  
12 incidents and save lives of the workers and public,  
13 and to protect the environment and public interest.

14 This has been a very busy time for us in  
15 the last several months. We have several  
16 investigations that are currently underway and  
17 several that are nearing completion.

18 We're particularly focused on the Board  
19 recommendations following the chemical reactive  
20 hazard investigation report, which was presented in  
21 Houston in September. We're pleased with the spirit  
22 of cooperation and support that we found with those  
23 that we talked to in various industries and  
24 organizations about these recommendations.

25 Today's report from the staff further

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1 identifies the impact that inadvertent and  
2 uncontrolled chemical reactions can have in the  
3 industrial chemical work place.

4 We're here today to consider the CSB  
5 staff report on a tragic accident last January 16th.

6 Two workers contracted to do maintenance in the  
7 Georgia Pacific Naheola Mill in Alabama were killed  
8 when they were exposed to a cloud of hydrogen  
9 sulfide gas that had escaped from a process sewer  
10 during a sodium hydrosulfide unloading operation.  
11 Eight others were injured either directly or during  
12 rescue attempts.

13 Some of those who were injured were  
14 paramedics, who responded to the call from the mill.

15 We asked the Agency for Toxic Substance and Disease  
16 Control Registry to partner with us in this  
17 investigation to determine if the information that  
18 was published for emergency responders in incidents  
19 involving hydrogen sulfide was adequate to protect  
20 the responders from exposure, and we thanked them  
21 for their assistance and their contribution to this  
22 investigation and to this report.

23 This accident provides another example  
24 of the consequences of an uncontrolled,  
25 unanticipated chemical reaction, this time in a

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1 sewer system connected to waste treatment  
2 facilities.

3           The Naheola paper mill where this  
4 accident occurred had been purchased by Georgia  
5 Pacific only two years ago. Companies inherit  
6 certain problems when they purchase facilities  
7 operated by others who might not have the same  
8 standards as they do. This incident brings focus to  
9 the considerable attention that purchasing companies  
10 need to take to evaluate past practices and  
11 recognize potential hazards that might exist.

12           This incident also raises awareness that  
13 process chemicals that are considered low hazard,  
14 such as sodium hydrosulfide, does not mean no  
15 hazard chemical. Accidents like this happen when  
16 people become complacent and forget that any  
17 chemical mishandled can create a hazard with  
18 terrible consequences.

19           Frequent hazard evaluation of processes  
20 is the best defense against such consequences. This  
21 is good business, and it's good engineering  
22 practice, whether it's voluntary or required by law.

23           Corporate management mirrors the  
24 questions that the Chemical Safety Board asks in its  
25 investigations as they investigate a tragedy that

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1 has occurred on their watch, and that's how could  
2 this have been prevented.

3 My message today is don't wait for a  
4 tragedy to occur and for the investigation from the  
5 Chemical Safety Board or its formal recommendations  
6 to take action. Be proactive, predictive, and  
7 preventive.

8 With that, let me say again welcome.  
9 Following the staff presentation, we'll open the  
10 floor to the Board for questions and then to the  
11 public for comment. We'll ask that those comments  
12 be limited to three minutes, please.

13 With that, I'd like to ask Charles  
14 Jeffress to introduce the staff investigators and  
15 recommendation specialists who present their work to  
16 us this morning.

17 Charles.

18 MR. JEFFRESS: Thank you, Madame  
19 Chairman.

20 In the course of making an incident  
21 investigation, the agency dispatches a team of  
22 investigators to the field where the incident occurs  
23 to do the on-site work in the field, looking at what  
24 happened, interviewing witnesses, collecting  
25 evidence.

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1                   That team then returns to further  
2 research, sometimes further interviews, sometimes  
3 has to return back to the field, and develops their  
4 report.

5                   In the course of that analysis and  
6 research, a recommendation specialist joins the team  
7 to look at what recommendations might be made to  
8 prevent the occurrence of such an incident in the  
9 future.

10                  Two members of the team who did the  
11 field work will be reporting today. Lisa Long is  
12 the lead on the team. Mike Morris will be assisting  
13 her, and Steve Wallace, who joined the team as a  
14 recommendation specialist, will also be  
15 participating in the report.

16                  And now I'll turn it over to Lisa to  
17 begin the report.

18                  MS. LONG: Good morning.

19                  PARTICIPANTS: Good morning.

20                  MS. LONG: On January 16th, 2002, an  
21 incident occurred at the Georgia Pacific Naheola  
22 Mill in Pennington, Alabama. As Charles said, the  
23 Chemical Safety Board sent a field to the team to  
24 investigate this incident. The team consisted of  
25 Mike Morris, myself, and John Murphy. We were

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1 assisted in the field by the Agency for Toxic  
2 Substances and Disease Registry, or ATSDR.

3 ATSDR provided assistance in examining  
4 medical and emergency response issues. Steve  
5 Wallace later assisted the team with  
6 recommendations.

7 Today Mike, Steve, and I will present  
8 the results of this investigation, including  
9 recommendations, to the Board.

10 On January 16th, 2002, hydrogen sulfide  
11 gas generated in a sewer leaked from a gap in the  
12 seal of a manway or a covered opening in the sewer  
13 at the Georgia Pacific Naheola Mill in Pennington,  
14 Alabama. Several people working near the manway  
15 were exposed to the gas.

16 Two contractors from Burkes  
17 Construction, Incorporated were killed. Seven  
18 employees of Burkes Construction and one employee of  
19 Davison Transport, Incorporated were injures. Six  
20 Choctaw County paramedics who transported the  
21 victims to the hospitals reported symptoms  
22 consistent with hydrogen sulfide exposure.

23 The hydrogen sulfide released was  
24 evolved from a reaction of sodium hydrosulfide and  
25 sulfuric acid in a process sewer.

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1           This incident is a reactive chemical  
2 incident as defined in the CSB's reactive chemical  
3 hazard investigation.

4           To give you a little bit of background  
5 on the mill, the mill began operating in 1958 as the  
6 Marathon Southern Division of the American Can  
7 Company. It was acquired in 1982 by the James River  
8 Corporation, and in 1997, James River merged with  
9 Fort Howard Corporation to form Fort James  
10 Corporation.

11           Georgia Pacific acquired Fort James in  
12 November 2000, and the mill now operates as Fort  
13 James Operating Company, a fully owned subsidiary of  
14 Georgia Pacific.

15           This incident took place in January  
16 2002. However, some of the events that led up to  
17 the incident took place throughout the 1990s, and  
18 when we describe this history, we will not  
19 necessarily differentiate between the different  
20 owners of the Naheola Mill.

21           The Naheola Mill uses the Kraft process  
22 to produce pulp. Pulp is a material derived from  
23 wood chips. It is the main raw material in making  
24 paper.

25           In this process, a mixture of chemicals

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1 called the pulping liquor is used to treat wood  
2 chips that will be processed into pulp. The pulping  
3 liquor is made of sodium hydroxide and sodium  
4 sulfide.

5 This pulping liquor is recycled through  
6 the process and occasionally fresh chemicals are  
7 added to the liquor in order to maintain a proper  
8 liquor chemistry.

9 Sodium hydrosulfide, or NaSH, which was  
10 involved in this incident, was one of these make-up  
11 chemicals.

12 I'm going to turn it over to Mike now,  
13 and he's going to go through the incident scenario.

14 MR. MORRIS: Thank you, Lisa.

15 Good morning, Board members.

16 PARTICIPANTS: Good morning.

17 MR. MORRIS: Before I present the  
18 incident description, I want to give you some detail  
19 on the critical elements that are involved to help  
20 you understand all of the factors contributing to  
21 this incident.

22 First, I'd like to show you a photograph  
23 of the area where the incident occurred and also  
24 direct your attention to the drawing.

25 This is an overall drawing of the area

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1 of the incident. This is the truck unloading area.

2 This is the NaSH truck, as you can see on the  
3 drawing. This area is a concrete containment pad  
4 that has sloped towards this collection drain. This  
5 is a collection drain on the photograph.

6 The NaSH pump. Also this area here is  
7 referred to as the oil pit or where the pump sits.  
8 It's in this area. Also you can see for reference  
9 the railroad tracks running in this direction.

10 Now a little bit about the sewer system  
11 in the Naheola Mill. The mill contains a network of  
12 sewers that collect waste. The acid sewer is one of  
13 these process sewers. All of the sewers empty into  
14 what is referred to as a mixing basin. As you can  
15 see on the drawing, all of the various mill streams  
16 come and mix together in the mixing basin.

17 PH of the mill effluent is monitored at  
18 the lift station and is maintained within a certain  
19 range. Six to nine pH is the range that maximizes  
20 the biological treatment to process the waste.

21 The overall pH of the effluent is  
22 affected by operations in various areas of the mill.

23 If the pH is low, caustic is added at the lift  
24 station. Now, if the pH is high, sulfuric acid is  
25 added. The acid is added manually in a process

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1 sewer line commonly referred to as the acid sewer,  
2 and this acid sewer originates in the area where the  
3 acid tank is located.

4 This is referred to as the acid sewer,  
5 the acid addition. I'd also note that truck  
6 unloading tie-in to the acid sewer.

7 Following treatment in the waste water  
8 treatment plan, the waste streams are discharged  
9 into the Tombigbee River.

10 This is a photo of the sulfuric acid  
11 addition. This addition was a simple operation.  
12 The waste water treatment operators would radio the  
13 chemical area operators and tell them they need acid  
14 to bring the pH into an acceptable range at the  
15 waste water treatment plant.

16 The valve here would be opened and acid  
17 would flow into the sewer and run down the acid  
18 sewer into the waste water treatment plant and have  
19 an effect on the pH there.

20 A little bit about the NaSH unloading  
21 area. As Lisa described earlier, sodium  
22 hydrosulfide, or NaSH, is used in the mill's pulping  
23 process. When the NaSH supply is depleted, a  
24 campaign is initiated and NaSH is brought in by tank  
25 truck. The mill may go several months without

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1 bringing in NaSH and then bring several tank trucks  
2 in in a short amount of time to replenish the  
3 supply.

4 NaSH is delivered to an unloading  
5 station located between the chemical area and the  
6 waste water treatment area. Fuel oil and caustic  
7 are unloaded at the same station.

8 The unloading station is located, again,  
9 on a large concrete pad which slopes to the  
10 collection drain, and the oil pit contains the NaSH  
11 pump and other pumps that are used in the area.

12 The process piping of various unloading  
13 pumps are located in the shallow, curved containment  
14 area directly beside the pad and collection drain,  
15 again referred to as the oil pit. At its deepest  
16 point, the oil pit is 20 inches deep.

17 And I refer you to the drawing again.  
18 Here you can see the NaSH truck, the collection  
19 drain. This is the NaSH unloading pump which is  
20 sitting down in the oil pit on a concrete pad.

21 Again, the oil pit. This is from a  
22 different angle in the collection drain. This was  
23 where the truck was sitting, in this area.

24 Now, the oil pit collects rainwater,  
25 condensate, and chemicals from the various unloading

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1 stations. The drain valve, drain valve one, and  
2 also on the drawing there's drain valve one. On the  
3 pit it was kept closed and chain locked due to  
4 concerns about sending oil to the effluent system,  
5 the waste water treatment plant.

6 Operators inspected the oil pit  
7 periodically, and if no oil was present, they would  
8 unlock valve one and drain the oil pit to the acid  
9 sewer, which made its way to the waste water  
10 treatment plant.

11 Now, at the time of the incident the  
12 mill was replenishing the NaSH inventory. Fifteen  
13 tank trucks had been unloaded in the previous 24  
14 hours, and the 16th was being prepared for  
15 unloading.

16 Witnesses stated that it was typical for  
17 a small amount of NaSH, and it would progressively  
18 get worse as the campaign went on, but witnesses  
19 stated that five gallons per truck may spill or leak  
20 to the oil pit during normal tank truck unloading of  
21 the sodium hydrosulfide from the unloading pump and  
22 through the flushing of the lines.

23 Just a note. The lock on valve number  
24 three was placed there after the incident, and  
25 again, valve three and valve two were usually open,

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1 which allowed the collection drain to flow to the  
2 acid sewer.

3 The fiberglass manway, again, this is  
4 the area where the incident occurred from a  
5 different angle. This area of the mill was usually  
6 unoccupied by workers.

7 Here is the fiberglass manway that is  
8 referred to.

9 Persons interviewed described prior  
10 leaks of a greenish-yellowish gas, most likely  
11 chlorine dioxide from this manway. No leaks of  
12 hydrogen sulfide had been reported from this area,  
13 though keep in mind hydrogen sulfide is an invisible  
14 gas.

15 Usually after these reported leaks a  
16 work order would be written, and maintenance at the  
17 mill would reapply sealant on the manway cover.

18 Burkes Construction, Incorporated was  
19 the routine contractor with the Naheola Mill and had  
20 been. The project that was underway during the  
21 incident was replacement of the support structures  
22 for the overhead pipe rack. This is the overhead  
23 pipe rack.

24 You can see in the picture the support  
25 structures that support the overhead pipe rack

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1 needed to be reinforced stronger because of piping  
2 that had been added.

3 Now, the incident description. On  
4 January 16th, 2002, at the national unloading  
5 station inside the Naheola Mill, the pH in the waste  
6 water was running high. So acid was being added  
7 continuously to try and reach the desired pH in the  
8 lift station.

9 Meantime, for the pulp operation,  
10 Davison Trucking had delivered 15 trucks of NaSH  
11 over the last 24 hours. Also in the area was the  
12 Burkes construction crew, which was working on the  
13 support structures for the overhead pipe rack  
14 project.

15 Now, at approximately 3:15 p.m., the  
16 Burkes workers were gathering around after break in  
17 the work area. Now, their work required them to  
18 work in and around the oil pit. The pit at this  
19 time was full of liquid consisting mainly of  
20 rainwater, condensate, and an undeterminable amount  
21 of NaSH.

22 A mill operator was asked if he could  
23 drain the liquid to allow them access to their work.

24 The operator, after checking for oil and found  
25 none, opened the valve number one, which allowed the

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1 oil pit to drain to the acid sewer.

2 NaSH that had collected in the oil  
3 contacted the sulfuric acid already present in the  
4 acid sewer, and as a result, a chemical reaction  
5 occurred creating deadly hydrogen sulfide gas, which  
6 leaked through the seal on the fiberglass manway.

7 Two Burkes employees in the immediate  
8 area of the manway were killed almost instantly as  
9 they breathed the gas. Seven other Burkes employees  
10 suffered serious injuries from their exposure, as  
11 well as a Davison truck driver who suffered a  
12 laceration on his head after collapsing from  
13 exposure to the H<sub>2</sub>S cloud.

14 Three of the works' employees compounded  
15 their injuries -- their exposures as they assisted  
16 their co-workers and dragged them to safety.

17 In minutes, the plant ambulance arrived  
18 and took the three most critical victims to the mill  
19 first aid station. The other injured were taken to  
20 the mill first aid station in pickup trucks. None  
21 of the victims were decontaminated either at the  
22 scene or at the first aid station.

23 Soon after the victims were transported,  
24 the incident commander and the Georgia Pacific  
25 emergency response team arrived at the scene. They

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1 set up zones and initiated a search and rescue, as  
2 well as setting up air monitoring in the area.

3 Four Choctaw County ambulances were  
4 called to the scene. Three of the four transported  
5 the most critical patients to two hospitals, each  
6 located in Meridian, Mississippi, over 45 minutes  
7 away, and the four stayed at the scene.

8 All three ambulance crews reported a  
9 strong odor in the ambulance base. One crew removed  
10 their patient's clothes and double bagged them, and  
11 the other two crews continued life support treatment  
12 on their patients, though performed no  
13 decontamination.

14 From this confined exposure, the  
15 paramedics reported experiencing headaches and  
16 nausea, and were checked out and released by the  
17 hospital personnel.

18 The Agency for Toxic Substances and  
19 Disease Registry, ATSDR, publishes medical  
20 management guidelines. These MMGs were designed for  
21 emergency personnel. However, the responders were  
22 not aware of these at the time of the incident.

23 The MMGs on hydrogen sulfide exposure  
24 state that responders are not a risk when they  
25 assist a victim of H<sub>2</sub>S gas exposure. Through

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1 ATSDR's assistance in this investigation, they have  
2 concluded that exposure to high levels of H<sub>2</sub>S,  
3 typically greater than 500 parts per million, may  
4 result in the responder being adversely affected in  
5 confined spaces.

6 Now, Lisa will explain the root and  
7 contributing causes.

8 MS. LONG: Just a little more  
9 background. The sewer line from the oil pit and  
10 tank truck unloading area to the acid sewer was  
11 installed as part of a project to direct water from  
12 various storage tank pits to a process sewer, in  
13 this case the acid sewer. This work was completed  
14 in 1995 when the mill was owned by James River.

15 As root cause number one, the staff  
16 found that good engineering and safety practices  
17 were not followed when joining the drain from the  
18 truck unloading area and the oil pit to the acid  
19 sewer.

20 The CSB did not find any procedures  
21 which described the engineering process used during  
22 capital projects. Through employee interviews and  
23 document reviews, we determined that neither the  
24 chemicals that could be introduced into the acid  
25 sewer nor the hazards of their interactions were

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1 identified.

2           Additionally, no formal hazard review or  
3 management of change analysis was conducted. As a  
4 result, scenarios leading to the possible release of  
5 hydrogen sulfide were not identified.

6           If the Naheola Mill had identified that  
7 NaSH could be introduced into the acid sewer and  
8 reviewed the hazards associated with allowing NaSH  
9 to mix with acid, it is likely that they would have  
10 either routed this drainage to a safer location or  
11 taken precautions to mitigate the hazard of hydrogen  
12 sulfide evolution, including installing warning  
13 devices.

14           The staff also concluded at the second  
15 root cause that there was no management system to  
16 incorporate hazard warnings about mixing NaSH with  
17 acid into process safety information. The MSDS  
18 provided by the manufacturer included warnings that  
19 NaSH will react with acids to form toxic hydrogen  
20 sulfide gas.

21           However, information specifying the  
22 hazard of mixing NaSH with acid was not incorporated  
23 into the design of projects involving NaSH., In  
24 other words, there was no system in place to insure  
25 that engineers working on projects, such as the

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1 connection of the oil pit drain to the acid sewer,  
2 understood the hazards of the chemicals present in  
3 that area.

4 Additionally, operating procedures did  
5 not warn of the hazards of mixing NaSH with acids or  
6 the hazards of allowing NaSH to enter sewers as they  
7 were often acidic. Mill personnel were not trained  
8 on the specific hazards of NaSH, such as handling  
9 spilled material or keeping it separate from acid.

10 If the hazards of NaSH were incorporated  
11 into the mill system, such as design procedures,  
12 operating procedures, and training, it is likely  
13 that the hazard of mixing NaSH with acid would have  
14 been better understood and avoided or mitigated.

15 A contributing cause of this incident  
16 was that the fiberglass manway was not adequately  
17 designed or sealed to insure that the sewer remained  
18 closed.

19 The manway was originally an open grate,  
20 and eventual modifications resulted in the  
21 fiberglass manway that you saw in earlier pictures.

22 The mill had had difficulty in the past in insuring  
23 that this manway remained sealed. If it had been  
24 adequately sealed, then the hydrogen sulfide  
25 generated in the acid sewer would not have reached

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1 the personnel working in that area on the day of the  
2 incident.

3 Those interviewed recalled prior  
4 occasions when chlorine dioxide, a toxic gas  
5 noticeable because of its greenish-yellow color,  
6 escaped from the fiberglass manway. These incidents  
7 were not reported or investigated. If they had been  
8 investigated, mill personnel may have discovered  
9 that the design of this manway and seal were not  
10 adequate to insure that the sewer remained closed,  
11 remained sealed to contain toxic gases.

12 We also found as a contributing cause  
13 that the contractors injured during the incident did  
14 not have adequate training to understand the hazards  
15 of hydrogen sulfide. The Burkes employees injured  
16 during this incident had only a basic awareness of  
17 hydrogen sulfide. They understood that it was a  
18 dangerous gas that had a rotten egg odor. They did  
19 not have detailed training on emergency response and  
20 rescue when hydrogen sulfide was present.

21 Hydrogen sulfide training should include  
22 specific instructions on the importance of  
23 protecting oneself prior to attempting rescue. If  
24 the Burkes employees had had this more detailed  
25 training, it is likely that they would have

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1 understood the danger that they were putting  
2 themselves in by attempting to assist their co-  
3 workers.

4 Those are our root and contributing  
5 causes. Steve Wallace is going to present the  
6 recommendations.

7 MR. WALLACE: Thank you, Lisa.

8 Good morning. Consistent with the  
9 mission of the CSB to investigate incidents and make  
10 recommendations to prevent occurrence of similar  
11 incidents in the future, CSB has developed a package  
12 of recommendations based on the findings from the  
13 Georgia Pacific investigation.

14 We would like to note that these  
15 recommendations go to a variety of recipients that  
16 address deficiencies found in programs, procedures,  
17 and response guidance.

18 In developing these recommendations, we  
19 researched these issues, which included speaking  
20 with people who were familiar with the pulp and  
21 paper industry.

22 Based on the findings of the Georgia  
23 Pacific investigation, we would like to recommend to  
24 Georgia Pacific Corporation that they conduct  
25 periodic safety audits of Georgia Pacific pulp and

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1 paper mills in light of the findings of this report.

2 At a minimum, insure that management systems are in  
3 place at the mills to do the following, and we have  
4 three bullet points associated with this  
5 recommendation.

6 Insure that management systems are in  
7 place to evaluate process sewers where chemicals may  
8 collect and interact, and identify potential  
9 hazardous reaction scenarios to determine if  
10 safeguards are in place to decrease the likelihood  
11 or consequences of such interactions.

12 Take into account sewer system  
13 connections and the ability to prevent inadvertent  
14 mixing of materials that could react to create a  
15 hazardous condition.

16 Also, insure that management systems are  
17 in place to identify areas of the mill where  
18 hydrogen sulfide could be present or generated, as  
19 it was in this case, and institute safeguards,  
20 including warning devices, to limit personnel  
21 exposure.

22 Require that personnel working in the  
23 area are trained to recognize the presence of H<sub>2</sub>S  
24 and to respond appropriately.

25 Also, update emergency response plans

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1 for such areas, to include procedures for  
2 decontaminating personnel exposed to toxic gas.

3 And finally, insure that systems are in  
4 place to apply good engineering and process safety  
5 principles to process sewer systems. For instance,  
6 insure that hazard reviews and management of change  
7 analyses are conducted when additions or changes are  
8 made where chemicals could collect and react in  
9 process sewers.

10 And we would like to note that such  
11 principles may be found in publications from the  
12 Center for Chemical Process Safety.

13 As Madame Chair noted in the beginning,  
14 hazards may be inherited, but we feel that it would  
15 be prudent for the Georgia Pacific Corporation to  
16 survey the mills that they do have in their control  
17 to insure there are management systems to address  
18 these issues.

19 Our final recommendation to the  
20 corporation, in the spirit of broadly communicating  
21 the potential for this kind of event, we would like  
22 to recommend the Georgia Pacific Corporation  
23 communicate the findings and recommendations of this  
24 report to the work force and contractors at all  
25 Georgia Pacific pulp and paper mills.

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1                   Our next set of recommendations goes  
2 specifically to the Georgia Pacific Naheola Mill  
3 where the incident occurred.

4                   We would like to recommend that the  
5 Georgia Pacific Naheola Mill evaluate mill process  
6 sewer systems where chemicals may collect and react  
7 to identify potential hazardous reaction scenarios  
8 to determine if safeguards are in place to decrease  
9 the likelihood or consequences of such interactions.

10                  Evaluate sewer connections and insure  
11 that materials that could react to create a  
12 hazardous condition are not inadvertently mixed, and  
13 that adequate mitigation measures are in place if  
14 such inadvertent mixing does occur.

15                  Also, we would like to recommend that  
16 the Naheola Mill establish programs to comply with  
17 recommendations from manufacturers of hydrogen  
18 sulfide, or NaSH, regarding its handling, such as  
19 preventing it from entering sewers because of the  
20 potential for acidic conditions which can then lead  
21 to the evolution of hydrogen sulfide gas, as we  
22 heard was the case in this incident.

23                  To address the cause of the design of  
24 the manway, we would like to recommend that the  
25 Georgia Pacific Naheola Mill establish programs to

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1 require the proper design and maintenance of manway  
2 seals on closed sewers where hazardous materials are  
3 present.

4 We would also like to recommend that the  
5 Naheola Mill identify areas of the plant where  
6 hydrogen sulfide could be present or generated and  
7 institute safeguards, including warning devices to  
8 limit personnel exposure.

9 Institute a plan and procedures for  
10 dealing with potential H<sub>2</sub>S releases in these areas  
11 and require that anyone who may be present is  
12 adequately trained on appropriate emergency response  
13 practices, including attempting rescue.

14 And I'd like to note that some of our  
15 recommendations address deficiencies in H<sub>2</sub>S  
16 training. There are a number of different aspects  
17 to this training, including frequency,  
18 qualifications of the instructors, identification of  
19 the material, rescue techniques, et cetera.

20 We didn't delineate all of the specifics  
21 in our recommendation, but I would like to point out  
22 that there are two references that show up in the  
23 reference section of our report both from NIOSH and  
24 from ANSI on the specifics of a good training  
25 program.

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1           But we did want to specifically call out  
2 the issue of attempting rescue.

3           We would also like to recommend that the  
4 Naheola Mill require contractors working in these  
5 areas, those areas that have been identified where  
6 H<sub>2</sub>S could be present or generated, to train their  
7 employees on the specific hazards of H<sub>2</sub>S, including  
8 appropriate emergency response practices.

9           We'd also like to recommend that the  
10 Naheola Mill update the Naheola Mill emergency  
11 response plan to include procedures for  
12 decontaminating personnel who are brought to the  
13 first aid station. Include specific instructions  
14 for decontaminating personnel exposed to H<sub>2</sub>S so that  
15 they do not pose a secondary exposure threat to  
16 medical personnel, realizing that individuals who  
17 are exposed to toxic gas may not have any visible  
18 signs of contamination on their clothing.

19           To address the issue of guidelines in  
20 decontamination, we would like to recommend to the  
21 Agency for Toxic Substances and Disease Registry,  
22 the ATSDR, that they evaluate and amend, as  
23 necessary, the ATSDR medical management guidelines  
24 to consider the risk to responders posed by exposure  
25 to victims of high levels of hydrogen sulfide gas.

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1 Specify procedures for adequate  
2 decontamination and communicate the results of this  
3 activity to relevant organizations, such as the  
4 American Association of Occupational Health Nurses.

5 I would like to note that the American  
6 Association of Occupational Health Nurses represents  
7 a number of nurses who work in the chemical  
8 industry. That's why we felt it was prudent to  
9 communicate the results of this activity to that  
10 organization in particular.

11 In conjunction with our recommendation  
12 to the mill and to Georgia Pacific that they require  
13 contractors to do training, we would like to  
14 specifically recommend to Burkes Construction,  
15 Incorporated that they train their employees on the  
16 specific hazards of hydrogen sulfide, including  
17 appropriate emergency response practices in areas  
18 where Georgia Pacific has identified this material  
19 as a hazard.

20 And to educate truck drivers on the  
21 potential for this incident, we would like to make a  
22 recommendation to Davison Transport, Incorporated,  
23 to communicate the findings and recommendations of  
24 this report to those employees who haul or handle  
25 sodium hydrosulfide, recognizing that they must work

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1 in conjunction with people at the host site when  
2 releases do occur. We think it would be prudent to  
3 communicate the findings of this report to those  
4 individuals.

5 And along those same lines, as is our  
6 custom to facilitate broad communication of our  
7 incidents, we would like to recommend to the  
8 following organizations: the American Forest and  
9 Paper Association, the International Brotherhood of  
10 Electrical Workers who were represented at the mill,  
11 the Paper Allied Industrial, Chemical and Energy  
12 Workers International Unit who also had employees at  
13 the mill, and the Pulp and Paper Safety Association;  
14 that they communicate the findings and  
15 recommendations of this report to their membership.

16 Board members, this completes the  
17 package of recommendations that we are proposing at  
18 this time, as well as the presentation. The team  
19 and myself will be glad to entertain any questions  
20 that you may have.

21 CHAIRPERSON MERRITT: Okay. At this  
22 time I'd like to open the floor to board members for  
23 any questions that you may have.

24 Dr. Taylor.

25 DR. TAYLOR: Yes, I have a couple that I

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1 will start off with.

2           You mentioned that one of the drivers  
3 had to be transported, one of the truck drivers  
4 carrying the NaSH had to be transported to the  
5 hospital. The question that I have for you is: is  
6 there any training of the truck drivers on the  
7 hazards of NaSH and potential problems associated  
8 with loading and unloading such a chemical at the  
9 facility?

10           MR. MORRIS: The Davison truck drivers  
11 were certified hazardous material transporters.  
12 They were trained in the MSDSes of the chemicals  
13 that they carry. Other than that, we don't have any  
14 information for the specifics.

15           DR. TAYLOR: Okay. And then my second  
16 question is also related to the NaSH unloading.  
17 Since NaSH and other chemicals have been unloaded in  
18 huge quantities at this facility in the past, do you  
19 have any information on whether there is a record of  
20 a similar incident perhaps with the hazardous  
21 release of the hydrogen sulfide gas, but no deaths  
22 or injuries occurring previously to the one that we  
23 had this time with two deaths?

24           MR. MORRIS: I'll take that one, too.

25           There have been reports of previous

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1 leaks of chlorine dioxide from this manway. There  
2 were no written reports of those releases. Hydrogen  
3 sulfide, there were no written records of anybody  
4 ever being exposed to hydrogen sulfide at the plant,  
5 and there were no anecdotal --

6 DR. TAYLOR: Like hazardous and toxic  
7 releases?

8 MR. MORRIS: -- evidence of that either.

9 DR. TAYLOR: Okay. That's all for now.  
10 I'll come back.

11 CHAIRPERSON MERRITT: Okay. Thank you.

12 Dr. Poje?

13 DR. POJE: Yes. Let me just say I'm  
14 thankful for all of you for the presentation today,  
15 but I also was the Board member in the field at the  
16 Pennington incident and want to salute, in  
17 particular, Lisa and Mike and also John Murphy for  
18 the work there and also thank those who worked with  
19 us to provide the information that allowed us to put  
20 this scenario together.

21 I think this is an extremely important  
22 incident and one that hopefully can provide valuable  
23 lessons to a large community on how to prevent such  
24 tragedies from occurring in the future.

25 I'd like to ask a couple of questions

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1 about the sodium hydrosulfide because I think this  
2 is also a concern not just in the paper industry,  
3 but the larger community of those handling this  
4 material.

5 CHAIRPERSON MERRITT: Excuse me, Jerry.

6 Could you speak into your microphone? We're being  
7 told that it is not transmitting.

8 DR. POJE: Okay. Can you give me some  
9 idea of what kind of steps should NaSH users take in  
10 avoiding spills of this material, given its  
11 propensity to react under acidic conditions to  
12 release hydrogen sulfide gas?

13 MS. LONG: Well, certainly they should  
14 take precautions to avoid spilling NaSH, but if  
15 there is some material spilled, which is likely in  
16 the truck unloading process, they should avoid  
17 storing it around other acids and avoid getting into  
18 sewers where they may not know what's present  
19 because sewers are often acidic, and even a weak  
20 acid can react with sodium hydrosulfide to form H<sub>2</sub>S.

21 DR. POJE: I know you've obviously  
22 focused very tightly on this particular incident.  
23 Did you have any opportunity to look at other paper  
24 mills and how they treat NaSH unloading areas as  
25 high risk for hydrogen sulfide releases?

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1 MR. WALLACE: We did speak to some  
2 people in the paper industry as far as their  
3 handling practices, as well as manufacturers, and  
4 what we found is that some manufacturers actually do  
5 send their NaSH to sewers. However, those are  
6 dedicated sewers in which they know exactly what is  
7 present.

8 DR. POJE: So, in other words, there's a  
9 greater degree of forethought had in the way of  
10 approaching a sewer situation than perhaps was  
11 exhibited here?

12 MR. WALLACE: Yes.

13 DR. POJE: Let me ask another question.  
14 I think this is also a very important incident from  
15 our partnering with an agency like the Agency for  
16 Toxic Substances and Disease Registry.

17 You mentioned the ATSDR medical  
18 management guidelines and their role in this  
19 incident, but also perhaps after this incident. Can  
20 you elaborate upon that a little bit further?

21 What's the nature of the guidelines and  
22 who do they seek to speak to in dealing with toxic  
23 hazards?

24 MR. WALLACE: The ATSDR guidelines are  
25 basically for medical personnel responding to an

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1 incident such as this. They speak to how to handle  
2 the patients and what kind of treatment is  
3 necessary. There's a lot of good information in  
4 there on possible antidotes if there are any  
5 antidotes, with information like that and initial  
6 treatment and decontamination.

7 DR. POJE: But in this instance you're  
8 saying that that did not penetrate into the Choctaw  
9 County emergency medical personnel. They didn't  
10 have knowledge of this?

11 MR. WALLACE: No, sire, they didn't  
12 reference the ATSDR guidelines.

13 DR. POJE: And has anything subsequently  
14 occurred with the Choctaw County medical personnel?

15 MR. WALLACE: During the visit that  
16 ATSDR went back to the area, we visited with the  
17 paramedics. We visited with all of the hospitals  
18 involved, and they transferred the information and  
19 did a little bit of promoting of ATSDR and the  
20 sources of information that they could supply to  
21 those medical personnel.

22 DR. POJE: And was there any reaction  
23 for the medical personnel about that?

24 MR. WALLACE: They were very accepting  
25 of it and thought it was a great tool that they

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1 stated they would use in the future.

2 DR. POJE: Okay. Thank you.

3 I'll reserve for next round.

4 CHAIRPERSON MERRITT: John, do you have

5 some comments?

6 MR. BRESLAND: Yeah, I've got a couple

7 of questions.

8 What other industrial gases that are  
9 commonly used in the chemical or in the pulp and  
10 paper industry would be comparable in toxicity to  
11 hydrogen sulfide?

12 MR. MORRIS: Methylmercaptan, the IVLH  
13 levels for hydrogen sulfide are 100 parts per  
14 million, is the immediately dangerous to life and  
15 health level associated with hydrogen sulfide.  
16 Methylmercaptan is 150.

17 Ammonia is 300. Hydrogen cyanide is 50  
18 parts per million. Chlorine dioxide is five parts  
19 per million and another chemical that I'm familiar  
20 with, Phosgene, is a low as two parts per million.

21 MR. BRESLAND: That's the IDLH?

22 MR. MORRIS: Yes.

23 MR. BRESLAND: Do we have any knowledge  
24 of what the concentration of hydrogen sulfide was  
25 that the workers were exposed to?

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1           MR. WALLACE: The ATSDR estimated the  
2 quickness of the exposures, the severity of the  
3 exposures would have had to have been above 500  
4 parts per million for the injuries and the  
5 fatalities that were suffered.

6           MR. BRESLAND: The reason for that  
7 question was I was curious if there are other gases  
8 that could be generated in sewer systems not  
9 necessarily in the pulp and paper industry, but in  
10 the chemical industry in general, accidentally  
11 generated that could cause problems.

12           This question may overlap a little bit  
13 with some of the previous questions, but what do  
14 material safety data sheets say about the safe  
15 handling of sodium hydrosulfide? And is there a  
16 variation in what they say?

17           MS. LONG: Different manufacturers say  
18 different things. The more conservative advise if  
19 there are spills, avoid getting them into sewers,  
20 the reason being that sewers are often acidic.

21           Some of the others just caution about  
22 avoid mixing with acids. For large spills they ask  
23 that you dike them up and remove absorbent material  
24 as opposed to allowing it to flow to a sewer.

25           MR. BRESLAND: Material safety data

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1 sheets, when they talk about environmental issues,  
2 they typically say things like, you know, "Don't lie  
3 to get into the sewer." That would be almost like a  
4 boilerplate.

5 But is there anything specific in the  
6 handling of a chemical like this which could  
7 interact with acid? Is there anything specific in  
8 the material safety data sheets that would caution  
9 against avoiding that contingency?

10 MS. LONG: There's an emphasis on the  
11 possible reaction with acidic materials, even weak  
12 acids. So there's a caution against allowing it to  
13 get into sewers because it could react with acid.  
14 So it's more specific there relating to acids.

15 MR. BRESLAND: But does it vary much  
16 from company to company in terms of the instructions  
17 that they give on MSDS?

18 MS. LONG: The basic premise is the  
19 same. It may be how strongly you interpret the  
20 language in the MSDS that's different.

21 MR. BRESLAND: Okay. Thank you.

22 CHAIRPERSON MERRITT: Dr. Rosenthal, do  
23 you have some?

24 DR. ROSENTHAL: Yes.

25 CHAIRPERSON MERRITT: Use your

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1 microphone, please.

2 DR. ROSENTHAL: Yes. I think many of  
3 the issues I was concerned about have been  
4 addressed, but one of the things that strikes me,  
5 first let me start with a question.

6 I believe the Burkes contract employees  
7 were supposed to evacuate. Was that their  
8 instructions in case of not enter into emergency  
9 response; is that correct?

10 MS. LONG: In case of an emergency,  
11 employees like the Burkes contractors, like the  
12 Burkes employees, would have been instructed to  
13 evacuate the area.

14 DR. ROSENTHAL: Okay. So in a sense, if  
15 they have followed their instructions, they would  
16 have just taken off.

17 MS. LONG: Had they followed their  
18 instructions --

19 DR. ROSENTHAL: Because they're to take  
20 off.

21 MS. LONG: -- they would have left the  
22 area. Now, they would have still sustained  
23 injuries, but they prolonged their exposure by --

24 DR. ROSENTHAL: Yeah, but they would  
25 have taken off. So that in a sense, we say to

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1 people, "Your buddies get knocked down. Take off  
2 and leave them there."

3 MS. LONG: That's the training.

4 DR. ROSENTHAL: That is kind of like  
5 putting people in an impossible situation, I mean,  
6 morally and emotionally.

7 Under situations such as that, are those  
8 instructions kind of like covering a certain part of  
9 your body protection?

10 (Laughter.)

11 DR. ROSENTHAL: In other words, it  
12 avoids the necessity of the -- I'm asking this --  
13 does it avoid the necessity of the contractor or  
14 whoever is responsible to insure that if there is  
15 exposure to a hazard that can knock someone down,  
16 that there are adequate measures that the employees  
17 can take to follow their instincts, or can they be  
18 trained like dogs to run?

19 I find that these employees were in an  
20 impossible situation and were not prepared to deal  
21 with that situation physically or emotionally, and  
22 I'd like your thoughts on that.

23 MS. LONG: Well, I think you hit on the  
24 key issue. This was, as we said in the root causes,  
25 this was not an anticipated hazard in this area.

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1 There were no monitors or warning systems. There  
2 was no plan in place for how you would deal with a  
3 hydrogen sulfide release in this area.

4 So the only thing they had to rely on  
5 was their sense of smell, and they certainly weren't  
6 prepared to deal with an issue like this.

7 DR. ROSENTHAL: Now, let me ask you a  
8 hypothetical question. Those are the worse kind.  
9 If you are, you know, a practiced chemical engineer,  
10 if you were given the waste collection, waste  
11 treatment, and waste disposal as a process to  
12 manage, and you were producing a product of some  
13 value at the end that you were dumping into the  
14 river, would you have taken into account the  
15 possible interactions, as rare as they may have been  
16 between sulfide feeding streams, acid feeding  
17 streams, and the possibility of exposures?

18 MS. LONG: Yes, I would. As stated in  
19 our root cause, it's important in sewers to consider  
20 the interactions of different materials that may be  
21 put into the collection system and brought to the  
22 waste treatment area.

23 DR. ROSENTHAL: As you went through the  
24 plant, and you came through this firmly, did you  
25 have the feeling that the engineers at this facility

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1 -- and this is just feeling and you could be wrong -  
2 - but did you have the feeling that they looked at  
3 this as a process system or as a series of  
4 interrelated, isolated operations?

5 MS. LONG: Well, I can tell you that I  
6 don't know how their thinking went along the lines  
7 of whether they said this is a process or not, but  
8 the practice at this mill was not to apply the  
9 principles of process safety management outside of  
10 the OSHA covered area.

11 DR. ROSENTHAL: Okay.

12 MS. LONG: Covered by OSHA's process  
13 safety management. So they wouldn't have applied  
14 those principles in this area, which I think are  
15 good practices.

16 DR. ROSENTHAL: Thank you.

17 CHAIRPERSON MERRITT: Gerry, do you have  
18 another question?

19 DR. POJE: No, I don't have another  
20 question. I'm think that in August we were up in  
21 Delaware dealing with the terrible tragedy of the  
22 collapse of a concentrated sulfuric acid in a  
23 refinery situation, and in that situation one of our  
24 recommendations accrued to the American Petroleum  
25 Institute to enhance the development of their

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1 guidelines on how they would deal with such tank  
2 situations.

3 In this instance one of the things we're  
4 seeking to have, and I think it's a very important  
5 one, is to communicate to the American Forestry and  
6 Paper Association and to the Pulp and Paper Safety  
7 Association the results of this finding.

8 Are there any guidelines or best  
9 practices that have been developed by these two  
10 entities in dealing with the handling of sodium  
11 hydrosulfide or hydrogen sulfide, given that as a  
12 very prevalent portion of the processing and paper  
13 mills?

14 MR. WALLACE: Dr. Poje, in our  
15 conversations with these organizations, we do not  
16 believe that they have specific guidelines on  
17 dealing with hydrogen sulfide. I would anticipate  
18 that if individual facilities called these  
19 particular organizations, that they would tell them  
20 to go according to manufacturer guidelines and what  
21 good practices are according to MSDSes.

22 But we did not find that. Kind of in  
23 contrast with API, who has an infrastructure who has  
24 developed guidelines for some time, we did not find  
25 a similar structure here, which is why we felt it

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1 was prudent to make a recommendation that they  
2 communicate the findings, because that appears to be  
3 one of the areas that they do quite effectively, is  
4 communicating of incidents with their members.

5 DR. POJE: I know in my review of safety  
6 systems, clearly there is a great value that I see  
7 and I think the institution has recognized in the  
8 Center for Chemical Process safety on principles  
9 that would deal with process safety management, and  
10 you are recommending the recommendation that would  
11 even put that knowledge into this audience. Is  
12 there broad knowledge or do you have a feel for the  
13 knowledge had in the paper industry about a  
14 different industry's process safety management  
15 principles?

16 MR. WALLACE: When we had meetings with  
17 the organization, with people who were involved with  
18 safety, I mean, at Georgia Pacific, the people who  
19 were involved in safety were familiar with  
20 publications from the Centers for Chemical Process  
21 safety.

22 There are some paper mills that are  
23 members of either ACC or SOGMA. Sometimes it's more  
24 incidental because they may be part of an umbrella  
25 group that has other processes that are more

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1 traditionally members of those organizations.

2 I hope that answers your question.

3 DR. POJE: Yeah, and then one derivative  
4 of that is the development of regulations in our  
5 sister agency, OSHA, process safety management  
6 regulations. Were any aspects of this paper mill  
7 that were covered by the PSM regulations?

8 MS. LONG: I just wanted to add one more  
9 thing to what Steve said. In addition to Georgia  
10 Pacific, some other paper mills that we talked to  
11 also were aware of good process safety practices and  
12 CCPS. So it was known in the industry.

13 On the question of the specifics about  
14 OSHA's process safety management, there was a  
15 covered process in the Naheola Mill, but this area  
16 and this process was not a part of that.

17 DR. TAYLOR: I'm Dr. Taylor.

18 I want to go back again to the hydrogen  
19 sulfide exposure itself as well. This was an open  
20 area, right? And so apparently the H<sub>2</sub>S, hydrogen  
21 sulfide, was moving in some direction, and you  
22 mentioned that -- in your report you mentioned that  
23 the area was evaluated; that they began to monitor  
24 for airborne levels of hydrogen sulfide.

25 We know that the 500 ppm was what caused

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1 -- above that was what caused the death of the two  
2 employees that were killed, but what about  
3 afterwards? How much was left in the area following  
4 air monitoring levels?

5 MR. MORRIS: The response team monitored  
6 for the rest of that day, the next day, and into the  
7 third day. They recorded on readings of hydrogen  
8 sulfide during their monitoring.

9 One instance, the evening of the  
10 incident they had a spike for a split second of a  
11 high reading, but other than that there was nothing,  
12 no records of any hydrogen sulfide in the area after  
13 the incident.

14 DR. TAYLOR: And, see, normally there  
15 are no employees in this area conducting work, and  
16 in this case they were above the area where the  
17 incident occurred near a manway. So my second  
18 question goes to -- I mean, Irv's question was right  
19 on point. You know, they went back to rescue their  
20 friends and were exposed even more.

21 But if they had had confined space  
22 training, perhaps if this was a confined space and  
23 it wasn't -- you're in an open area. So this is  
24 totally different from the concept.

25 So when you mentioned the employees and

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1 their lack of training, they received some sort of  
2 awareness level training. What did that entail?  
3 Was that regarding H<sub>2</sub>S or just generally the  
4 procedure had been to just get out of the area if  
5 something happened? Because I'm sure they go to  
6 other sites similar to this.

7 MS. LONG: They had what I would call a  
8 basic awareness of H<sub>2</sub>S. They knew that it smelled  
9 like rotten eggs, and they understood that it was  
10 dangerous.

11 There were other areas of the mill where  
12 they had hydrogen sulfide monitors set up, and they  
13 knew that if a monitor went off, they would --

14 DR. TAYLOR: Move.

15 MS. LONG: -- they should evacuate the  
16 area. They didn't have more detailed training about  
17 the dangers of rescuing someone in a situation like  
18 this.

19 DR. TAYLOR: Okay. My last question  
20 goes back to the manway. In your executive summary,  
21 you mentioned that the repairs of the manway were  
22 sometimes documented in work orders, and then I  
23 guess they eventually went to the type of manway  
24 that they used for a ceiling.

25 And you also mentioned that chlorine

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1 dioxide was leaked. They were several times where  
2 they noticed leaks of chlorine dioxide.

3 Now, what kind of repairs were done on  
4 the manway?

5 And you sometimes documented work  
6 orders. Exactly what that mean and whether had this  
7 field been better, would there have been the same  
8 problem.

9 MS. LONG: Well, as we mentioned in the  
10 presentation, there were reports of witnesses  
11 recalled seeing chlorine dioxide there in the past,  
12 and you --

13 DR. TAYLOR: This was after the work  
14 orders or after --

15 MS. LONG: This was --

16 DR. TAYLOR: -- repairs or --

17 MS. LONG: -- throughout the 1990s  
18 probably.

19 DR. TAYLOR: Okay.

20 MS. LONG: It's just an area that was  
21 known to have some leaks. Now, hydrogen sulfide is  
22 invisible.

23 DR. TAYLOR: Right.

24 MS. LONG: And since it's not a normally  
25 occupied area, there wouldn't likely have been

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1 anyone there to discover that, but when they saw  
2 chlorine dioxide, the greenish-yellowish gas, most  
3 witnesses that talked about these incidents said,  
4 "Well, we would write a work order and repair it."

5 So it's not that they didn't do  
6 anything, but they never --

7 DR. TAYLOR: Checked or --

8 MS. LONG: -- reported these as  
9 incidents and did a formal investigation.

10 The seal that they were using, this  
11 manway kind of grew up over the years, and when they  
12 sealed it, there was really no way to insure that  
13 this would remain sealed, and I think that if they  
14 had done some incident investigation around these  
15 chlorine dioxide leaks, they may have discovered  
16 that there was a better way to seal this manway and  
17 prevent the toxic gas from getting out of the closed  
18 sewer.

19 DR. POJE: And is it correct that in  
20 other areas of the plant there were monitoring  
21 systems for H<sub>2</sub>S that would have provided a non-human  
22 way of recording whether an incident has occurred or  
23 not?

24 MS. LONG: There are areas from our  
25 research with different paper mills where hydrogen

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1 sulfide is a higher hazard and more expected.  
2 Different mills do hazard evaluations to decide  
3 where they need to put these monitors, but typically  
4 in the pulping area you would have monitors, and  
5 they did have them in that area.

6 DR. TAYLOR: But outside in this area?

7 MS. LONG: But in this area they did not  
8 anticipate this, and they didn't have any monitors  
9 or warning devices.

10 CHAIRPERSON MERRITT: Okay. John.

11 MR. BRESLAND: You answered a previous  
12 question about previous examples or incidents  
13 involving injury or death at the mill where we had  
14 the incident. Do you know of any examples of  
15 incidents involving injury or death from hydrogen  
16 sulfide exposure in the rest of the pulp and paper  
17 industry?

18 MS. LONG: We did a search for different  
19 incidents involving H<sub>2</sub>S, and we found about 39  
20 incidents, and as you recall from the reactive  
21 study, the data out there is not great, and in some  
22 cases it's very difficult to determine exactly what  
23 happened.

24 Most of those 39 incidents were in oil  
25 and gas processing or refining or in municipal waste

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1 collection. There were three that were in the pulp  
2 and paper mill. One was in a paper recycling, which  
3 would be slightly different, and two that we found  
4 in pulp mills, but I can't give you enough detail to  
5 tell you what happened because they're mostly  
6 anecdotal.

7 MR. BRESLAND: Okay. Thank you.

8 DR. POJE: Just a sidebar comment. Even  
9 at a meeting we had last week relating our coming  
10 meeting today to a few people, one person piped up  
11 and said, "Oh, I remember an incident that occurred  
12 in New York City where release of sodium  
13 hydrosulfide into a sewer caused the generation of  
14 H<sub>2</sub>S and serious injury and fatality to other  
15 people."

16 So I think this is the difficulty of the  
17 available data systems to provide us with an all  
18 seeing eye about the frequency of this chemical and  
19 this kind of an arrangement as a pandemic problem in  
20 the community.

21 CHAIRPERSON MERRITT: A question I have  
22 is concerning emergency response. What is the  
23 general training that is given with regard to  
24 rescuing fallen co-workers in industry? Can you  
25 tell me what that is?

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1 MR. MORRIS: The guidance is not to  
2 attempt rescue without first protecting yourself  
3 from the hazard.

4 CHAIRPERSON MERRITT: And that's general  
5 training that's given on a regular basis?

6 MR. MORRIS: It would be specific to  
7 emergency responders would get that level of  
8 detailed training. If there was a specific training  
9 program on hydrogen sulfide, I think that would be  
10 included in that.

11 DR. TAYLOR: But they would be using --  
12 by protecting themselves you mean they would have  
13 training on using the proper protective equipment.

14 MR. MORRIS: Proper protective  
15 equipment. In this case, self-contained breathing  
16 apparatus, SCOT air pacs are commonly referred to as  
17 that type.

18 DR. TAYLOR: Okay.

19 DR. POJE: Were there other equipment in  
20 the area that provided some temporary relief from  
21 hydrogen sulfide?

22 MR. MORRIS: There were no SCOT air pacs  
23 in this area. The workers did carry what is  
24 referred to as a speedy vac respirator. It's a  
25 respirator you wear on your belt. It's a cartridge

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1 type respirator. You stick it in your mouth, and  
2 you put a nosepiece on.

3 Now, those are only intended for escape  
4 purposes, and they're not effective in IDLH  
5 atmospheres of hydrogen sulfide.

6 DR. POJE: That's another issue then.  
7 There might be some false belief in those possessing  
8 such about their ability to be protected and provide  
9 them with another false indication of responding in  
10 emergencies when they really definitely should not.

11 MR. MORRIS: Right. When they're issued  
12 these evac respirators, they're instructed that  
13 they're only for escape. They're not for IDLH  
14 atmospheres, but it may give you a sense of safety  
15 when it wouldn't provide that level of protection.

16 MR. WALLACE: Just to add to what Mike  
17 said, the guidelines that we reference from NIOSH  
18 says that above 50 parts per million you should not  
19 attempt rescue without donning the appropriate PPE.

20 CHAIRPERSON MERRITT: Bill, do you have  
21 any additional comments? Bill Hoyle is our Director  
22 of Investigations.

23 MR. HOYLE: Just thank you very much.

24 Good morning. I want to take a moment  
25 to maybe add a little something that I think is

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1 important on the issue of hydrogen sulfide exposure  
2 and rescue, that earlier conversation may have given  
3 a misimpression.

4 The choice in a hydrogen sulfide release  
5 is not to attempt rescue and risk death versus do  
6 nothing. That's not the choice. Really as  
7 practiced throughout industry, hydrogen sulfide is  
8 the first hazard you learn about in many chemical  
9 facilities, oil refineries, and other similar  
10 facilities in the country, and you're refreshed on  
11 that training and you're drilled on it because it's  
12 such a deadly material, and it's treated in the most  
13 serious fashion.

14 So really it's not a question of running  
15 from and allowing people to die, but rather there's  
16 very important and very specific steps that are  
17 taken in an H<sub>2</sub>S release, and those include the very  
18 first thing, most important thing is to sound the  
19 alarm.

20 You need to sound the alarm so that  
21 highly trained emergency HAZMAT team and emergency  
22 medical personnel are summoned at the earliest  
23 possible moment.

24 This is the best way to save lives and  
25 to prevent others from also being hurt. That's a

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1 very important action to take, and in fact one of  
2 the most important.

3 And then second is that you keep others  
4 out of the area, and in the training -- because  
5 others may not know of the hazard. They may stumble  
6 into the area or otherwise put themselves at risk.  
7 So keeping others away from the area is an urgently  
8 needed, very important safety action.

9 And then finally, if you're trained to  
10 do so, and consistent with a facility emergency  
11 response plan, you can don self-contained breathing  
12 apparatus, typically in a team of people, not as an  
13 individual, and can attempt to remove people from  
14 the hazard area, but only if you have training to do  
15 so, have been drilled, and consistent with the  
16 emergency response plan.

17 In this particular case at Georgia  
18 Pacific, there were plant employees who were more  
19 highly trained in hydrogen sulfide hazards and  
20 response who observed this incident, but who did not  
21 enter the hazard zone without protection. Instead,  
22 they're the ones that actually sounded the alarm,  
23 which was the training of Georgia Pacific in this  
24 case.

25 So they did the right thing, sounded the

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1 alarm. That got the right people coming. That's  
2 the best way to save lives, and so it's really not a  
3 question of risking yours versus doing nothing. So  
4 I just wanted to help maybe add a few thoughts to  
5 that question.

6 CHAIRPERSON MERRITT: Thank you.

7 Any other questions or comments?

8 I'd like to at this point thank your  
9 presenters and open the floor. I have two names  
10 that have been given to me as people who would like  
11 to make public comment. Robert Buckler, if you  
12 would use this microphone right here, please.

13 Yes, and these are comments, please.  
14 We're not taking questions at this point for staff.

15 MR. BUCKLER: And I'm assuming that you  
16 won't be taking any questions of me.

17 (Laughter.)

18 MR. BUCKLER: My name is Robert Buckler.

19 I'm an attorney with the law firm of Troutman,  
20 Sanders in Atlanta, Georgia, and have represented  
21 them for 26 years in the area of safety and health.

22 My background is I started out as an  
23 attorney with the Department of Labor in 1973, which  
24 was when the OSHA Act was first getting enforce, and  
25 I spent three years there and have spent a lot of my

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1 time in private practice doing this kind of work and  
2 have represented the company since then.

3 What we wanted to do was we have four  
4 specific differences with the draft report's factual  
5 findings, and we thought that it was important at  
6 least that we mention those to the Board today. I'm  
7 going to try and be brief, and I'm going to try and  
8 be specific.

9 We are concerned at least that at this  
10 point in time unless certain changes are made to the  
11 report, that the report will not satisfy the Office  
12 of Management and Budget's data quality guidelines  
13 which have come out recently dealing with the  
14 accuracy of factual reports such as the one in hand.

15 So with that said, let me mention I  
16 think there are five specific factual questions or  
17 factual incidents that I wanted to bring up, and  
18 then there's one disagreement which we have  
19 principally with the focus of one of the  
20 recommendations.

21 First of all, as the Chairman  
22 acknowledged, this is a mill that Georgia Pacific  
23 very recently purchased 14 months before the  
24 incident. At the time that they purchased this  
25 particular mill from Fort James, they purchased 43

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1 other facilities.

2 In the last four years prior to the  
3 incident, they had purchased over 100 new  
4 facilities. Most of these facilities were not up to  
5 Georgia Pacific's safety and health guidelines, much  
6 less the government's guidelines, and this was one  
7 of the mills where we had specific problems,  
8 particularly in the area of process safety, where we  
9 were trying to get a mill that we had acquired that  
10 was not even up to the standards of process safety  
11 where that particular standard applied.

12 So the mill was behind the time, and the  
13 report does not acknowledge in that respect those  
14 particular facts and does not acknowledge Georgia  
15 Pacific's safety record in this particular industry.

16 For seven straight years the company was ranked as  
17 the safest company in the forest products industry.

18 During the last three years, when we've been in the  
19 process of acquiring all of these other mills, we've  
20 never dropped below the top three.

21 We think that the report should at least  
22 acknowledge the corporation's efforts in this area.

23 There were certain things that we had implemented  
24 at the corporate level which I'm going to mention,  
25 which had not been instituted at the mill due to the

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1 fact that we were trying to catch up on other things  
2 and get as much as we could get done at that point  
3 in time there, but which I don't believe your  
4 investigators would disagree. We had implemented at  
5 least at the corporate area and which had been  
6 instituted at other mills that we've had for a  
7 longer period of time.

8 With regard to the specific facts of the  
9 incident in question, we have four things that we  
10 think need to be changed, which we had requested  
11 after a review of the draft report, that at least at  
12 this point in time my understanding is had not been  
13 either added or deleted from the draft report.

14 These four things are:

15 First, the draft report focuses on the  
16 need for a reactive hazard management system. This  
17 company does not disagree with that, and in fact, in  
18 September of 2000, Georgia Pacific at the corporate  
19 level had implemented a system for identifying and  
20 managing reactive chemicals. So this company has  
21 been on the forefront of doing something that OSHA  
22 has not yet addressed and which this particular  
23 agency has been trying to get people to focus on for  
24 some period of time.

25 We believe that the fact that we had

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1 implemented that process prior to this incident and  
2 that we had not been able to get it instituted in  
3 this mill yet should be mentioned in the report.

4 The second thing that we disagreed with  
5 in the report was if you go under the draft report,  
6 it was at Section ES.3, key finding nine, and that  
7 is the key finding that deals with the chlorine  
8 dioxide leaks that were reported, anecdotal reports  
9 of chlorine dioxide leaks from the manhole cover in  
10 question.

11 We had requested that certain facts that  
12 are unrefuted be added to that particular portion of  
13 the report because the report as it reads right now,  
14 from our perspective, reads as if we were somewhat  
15 or as if the mill was somewhat indifferent to the  
16 reports of chlorine dioxide leaks at this manhole  
17 cover.

18 And the three facts which we had asked  
19 to be added to the report, which I understand have  
20 not been added at this point in time, are as  
21 follows:

22 That in May of 2001, which was less than  
23 a year prior to the incident which occurred in  
24 January of 2002, we had the last written report of  
25 chlorine dioxide leaks in the chemical area.

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1                   Now, the chemical area is a broader area  
2 than where this specific incident occurred, but  
3 where the incident occurred is included within the  
4 chemical area.

5                   In response to those reports, we went  
6 out in June, took tests, and tested specifically at  
7 this manhole cover for leaks and found none.

8                   Following that, in October of 2001, less  
9 than three months before the incident, the manhole  
10 cover in question was removed for the purpose of  
11 entering the sewer at that point and taking  
12 photographs of the sewer, which are done  
13 periodically during maintenance at the mill.

14                   Following the entering of the sewer in  
15 October of 2001, that manhole cover was resealed,  
16 and there were no reports of any incidents of leaks  
17 between the time that it was resealed in October of  
18 2001 and the incident in January of 2002, and we  
19 believe it is important that those particular facts  
20 be included in the report.

21                   I think it adds to the concerns that the  
22 investigators found with the adequacy of the  
23 particular type of manhole cover in question, but I  
24 also think that it does show that the company was  
25 not completely indifferent to reports of leaks that

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1 it had with regard to that cover.

2 The third thing that we ask to be  
3 included is with respect to key findings ten, 11,  
4 and 12. This is one of the areas where we have the  
5 strongest disagreement with the focus of the report.

6 Key findings ten, 11, and 12 deal with the threat  
7 to responders and the decontamination issue that the  
8 report addresses.

9 Key finding 12 acknowledges that the  
10 ATSDR guidelines did not indicate that there was any  
11 necessity of decontamination. We believe that that  
12 particular key finding should be mentioned before  
13 you make any of the key findings with regards to the  
14 facts regarding responders having potentially been  
15 exposed to secondary H<sub>2</sub>S.

16 So we're asking that 12 be moved in  
17 front of ten and 11 from an orderly standpoint.

18 Secondly, with regards to the facts  
19 surrounding the responders and their exposure, all  
20 of the testimony and all of the evidence that was  
21 found was anecdotal from the responders. It's  
22 inconclusive, at best, at this point in time.

23 We had six paramedics who did report not  
24 immediately, but after the fact and after having  
25 consulted with counsel symptoms of H<sub>2</sub>S exposure. We

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1 had other people who were involved in the initial  
2 response, including plant personnel, who responded  
3 and removed the victims from the area to other areas  
4 of the plant, who said they did not have H<sub>2</sub>S  
5 exposure.

6 So we believe that this issue with  
7 regards to decontamination and the need for  
8 decontamination when you have H<sub>2</sub>S exposure is at  
9 least inconclusive at best, and we think that at  
10 this point in time there needs to be further study,  
11 and that rather than make recommendations to us  
12 regarding immediate changes, that really it needs to  
13 be directed towards the ATSDR and ask that they  
14 conduct the proper scientific analysis to determine  
15 whether there really is such a threat.

16 Finally, in the second paragraph of  
17 Section 4.1 of the report, which is way deep in the  
18 report on the page 33, is acknowledged that the area  
19 where the incident occurred is not covered by the  
20 OSHA PSM standard. We believe that this  
21 acknowledgement should be moved more to the front of  
22 the report and have requested that that particular  
23 acknowledgement that the area in question was  
24 outside of the boundaries of the current OSHA PSM  
25 standard should be mentioned much earlier in the

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1 report and had suggested that it be mentioned either  
2 in key finding seven or that it be footnoted at that  
3 point in time.

4 The last thing I wanted to mention to  
5 the Board is the area of recommendations, and in the  
6 area of recommendations we feel very strongly that  
7 with regard to the recommendation on  
8 decontamination, that that recommendation should not  
9 at this point in time be focused on the company, but  
10 should rather be focused in ATSDR because we believe  
11 that the facts as they are here do cry out for  
12 further study and further analysis, but to make a  
13 change at this point in time, given the inconclusive  
14 nature of the testimony and the statements from the  
15 people who were there, is premature.

16 So we believe that that particular  
17 recommendation, as it is, being directed to ATSDR as  
18 I understand the recommendations here, should be  
19 limited to that and not focused on the company.

20 I'll take questions if you have them,  
21 even though I said I didn't want them. I do  
22 appreciate your time.

23 The agency has been cooperative. I want  
24 to compliment them for the cooperation that they  
25 exhibited during the course of this investigation.

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1 There are just certain facts at this point in time  
2 that we feel are necessarily if this report is going  
3 to be complete and accurate with regards to certain  
4 of the facts that occurred at this very tragic  
5 incident at the mill.

6 CHAIRPERSON MERRITT: Thank you.

7 Do you have a question?

8 DR. ROSENTHAL: Yeah, I just was curious  
9 about -- no, no questions.

10 (Laughter.)

11 MR. BUCKLER: Lawyers are cutting the  
12 Board members off?

13 (Laughter.)

14 MR. BUCKLER: Unheard of.

15 CHAIRPERSON MERRITT: No, that was the  
16 Chair.

17 MR. BUCKLER: Oh, the Chair. Okay.

18 CHAIRPERSON MERRITT: I would also like  
19 to call Lawrence Haprin. Would you also tell us  
20 your affiliation and interest here so that it can be  
21 recorded?

22 MR. HALPRIN: Good morning. My name is  
23 Lawrence Halprin. I'm an attorney with the law firm  
24 of Keller and Heckman. We represent the American  
25 Forest and Paper Association, and I'm here today to

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1 speak on their behalf.

2 We appreciate the opportunity. This was  
3 clearly a tragic incident. I listened to the  
4 conversations among members this morning, and I see  
5 there's clearly a concern about work place safety  
6 and improvement.

7 We'd like to work with you in that  
8 regard. We are, frankly, disappointed. There was  
9 very limited contact, in our view, between the staff  
10 investigating this incident and members of the Paper  
11 Association.

12 In an ideal scenario, we think a report  
13 would be prepared in draft. It would have been  
14 distributed to American Forest and Paper  
15 Association. They would have distributed it to the  
16 members, and then there would have been a  
17 cooperative discussion about whether the report  
18 actually made recommendations that made sense.

19 We're talking about an area that's still  
20 controversial about how it should be addressed. We  
21 all know there's a process safety management  
22 standard. Virtually every paper mill, probably all  
23 of them within the industry are covered by PSM to  
24 some extent.

25 The question is: what do you do about

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1 the reactives?

2 I think everybody agrees some sort of  
3 hazard assessment is necessary. You certainly need  
4 to take into account what's going to happen when  
5 things are piped into different places, but to echo  
6 one of the comments that was this morning, the  
7 manufacturer who puts out a material safety and data  
8 sheet, frankly, is not the organization you can  
9 necessary rely on to tell you what good practices  
10 are with respect to a chemical. They've got a  
11 totally different orientation. They are thinking  
12 about product liability.

13 As you mentioned, with the public sewer,  
14 that's not what we're talking about. We're talking  
15 about a closed process vessel going to a process  
16 waste system, going to an on-site treatment  
17 facility. That's totally different than dumping  
18 something in a New York public sewer where there's  
19 no anticipation of that being there. Nobody is  
20 trained in that, and you should expect it to be  
21 there.

22 Now, obviously something went wrong  
23 here. There's no question about that, and it needs  
24 to be addressed, but the question is, how should it  
25 be addressed.

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1                   There's been a recommendation on  
2                   September 17th to the Board, by the Board to OSHA,  
3                   to look at the reactive chemicals issue. Certainly  
4                   Charles is familiar with that issue. When he was at  
5                   OSHA, it was debated back and forth.

6                   Process safety management standard is a  
7                   very burdensome standard. You can look at what's  
8                   involved. Some aspects of it may be applicable to  
9                   reactives, but certainly not all of them. That's a  
10                  decision that I think is properly in the hands of  
11                  the Occupational Safety and Health Administration.

12                 To the extent that this Board issues  
13                 reports that basically suggest applying PSM to every  
14                 reactive chemical, you're jumping the gun, creating  
15                 a scenario or potentially some OSHA compliance  
16                 officer is going to think, "Ah, we'll use the  
17                 general duty clause. We'll take the information  
18                 from the Board's report, and we'll basically impose  
19                 process safety management for the general duty  
20                 clause."

21                 To the extent that the Board would  
22                 actually put out a report and then get responses  
23                 back on abatement measures from the company that was  
24                 affected and then rate the abatement measures,  
25                 you're basically becoming an enforcement agency. I

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1 don't think that's your role either.

2 With respect to, for example, material  
3 safety data sheets, I pulled a couple off the  
4 Internet last night. I apologize because I didn't  
5 know exactly what everybody was going to be talking  
6 about today.

7 Here's an example. "Large releases.  
8 Wear proper protective equipment." And then it says  
9 dikes are ready to prevent runoff into sewers,  
10 drains, and surface waterways, and then it talks  
11 about aquatic toxicity and lots of other issues.

12 So I would say there's lots of  
13 boilerplate in material safety data sheets primarily  
14 for environmental concerns. To take a material  
15 safety data sheet and say this practice ought to be  
16 implemented without regard to what the impact might  
17 be, no you're talking about creating hazardous  
18 waste, which then has to be transported and disposed  
19 of in substantial quantities.

20 So to the question about how would you  
21 manage this system, I don't think it's appropriate  
22 for this Board without actually going out and not  
23 talking to one or two companies or one or two  
24 representatives, but basically getting a feeling for  
25 what's going on in the paper industry and other

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1 sectors of the chemical industry.

2 If OSHA had a C, there would be a public  
3 notice. Everybody would get an opportunity to stay,  
4 "Here's what we're doing. Here's why we're doing  
5 it. This is why it makes sense, and if a hazard  
6 assessment has to be done, some more control  
7 measures need to be in place," which is certainly  
8 the case, "that's appropriate."

9 But to simply say, "Don't dump something  
10 into a sewer system because it creates a hazard,"  
11 rather than saying, "Well, okay. It does create a  
12 hazard. Can you control it?" and say, "Yes, we can  
13 control it," that's jumping the gun and coming to  
14 the conclusion that doesn't make sense to us.

15 With respect to the ATSDR, that's a  
16 recommendation that's been in place for some period  
17 of time. I think it's appropriate for you to ask  
18 ATSDR to go back and look at it and see whether that  
19 recommendation that the contamination is not  
20 necessarily outside the hot zone or somebody who is  
21 not saturated with liquid containing hydrogen  
22 sulfide -- that's something they should go back and  
23 do.

24 And there's clear, straightforward  
25 chemical tests and analysis that can be done to

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1 decide whether it's really possible for somebody to  
2 have their clothes dry, but somehow containing some  
3 level of hydrogen sulfide that's going to come out  
4 in the space of an ambulance. That's a test that  
5 can be done rather than jumping to a conclusion that  
6 that's what happened based on anecdotal evidence.  
7 You ought to run a test. That's the responsible  
8 thing to do in our view.

9 CHAIRPERSON MERRITT: I'd ask you to  
10 wrap your comments up please.

11 MR. HALPRIN: Sure. So that I'm saying  
12 is we'd like to work together. We think it's better  
13 for you to come to us and say, "Here's a draft,"  
14 which is what we suggest you do with this document,  
15 and let us work with you and find out what makes  
16 sense rather than finalizing a report and then  
17 handing it to us and say, "Please distribute this to  
18 your members," when there's a lot of points that are  
19 very valid and there are other points which we  
20 aren't going to agree with.

21 And so we ask for your cooperation to  
22 think about a more productive way of going forward  
23 with this report.

24 Thank you.

25 CHAIRPERSON MERRITT: Thank you.

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1           Are there any other comments? At this  
2 time we'd open the floor for one other comment.

3           (No response.)

4           CHAIRPERSON MERRITT: There being none,  
5 then I think I would like to make a brief comment  
6 because this is a new agency, and it's not one  
7 that's worked with the paper industry before. This  
8 is an independent agency, and through Congress it  
9 was established to do exactly what we have done in  
10 this instance, and that is to investigate industrial  
11 chemical accidents, to identify a root cause, not  
12 apportion blame, but to find a root cause and  
13 contributing causes, and to make recommendations to  
14 entities who have the ability to make changes as a  
15 result of those recommendations that would prevent  
16 this from happening again, or doing a hazard  
17 investigation, which is actually proactive, where no  
18 incident has occurred, in order to prevent that from  
19 happening again by making independent  
20 recommendations to entities that have the authority,  
21 ability, and resources to control such a hazard.

22           So this is a little different animal  
23 than a regulatory agency, being an independent  
24 federal agency authorized by Congress to do exactly  
25 the investigation that we did.

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1           So with that, what I'd like to do is  
2 proceed. Today the CSHIB staff has presented to the  
3 Board its analysis, finding, and recommendations  
4 arising from the hydrogen sulfide poisoning incident  
5 at the Georgia Pacific Naheola Mill in Pennington,  
6 Alabama.

7           This incident killed two persons and  
8 left another eight injured. I thank the team for  
9 good investigative work and for thoughtful  
10 recommendations. Lisa Long, Mike Morris, Steve  
11 Wallace, and John Murphy, who is not with us today.

12           This incident raises a number of  
13 interest safety issues, and it's outside really this  
14 investigation, some of which you just mentioned.  
15 Several of the Board members, we have been talking  
16 also about the possibility of need to discuss the  
17 importance of pursuing some of these issues beyond  
18 this investigation.

19           Does this incident represent an isolated  
20 case, or is it just the tip of an iceberg?  
21 Specifically, how many related incidents have  
22 occurred in the paper industry and elsewhere, and  
23 how does this industry deal with hazards of NaSH and  
24 related materials?

25           Are the current safety practice

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1 sufficient with regard to handling NaSH materials?

2           So as not to further delay the issuing  
3 of this report, I would like to propose that the  
4 Board proceed with a vote following a proper motion  
5 to that effect, and after the vote, however, I  
6 intend to ask the Board for support to pursue an ad  
7 hoc safety study in addition to what has already  
8 been done to answer questions that I've just raised  
9 and that some of you have raised also with regard to  
10 this incident, not necessarily the report.

11           So if there's no further comments, I  
12 would like to ask Board members whether anything  
13 from the comment period or any other factors would  
14 prevent us from moving to a vote on this final  
15 report and its recommendations.

16           (No response.)

17           CHAIRPERSON MERRITT: Hearing none, I  
18 will ask that we proceed.

19           Who has the motion to accept the Georgia  
20 Pacific report and its recommendations?

21           DR. TAYLOR: Madame Chairman, I do, and  
22 I move that we approve the CSB investigation report  
23 and the recommendations regarding the hydrogen  
24 sulfide poisoning at the Georgia Pacific Naheola  
25 Mill in Pennington, Alabama.

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1 CHAIRPERSON MERRITT: Is there a second?

2 MR. BRESLAND: I'll second that.

3 CHAIRPERSON MERRITT: That's seconded by  
4 John Bresland.

5 Is there any other discussion with  
6 regard to the motion that's on the floor?

7 DR. ROSENTHAL: I just believe that  
8 substance of the report is correct, but there have  
9 been a number of items which would not change the  
10 substance of the report, and I think that we ought  
11 to reserve the right to review the report in the  
12 light of the comments that have been made if,  
13 indeed, those comments are properly noted on our  
14 records.

15 In other words, I'm not sure exactly  
16 what was said and don't remember in detail the  
17 particular comments, but I think we ought to review  
18 them in the light of those comments or else why get  
19 comments?

20 CHAIRPERSON MERRITT: Well, then you  
21 would need to amend the motion to delay the report.

22 DR. ROSENTHAL: I would amend the motion  
23 to allow for review. I believe nothing that I have  
24 heard changed the substance of the recommendations,  
25 but would warrant some editorial changes in the

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1 report.

2 So I would say subject to consideration  
3 of the remarks that have been made forward and  
4 comments and leave it there.

5 DR. TAYLOR: Can I ask a question? Just  
6 a procedural, as well as from the -- I believe it  
7 was my understanding that the comments that we  
8 received today had been received prior to the public  
9 meeting.

10 DR. ROSENTHAL: Is that correct?

11 MR. JEFFRESS: Can I comment on that?

12 CHAIRPERSON MERRITT: Yes. Charles  
13 Jeffress.

14 MR. JEFFRESS: Thank you, Dr. Taylor. I  
15 appreciate the opportunity to comment on that.

16 As you can tell from Mr. Buckler's  
17 presentation, he could cite page, paragraph number  
18 deep into the report as to what the report said, and  
19 on two occasions the team has gone over in great  
20 detail with Georgia Pacific their comments, compared  
21 them to their notes, their analysis, their  
22 interviews, their research, and did make a number of  
23 accommodations.

24 Based on information provided, the final  
25 report reflects their consideration of the GP

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1 comments, and there are obviously some places where  
2 they disagree, but as you can tell, they did have  
3 extensive conversation with GP about that.

4 Also, with respect to the Pulp and Paper  
5 Association, during the course of the investigation  
6 prior to writing the report, the staff contacted a  
7 representative of the Pulp and Paper Association to  
8 discuss NaSH handling techniques, got advice from  
9 other people in the industry to talk to, to talk to  
10 other people from other companies about that. So  
11 there has been some interaction with the Pulp and  
12 Paper Association also in the preparation of the  
13 report before you today.

14 DR. ROSENTHAL: So if what you are  
15 saying is correct, that all the comments made on  
16 record today have been received, then I could go  
17 forward, but if not, I would just suggest reviewing  
18 them just --

19 CHAIRPERSON MERRITT: Then are you  
20 making a motion to withhold approval of the report  
21 until that has been reviewed?

22 DR. ROSENTHAL: I would move that we  
23 hold the report until we review the comments made  
24 today and verify that, indeed, they have been taken  
25 into account or were known by the staff at the time

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1 that they prepared the report.

2 CHAIRPERSON MERRITT: Is there a second  
3 to that?

4 DR. POJE: Can I make a comment?

5 CHAIRPERSON MERRITT: If someone would  
6 second it, then we can take it to discussion.

7 DR. TAYLOR: Second to the original  
8 motion or the amendment?

9 CHAIRPERSON MERRITT: No, second to the  
10 amendment.

11 DR. TAYLOR: There's no second.

12 CHAIRPERSON MERRITT: There is no  
13 second. So it would be -- so then we would proceed  
14 with the original motion.

15 Would you read that? And I would like  
16 to also call a roll call vote.

17 MR. JEFFRESS: The original motion as  
18 made by Board Member Taylor reads: approve the CSB  
19 investigation report and recommendations regarding  
20 the hydrogen sulfide poisoning at the Georgia  
21 Pacific Naheola Mill in Pennington, Alabama.

22 CHAIRPERSON MERRITT: If you would do  
23 the roll call vote.

24 MR. JEFFRESS: Roll call vote. Board  
25 Member Taylor, how do you vote?

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1 DR. TAYLOR: Yes, approve.

2 MR. JEFFRESS: Board Member Rosenthal?

3 DR. ROSENTHAL: Yes.

4 MR. JEFFRESS: Board Member Poje?

5 DR. POJE: Approve.

6 MR. JEFFRESS: Board Member Bresland?

7 MR. BRESLAND: Yes.

8 MR. JEFFRESS: Madame Chair.

9 CHAIRPERSON MERRITT: Yes.

10 MR. JEFFRESS: The vote is five to oh to  
11 approve the report.

12 CHAIRPERSON MERRITT: The motion to  
13 accept the report is agreed to five votes to none,  
14 and I would ask the counsel to now -- if you would,  
15 do you have the wording of the proposal for an ad  
16 hoc study?

17 And since you don't have that, those of  
18 you who are in the audience or who are also on the  
19 Worldwide Web, if you would bear with me, I'll read  
20 this so that you can understand what we're asking  
21 for, and this is not fully formed, and what I'm  
22 asking Charles to do is to take this request back to  
23 the staff and to on December 11th, if you would meet  
24 with us and give us any other suggested changes or  
25 new objectives and also on the time and resources

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1 that will be necessary to do this study.

2           The objectives of this hazard study  
3 concerning H<sub>2</sub>S chemical sewers and the handling of  
4 NaSH would include, one, to determine the number and  
5 severity of reported incidents involving hydrogen  
6 sulfide gas releases from sewers or other industrial  
7 waste processing and disposal systems, and this  
8 would exclude as a result of biological decay of  
9 organic materials. And we would limit that from  
10 1990 to 2000 and -- or 1980 -- I'm sorry -- to 2002.

11           Develop a preliminary estimate of  
12 fractions of reactive incidents and fatalities that  
13 are attributed to gas releases from sulfides and  
14 cyanides. There may be others also that we may find  
15 are critical, but we're looking at those two  
16 specifically.

17           Examine how the paper industry  
18 transports, loads, unloads, handles, and controls  
19 spills of sodium hydrosulfide with reference as to  
20 comparable practices in other industries that use  
21 this material, and I would ask you to get together  
22 with the paper industry in order to help to put that  
23 material together.

24           Examine paper industry recommended  
25 practices, guidances and published technical

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1 literature related to controlling the hazards of  
2 hydrogen sulfide, sodium hydrosulfide and sulfide  
3 containing liquors, including engineering controls,  
4 training requirements, designation of high hazard  
5 areas, protective equipment and spill presentation and  
6 control.

7           And I'd like to have you compare those  
8 prevailing standards and practices in the paper  
9 industry with relevant and applicable national and  
10 industry standards.

11           Also, examine and compare the  
12 recommendations of sodium hydrosulfide manufacturers  
13 regarding spill control, disposal of spilled  
14 materials, loading and unloading procedures, and  
15 protective equipment, and the actual use practices  
16 with regard to industries that use NaSH.

17           And also we'd like to examine the status  
18 of sodium hydrosulfide and related sulfides,  
19 cyanides, and other materials under OSHA/EPA  
20 regulations, including process safety, risk  
21 management, hazard communication, and waste disposal  
22 regulations.

23           Does any member of the Board have any  
24 comment with regard to this ad hoc study?

25           MR. BRESLAND: Just one comment, Madame

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1 Chair. I would certainly encourage, based on the  
2 comments that we received this morning from the  
3 attorneys both for GP and the trade associations,  
4 that we work closely with them to research this  
5 information.

6 CHAIRPERSON MERRITT: Yes.

7 MR. BRESLAND: I'm sure they've got a  
8 lot of knowledge in this area that could be of value  
9 to us and to the rest of the industry.

10 CHAIRPERSON MERRITT: Yes, okay.

11 So this study, I believe, will address  
12 many of the issues that have been raised here by the  
13 Board members in earlier discussions, and also  
14 during today's session, and really are outside the  
15 scope of this investigation.

16 I've set an aggressive schedule for the  
17 staff, but consistent with the resources that are  
18 available. So I appreciate Board support in  
19 starting this, and then in two weeks basically we'll  
20 be able to have it formed a little bit better.

21 So with that, I appreciate that and  
22 appreciate the staff's report.

23 At this time and just briefly, I would  
24 like to give an update. We call this a Chair's  
25 update, with regard to Board activities that I think

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1 may be of interest to this group.

2 Now, this fall certainly has been a busy  
3 time here at the CSB, and I'll touch on a few of our  
4 recent items of interest.

5 First, I'd like to mention that we  
6 recently concluded, well, maybe initiated, a very  
7 successful round table discussion on the subject of  
8 accident data collection, and you've heard a number  
9 of comments made concerning that particular issue.

10 We held this jointly with EPA and with  
11 OSHA, and I asked John Bresland, who was one of the  
12 coordinators, if he would give a brief update on the  
13 progress that was made at this round table.

14 MR. BRESLAND: Thank you, Madame Chair.

15 The round table was called the Round  
16 Table on Metrics, and one of the frustrating issues  
17 that we find in working to improve the safety of the  
18 chemical process industry is the lack of a common  
19 yardstick to tell us if the number of process safety  
20 incidence is going up or going down.

21 Incidents are reported to various  
22 government agencies in different formats. For  
23 example, the National Response Center, EPA's RNP  
24 Submit database, OSHA, and ATSDR.

25 The RNP Submit information is required

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1 to be submitted to EPA once every five years, and  
2 that started in 1999. In that 1996 submittal,  
3 approximately 15,200 facilities sent in their data,  
4 including the five year accident history. A total  
5 of about 1,950 accidents were reported over that  
6 five year period.

7 The Chemical Safety Board's, EPA's CEPO  
8 (phonetic) office, and OSHA sponsored a round table  
9 discussion of the incident reporting issue on  
10 November 14th, which was last Thursday at the  
11 Defense Nuclear Facility Safety Board offices here  
12 in Washington. About 50 representatives from the  
13 chemical industry, government, academia,  
14 environmental organizations, and labor attended the  
15 round table. Ms. Kathleen Rest of NIOSH was the  
16 facilitator for the meeting.

17 At the round table, Dr. Rosenthal from  
18 the Safety Board presented a proposal entitled  
19 "Improved Metrics for Chemical Process Safety." Dr.  
20 Rosenthal proposed two changes to the EPA RNP rule:  
21 one, annual reporting of accidental releases at  
22 covered facilities instead of the five year  
23 reporting, and, number two, adding a data element to  
24 capture information on the approximate operating  
25 level of the facility during the year.

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1                   After Dr. Rosenthal's presentation, we  
2 had a very energetic, four hour discussion of this  
3 issue of developing a metric for chemical process  
4 incidents. The group developed a short term --  
5 "short term" meaning one to three years -- list of  
6 key target areas, including -- and this is not the  
7 total list -- shortening a reporting interval for  
8 reporting accidents, incidents to the RNP database;  
9 comparing the other accident databases to see if  
10 there's some commonality, and adding a unique  
11 facility identification number to the existing  
12 databases.

13                   The group also suggested some medium to  
14 long term, meaning more than three years, goals.  
15 Number one, developing leading indicators for  
16 chemical process safety incidents; developing a  
17 protocol for sharing lessons learned; considering  
18 developing a near miss reporting system similar to  
19 the one that the FAA currently has for airplanes;  
20 and finally, creating a single instant reporting  
21 form.

22                   We feel that the meeting provided an  
23 excellent feedback to EPA and OSHA on the commitment  
24 from the stakeholders to long-term regulatory  
25 changes. In addition, an improved incident

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1 reporting database will assist us at the Chemical  
2 Safety Board in assigning our resources to the  
3 incidents with the highest consequences.

4 Thank you, Madame Chair.

5 CHAIRPERSON MERRITT: Okay. Thank you,  
6 John.

7 Secondly, I'd like to note that the  
8 Board has recently received an invitation from the  
9 Center for Chemical Process Safety, and you've heard  
10 that name mentioned a number of times today, to help  
11 support its 18th annual international conference and  
12 workshop, which is entitled management of reactive  
13 chemistry hazards and hazardous energy release  
14 events.

15 This is a conference, and this will be  
16 held in September of 2003. As you may know or may  
17 not know, the CCPS is part of the American Institute  
18 of Chemical Engineers. CCPS was founded in 1985 to  
19 bring together manufacturers, insurers, government,  
20 academia, and expert consultants, to help improve  
21 manufacturing process safety.

22 CCPS has published over 70 books and CD-  
23 ROMs, ROM tools aimed at developing engineering and  
24 management practices to prevent or mitigate  
25 catastrophic releases of chemicals, hydrocarbons,

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1 and other hazardous materials.

2 CCPS materials have been widely cited by  
3 the CSB in many of our incident investigation and  
4 recommendations.

5 This invitation represents a great  
6 opportunity for the Board. As you'll recall just  
7 two months ago, in September, the CSB unanimously  
8 approved a total of 18 new recommendations to reduce  
9 the number of serious industrial accidents caused by  
10 uncontrolled chemical reactions.

11 This conference will allow the Board to  
12 take our reactive study, its recommendations, and  
13 our follow-up work and report to our key  
14 stakeholders on our concerns about reactive  
15 chemistry and the goals being pursued a year after  
16 its publication.

17 There's no financial obligation here to  
18 this request, and it doesn't jeopardize our  
19 independent nature.

20 It does offer, however, an opportunity  
21 to partner with the leading safety organization in  
22 promoting greater awareness and concerns concerning  
23 reactive chemicals.

24 To this end, I would ask the Board if  
25 there are any comments or advice concerning the

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1 acceptance of this request to sponsor.

2 DR. POJE: Madame Chairman.

3 CHAIRPERSON MERRITT: Gerry.

4 DR. POJE: I just would like to echo the  
5 comments. This Board had a very salutary experience  
6 a few years ago when they held a major international  
7 meeting on chemical accident investigations, and I  
8 think that was a major move forward in the  
9 industrial community and governmental agencies.

10 Similarly, I think this issue, certainly  
11 we would want to partner with them, particularly for  
12 the matters you just raised. I think this is an  
13 indication of the significance of the Board's work  
14 on reactive chemicals that now is leading to an  
15 international conference on that subject area.

16 CHAIRPERSON MERRITT: All right. Anyone  
17 else?

18 DR. ROSENTHAL: No, but I generally  
19 think it's an excellent move.

20 CHAIRPERSON MERRITT: Good. Well, I  
21 thank everybody, and then we'll proceed with the co-  
22 sponsorship, and we certainly will be publishing  
23 more about this on our Web site and making other  
24 announcements with regard to this, you know,  
25 upcoming event.

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1           And there will be information at our Web  
2 site at CSB.gov concerning this conference.

3           Next I also want to point out that we're  
4 now beginning our third year under the Board's  
5 existing five-year strategic plan, which covered  
6 2002 to 2005. Under federal requirements this plan  
7 must be updated at a three year mark.

8           We had begun this process within the  
9 past few weeks and will continue over the next  
10 several months to do that.

11           We issued an interim revision in  
12 September that was accepted by the Board, and we  
13 will be initiating more comprehensive and far-  
14 reaching efforts now. I'm really excited that this  
15 is happening at the beginning of my administration  
16 and my five year term here and chairmanship.

17           Anna Johnson of our staff has been asked  
18 to spearhead this effort, and I expect that some  
19 time after the first of the year will be going out  
20 to our stakeholders with a new draft plan and asking  
21 for their participation and input on our expected  
22 work in the near future and long range future. So  
23 I'm very excited about that.

24           A couple of weeks ago we held a retreat  
25 for several days to begin articulating our vision

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1 for the next several years of the Board. I'm  
2 delighted to report that the Board members and staff  
3 continue to have a strong commitment to the core  
4 mission of conducting independent investigations and  
5 safety studies and getting our recommendations  
6 implemented.

7 We also recognize many areas where  
8 future progress can be made. Next year and for the  
9 next several years, we'll be making very concerted  
10 efforts to see that our recommendations from our  
11 reactive hazards investigations are fully and  
12 effectively implemented.

13 This will likely be our last Board  
14 meeting for the calendar year 2002. In early 2003,  
15 we anticipate completing a number of pending cases,  
16 including our third coast investigation in the  
17 Houston area, our Cal. Tech. investigation in New  
18 York City, and DPC investigation outside St. Louis  
19 Missouri.

20 So the Board will be out again, and in  
21 the community extensively during the beginning part  
22 of the year, and we'll be continuing to broadcast  
23 our activities as widely as possible using the  
24 Internet, and there's often bulletins on the  
25 Internet, as well, announcing our activities that

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1 you may want to follow.

2 But in the meantime, we encourage our  
3 stakeholders from industry and industry  
4 associations, from labor community and the  
5 environmental and public interest community to  
6 contact us with comments or input into our ongoing  
7 activities.

8 With that, if there's no further  
9 comments, I would --

10 DR. POJE: I have one comment.

11 MR. JEFFRESS: Yes, sir.

12 DR. POJE: My comment is more of a  
13 social one. I want to recognize that, Madame  
14 Chairman, you are here for the first time in  
15 Washington.

16 CHAIRPERSON MERRITT: Yes.

17 DR. POJE: Although we've been outside  
18 of Washington a number of times. Chairing our  
19 session, this is a very important step forward for  
20 the agency to have you in the seat, and I think the  
21 movement forward that has occurred since you arrived  
22 in August and since John arrived in August is quite  
23 salutary for the system of chemical safety.

24 I think with Charles Jeffress as our  
25 COO, with our as our Chair, with a full complement

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1 of Board members, I sense a great increase in the  
2 pace of work of the Board, and I think we've made  
3 some very significant progress on very difficult  
4 safety areas in the short tenure that you've been  
5 here.

6 So I salute you for being here. I  
7 welcome you to the Washington public arena. As we  
8 go forward, I think this is going to be a quite  
9 important mark for chemical safety.

10 CHAIRPERSON MERRITT: Thank you.

11 We're equally excited about the  
12 activities of the Board, the work of the Board, and  
13 you ain't seen nothing yet.

14 (Laughter.)

15 CHAIRPERSON MERRITT: And with that,  
16 I'll conclude our meeting.

17 (Whereupon, at 11:55 a.m., the meeting  
18 in the above-entitled matter was concluded.)

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