U.S. CHEMICAL SAFETY BOARD

+ + + + +

TESORO ANACORTES REFINERY

+ + + + +

PUBLIC MEETING

+ + + + +

THURSDAY,
JANUARY 30, 2014

+ + + + +

This transcript produced from audio

provided by the U.S. Chemical Safety Board.

U.S. CHEMICAL SAFETY BOARD MEMBERS PRESENT:

RAFAEL MOURE-ERASO, Ph.D., Chairperson, U.S. Chemical Safety Board

MARK GRIFFON, Member, U.S. Chemical Safety Board

BETH J. ROSENBERG, Sc.D., M.P.H., Member, U.S. Chemical Safety Board

STAFF PRESENT:

DANIEL M. HOROWITZ, Ph.D., Managing Director

RICHARD C. LOEB, General Counsel

DON HOLMSTROM, Director, Western Regional Office

DAN TILLEMA, Team Lead

HILLARY COHEN, Communications Manager

TABLE OF CONTENTS

P R O C E E D I N G S

6:30 p.m.

MR. HOLMSTROM: Good evening. Thank you for attending tonight's presentation on the Tesoro Anacortes Refinery incident investigation by the U.S. Chemical Safety Board.

My name is Don Holmstrom. I'm the Director of the Western Regional Office in Denver, Colorado.

The two events that are going to happen tonight is a presentation by the Professional Staff of the CSB, the Lead Investigator, Dan Tillema and myself, Don Holmstrom, and we're also going to show a video animation recreation of some of the media events around the incident, and we're going to have an opportunity after the presentation and the video, for public input, questions.

This is sort of the initial roll-out of our draft report, and we're going to

have a 45 day comment period on the report, which is on the website. Certainly, there are a number of copies of the report here.

So, we have a system in place that those comments will be received by the professional staff. We'll be transmitting those to the Board, as well, and the staff puts together a spreadsheet of how those comments were resolved, and that's transmitted to the -- to our Board.

So, that's the -- those are the activities for this evening, and thank you very much for the good turnout here. We appreciate it.

On April 2, 2010, the Tesoro Refinery here in Anacortes Washington experienced a catastrophic failure of heat exchanger with in the Naphtha hydro-treater unit.

As a result of this incident, seven employees were fatally injured. The CSB found that the immediate cause of this

incident was a failure of a heat exchanger due to high temperature hydrogen attack, a damage mechanism that is well known in the refinery industry.

A result of this incident, the Tesoro Refinery was out of commission for over seven months.

We have written a draft report, describing this incident and our findings and proposed recommendations to Tesoro, both the Corporation and the plant here in Anacortes, the American Petroleum Institute, the State of Washington and the Environmental Protection Agency. These are draft recommendations and are only effective by a vote of our Board on the report and on the recommendations.

These recommendations address the need for inherently safer design, rigorous and documented damage hazard mechanism reviews, and a thorough analysis of process safeguards and a more robust regulatory system to prevent major process safety incidents.

Today, the CSB has released its draft report on the April 2nd, 2010 incident for a 45 day public comment period.

Tonight, we will be presenting the findings from this investigation report, along with the investigations team's proposed draft recommendations.

We'd like to start out this evening by discussing the duration of this investigation.

We recognize that this investigation has taken nearly four years to complete and we know that this has been very frustrating. It's unacceptable to all parties concerned, and for that, we take complete responsibility.

Tonight, myself and Lead Investigator Dan Tillema will be presenting the technical, organizational and regulatory findings of the draft report on behalf of the professional staff of the Chemical Safety Board.

We will begin our presentation this evening by showing an animation of the April 2010 Tesoro incident.

We will then present our key investigation findings, followed by our proposed recommendations and then a public comment period tonight.

I will now show a video depicting the April 2nd Tesoro incident. Dan Tillema will then discuss the technical and organizational findings of the report.

{Video plays}

MR. TILLEMA: Hi. I'm Dan Tillema, the Lead Investigator for the incident.

We'll first discuss the technical findings of our investigation into the Tesoro heat exchanger rupture.

Here we see a simplified schematic of the NAT unit heat exchangers.

The E-heat exchanger, the middle exchanger on the right, failed on the night of

the incident. Its rupture location is shown on the graphic.

The B-heat exchanger, the middle exchanger on the left, was constructed of the same materials and operated under the same conditions as the E-heat exchanger, but it did not fail on the night of the incident.

This heat exchanged served as an exemplar heat exchanger during the investigation and provided great insight into the causes of the failure of the E-heat exchanger.

This is a drawing of the failed E-heat exchanger and the exemplar B-heat exchanger.

Both exchangers were constructed of carbon steel. The exchangers were made of four segments or CANs, that were welded together.

CAN 4 of both heat exchangers was clad with a protective layer of stainless steel. The purpose of this cladding was to

resist a different damage mechanism, sulifidation corrosion, but it also provided protection from HTHA.

We worked with metallurgists from the National Institute of Standards and Technology, or NIST, to determine the metallurgical cause of the exchange erupture.

The NIST metallurgist found that the rupture of the E-heat exchange was caused by high temperature hydrogen attack or HTHA. The B-heat exchanger was also severely weakened by HTHA.

This image from the API-941 Standard used within industry for the management of HTHA, shows fishers formed as the result of HTHA linked together to form a micro-crack.

This image also shows how de-carbonized regions appear to be lighter in color than the unaffected regions, due to the absence of carbon.

This indications that the -- these

are indications that the metallurgists who assisted us in the analysis looked for, to determine in the NHT B & E heat exchangers shells had been damaged by HTHA.

The NIST metallurgist identified signs of HTHA in the high-residual stress areas near the welds of the heat exchangers. Tiny micro-cracks had linked together to form large cracks that greatly weakened the shells of both the B and E heat exchangers.

The API standards describe that high-stress areas near welds can be particularly susceptible to HTHA, and that is what we saw with this investigation.

Here we see the locations where the HTHA damage was identified in both of the failed E and exemplar B heat exchangers.

On the B exchanger, there was a 48-inch one-third inch deep crack on the weld connecting CAN 3 and CAN 4, right there. There's also a 30-inch internal crack on the CAN three horizontal weld. These are two

welds, along which the E heat exchanger ruptured.

From this, we concluded that the E heat exchanger likely also had large, existing cracks at these locations. Likely, even more advanced cracking that weakened the shell, resulting in failure.

HTHA was not discovered in the B and E heat exchangers prior to the incident. We will now provide background as to why the potential for HTHA damage in these exchangers was not identified by Shell or Tesoro, prior to the incident.

API-941 is the industry standard that provides guidance on ways to predict and manage HTHA. API-941 was initially published in 1970 to communicate broadly, industry's experience with HTHA, both HTHA occurrences and conditions where HTHA was found.

API presents this information through the use of Nelson Curves.

The Nelson Curves were originally

created in 1949, based upon observations of HTHA occurrences and various construction materials for refinery equipment.

They are the primary resource refineries use when selecting materials for equipment in high temperature/high hydrogen service. There is no scientific or mathematical model behind the locations of the curves. They are purely based upon historical industry experience and largely, a reflection of equipment failures.

This slides shows the Nelson Curve graph found in the API Standard 941. These curves are based upon material of construction, process temperature and the hydrogen partial pressure, which is the amount of pressure contributed by hydrogen gas in the process.

On this graph, each curve represents a different type of steel. The Y axis is process temperature and the X axis is hydrogen partial pressure.

Above each curve are conditions where HTHA can occur for that material of construction and below the curve, HTHA is not predicted to occur.

The carbon steel Nelson Curve is shown here in red. It's the lowest curve on the Nelson Curve graph. This means that HTHA can occur at lower temperatures for carbon steel in comparison to all the other materials of construction considered.

Carbon steel was the material of construction for the Tesoro B and E heat exchangers.

As the curves move upward, the depicted steel requires a higher temperature for HTHA to occur. These steels are therefore inherently more protective than carbon steel, when choosing materials of construction to resist HTHA.

Choosing one of these inherently safer materials of construction is a better approach to prevent HTHA damage.

We're now looking at a zoomed-in depiction of just the carbon steel Nelson Curve. Carbon steel was chosen as the material of construction for the shells of the Tesoro B and E heat exchangers because their design process conditions were below the carbon steel Nelson Curve.

For nearly 40 years, these conditions were relied on by Shell and Tesoro. Neither Shell nor Tesoro had installed temperature indicators between the exchangers as shown on this schematic, and for folks who don't look at this type of drawing very often, that's a little bit confusing.

But if you remember the reactor or the schematic of the unit, the reactor outlet comes in as this green line and comes into the exchangers at the top, and you'll note that there is temperature indication here on the reactor outlet. There no temperature indication from the green, going between D and E. So, that temperature is not monitored.

As shown in the video, these heat exchangers fouled severely, which reduced the heat transfer between the tube side and shell side process fluid. The following reduced the heat transfer between the shell side and tube side, causing the shell side temperatures to increase.

The impact that this severe fouling had on the increased potential for HTHA damage in the B and E heat exchanger shells was never considered by Shell or Tesoro.

The CSB performed a computer reconstruction of the NHT heat exchanger bank process conditions using sophisticated process modeling software.

The model results estimate that the stainless steel clad portion of the Tesoro B and E heat exchangers, at times, operated above the carbon steel Nelson Curve.

So, that's this region here, where part of the grey area is shown to be above the

curves. So, that whole grey region would represent the operating window that we estimated and at times, part of the operation would have been above the Nelson Curve.

So, the model results estimate that the stainless steel clad portion, at times, operated above the carbon steel Nelson Curve. The full model operating range is that grey area.

We call that the B and E heat exchanger design, which is the blue dot, and where it was located.

CSB modeling estimates that the process design data relied upon by Tesoro was not reflective of the entire envelope of actual operating conditions.

Had Tesoro measured the actual process conditions, internal company procedures would have required that this exchanger be inspected for HTHA damage, because this portion of the heat exchanger at times, is shown to have operated above the

Nelson Curve.

Had Tesoro measured or modeled the temperatures between these heat exchangers, the potential for HTHA could have been identified and this incident could have been prevented.

While Tesoro could have identified that a portion of the carbon steel heat exchanger likely operated above the carbon steel Nelson Curve, the CSB modeling estimates that the hottest region where HTHA was identified likely operated just below the carbon steel Nelson Curve, shown here.

To be the clear, the model results found that the failure area of the exchanger operated below the Nelson Curve, in the area that was considered to be safe.

CSB process modeling also estimates that the coldest region where HTHA was identified during the testing likely operated up to 120 degrees below the Nelson Curve, shown here in the green area.

HTHA occurring below the Nelson curve indicates that the location of the carbon steel Nelson Curve is inaccurate.

This tells us that the carbon steel Nelson Curve cannot be replied upon to accurately predict the occurrence of HTHA. The best way to prevent HTHA is to use inherently safer design. The refining industry has already determined that high chromium steels are not susceptible to HTHA at conditions normally seen within refineries.

Several organizational deficiencies contributed to the April 2010 incident, and we'll now discuss these organizational issues that we identified during the investigation.

During the start-up following cleaning, the NHT heat exchangers would frequently leak from flanges, occasionally resulting in fires, which created hazardous conditions for workers. This hazard had persisted for more than a decade.

Over the years, Tesoro attempted maintenance and engineering solutions to stop the exchanger leaks. However, these attempts did not effectively resolve the problem of the heat exchangers leaking during start-up.

As a result, various operational techniques were developed to accommodate the fact that the leaking would typically cease, once the exchangers stabilized at their normal operating temperatures.

The leaks were very hazardous, as the hot Naphtha was high flammable and had the potential to be operating above its auto-ignition temperature.

However, because these leaks were never effectively prevented, the leaks from the NHT heat exchangers during start-up became an accepted and normalized hazardous condition at Tesoro.

To mitigate the leak hazards during start-up, operators used steam to disperse the flammable vapors using steam

lances. We believe this practice likely contributed to the large number of personnel assisting in the heat exchanger start-up on the night of the incident.

These leaks should have been prevented through engineering or design changes and in the interim, Tesoro should have viewed the heat exchanger leaks during start-up as a high-hazard activity, and minimized the number of people in harm's way.

Tesoro did not assess the risk associated with involving additional personnel in the heat exchanger start-up procedure.

One way this could have been performed is through management of change or MOC. MOC is one of the 14 elements of the State of Washington PSM regulations used to assess the potential risk of changes in a facility.

Tesoro conducted an MOC on the installation of new steam stations in the NHT unit. However, Tesoro decided that a hazard

evaluation of the addition of steam stations was not required under their procedures, because additional steam stations only involved a minor change to a utility system.

The safety implications of the additional personnel needed to operate the steam lances was not considered.

Tesoro also had the opportunity to analyze potential procedural risk associated with the heat exchanger start-up during the unit's process hazard analysis or PHA's, during NHT procedure reviews and the conduct of management of organizational change.

However, PHA's and the procedure reviews never identified the additional personnel risk during exchanger start-ups and though required by company procedures, Tesoro did not conduct a management of organizational change review, to evaluate the risk of using additional personnel from other process units to assist in the NHT heat exchanger start up.

The PSM required process hazard

analysis, or PHA's, is an element of process safety management, intended to identify and control process safety hazards. These PHA's were conducted on the NHT heat exchangers and they failed to prevent the April 2010 incident.

None of the Anacortes Refinery PHA's effectively controlled the number of people required to perform the heat exchanger start-up.

After an NHT heat exchanger leak incident, near workers that occurred in 2009, the PHA team reviewed unspecified administrative controls and determined that they were in place and effective to control the number of personnel present.

However, the CSB identified no administrative controls in place to minimize the number of workers present or their exposure to these start-up hazards.

In April of 2010, less than two months after the PHA team determined that the

administrative controls were in place and effective, seven workers, five of which were from other units, were requested to be present during the hazardous non-routine start-up of the NHT heat exchangers.

According to the Tesoro procedure, a single field operator should have conducted this start-up work.

Damage mechanism hazard reviews, often called corrosion reviews, were performed to analyze risk from damage mechanisms, such as HTHA. However, all of the damage mechanism hazard reviews conducted over the heat exchanger's history used design data, the CSB modeling estimates -- that CSB modeling estimates, did not reflect actual operating conditions.

Actual operating conditions were not adequately measured or analyzed to determine the HTHA susceptibility of the NHT B and E heat exchangers.

Therefore, all of the reviews

determined that HTHA was not a risk because the design data was below the carbon steel Nelson Curve, where HTHA was not predicted to occur.

The use of design data did not account for the temperature increase that occurred, as the heat exchangers fouled.

We can see here that the CSB estimated inlet operating temperatures were, at times, higher than the design inlet temperature.

We identified significant short-comings with the applicable industry codes and standards, which we'll now discuss, and I'll turn the presentation back over to Don Holmstrom.

MR. HOLMSTROM: Thank you, Dan. As I mentioned previously, API-941 is the industry resource on HTHA. However, it is very permissively written, and what we mean by that is there are a lot of should's' in the standard and not very many shall's', and it

contains no minimum requirements for users to prevent HTHA, and a minimum requirement in the API world is determined to be a shall'.

It does not require the implementation of inherently safer design, where feasible, such as use of high chromium steels, that API has indicated are not susceptible to HTHA at conditions normally seen in refineries.

It also does not require users to verify actual operating conditions, when performing HTHA susceptibility analysis. Other API standards also share these weaknesses.

These weaknesses are especially troubling when there is not quantitative proof that the location of the Nelson Curve accurately predicts HTHA.

The location of the curve is based upon voluntary submittals from companies of single operating points, where failure did or did not occur.

However, it is difficult to verify the quality of the data provided in the submissions and not all incidents are reported.

For instance, Tesoro did not formally report this failure in a written submission to API.

The April 2, 2010 incident is not the first incident where HTHA was identified to have occurred below the carbon steel Nelson Curve, that area thought to be not susceptible to HTHA.

We learned in our investigation that HTHA has been found to have occurred below the carbon steel Nelson Curve in at least eight other refinery incidents at companies, including Exxon Mobile, Valero, Shell and Quantico Phillips.

In 2011, API issued an industry alert on HTHA and refinery service. The API alert noted multiple incidents of HTHA in carbon steel equipment at operating conditions

where carbon steel was previously thought to be resistant to HTHA.

These refinery incidents and the subsequent API response strongly suggests an industry-wide problem with the carbon steel Nelson Curve.

As a result of both the Tesoro failure and the other eight incidents of HTHA below the Nelson Curve, the CSB proposes a new location of the carbon steel Nelson Curve shown here, and it's the line at 400 degrees, at the bottom of the graph.

The location of this new curve is below the likely operating conditions at which HTHA occurred in Tesoro's heat exchangers.

It would also permit the use of carbon steel equipment that operates in hydrogen service over 400 degrees. It would prohibit that use, which is the temperature that API identifies as the minimum temperature at which HTHA can occur.

We also identified some

significant deficiencies with the regulatory system in place to prevent process safety incidents, which we'll now discuss.

I want to emphasize that the responsibility for the safe operation of a facility like an oil refinery's responsibility -- is the responsibility of the company.

However, regulations play an important role in shaping how safety is managed overall within an industry, and the CSB, when it was created in the Clean Air Act, was given an -- specifically named two recipients that we would make recommendations to, and the only two were EPA and OSHA, and we've made probably many more recommendations to other recipients, companies, trade associations, standard setting bodies, but those are the two that are referenced in our statute that enabled us to operate.

Like in the CSB's investigation of the August 2012 Chevron incident that occurred in Richmond, California, the CSB found

regulatory deficiencies in the State of Washington that did not prevent the occurrence of Tesoro's 2010 major process safety incident.

Washington is an OSHA state plan state, meaning they're able to enforce their own workplace safety regulations, as long as they're at least as protective as the Federal requirements.

Washington's process safety management regulations are largely modeled after the Federal requirements, the Federal process safety management standard.

Both the State and Federal regulations rely on a framework that is primarily activity based, without a risk reduction target and the regulations do not effectively involve the workforce in hazard analysis and in prevention of major accidents, and what do we mean by activity-based?

What we're talking about is, there are two of the 14 elements of the PSM standard

that have some goal setting. The process hazard analysis element requires control of hazards and the mechanical integrity element of PSM requires that equipment and piping and refineries, that hazardous materials be contained within that equipment and piping.

The other 12 elements, including significance ones like management change and incident investigation have no significant goal setting element to them, and often are more activity-based, which means that the activity is to do a management of change review where there are not strict requirements that that analysis of the change which are reviewing the safety implications of the change, effectively establish and meet the goal of preventing an accident or a release of hazardous chemicals as a result of the change.

Enforcement of Washington's workplace safety regulations is performed by the Labor and Industry's Division of Occupational Safety and Health, or DOSH.

The CSB found that DOSH does not employ a sufficient number of staff members with the technical expertise needed to provide sufficient oversight of petroleum refineries. In fact, it only has four PSM specialists to regulate the nearly 270 PSM covered facilities in the State of Washington.

Many regions around the world, such as the United Kingdom, Norway and Australia have implemented regulatory regimes that have improved features that are listed here on this graph, consisting of both prescriptive and goal setting elements that place the duty on the owner/operator of the facility to demonstrate to the regulator, that they have risk -- reduced risks to as low as reasonably practical or ALARP.

This approach is also known as the Safety Case Regime, and I think the concept of ALARP is also applied in the United States in the regulatory schemes of the Nuclear Regulatory Commission and also, within the

safety application of safety systems within NASA.

The CSB has determined there are key features of an effective major accident prevention regulatory approach, such as the safety case that includes duty-holder or also referred to as the employer, safety responsibility, including a written case for safety, and what is that? It's a permissioning system.

In other words, the employer or duty-holder has to demonstrate to the regulator that they have sufficient controls and safeguards in place that are adequately effective, in order to control the hazards at the location, prior to being permitted to operate.

Adaptability and continuous improvement within the safety case regime, the regulator can make changes without having to go through a regulatory process.

One example of that, in the wake

of Bunsfield accident, which was an explosion and fire at a tank farm in the United Kingdom, that particular incident led the regulator, the United Kingdom's HSC, to implement a regulatory system that required automatic level control for refinery processes -- refinery tanks having hazards material, like flammable liquids, that was not really previously required by either standards or regulations, and they did not need to go through rule making, because it's a permissioning system.

This type of regulation -- there is also active workforce participation, process safety indicators that drive performance and the CSB has made recommendations previously on process safety indicators in the BP Texas City incident and also, in the Chevron incident. That's a draft report currently. We think it's a key element that drives transparency and accountability, in terms of how process safety is being

managed.

Regulatory assessment, verification and intervention, and then an independent well-funded competent regulator. We believe that in this report, in this draft report and looking at these other regimes, that the regulatory workforce needs to be made up of people who have at least the same types of technical competencies as those in the regulated communities, to be able to identify hazards and whether they're being controlled appropriately and challenge the duty-holder and employer where necessary, and that sort of technical expertise is needed, to be able to do that.

This type of regulatory regime requires facilities to prove to the regulator they are operating safely, which is very different in the State of Washington than the current Federal Government activity-based system, that only has limited goal setting.

The CSB believes this type of

regime is the future of process safety regulation in states like Washington and California, and in the United States. The safety case regulatory regime will require a full commitment and extensive effort by the Washington Legislature, regulators and Washington petroleum refineries.

The CSB believes that this effort is necessary to ensure that Washington, like other regions around the world, is effectively managing process safety and risk, and in the process, preventing major accidents, such as the April 2010 Tesoro incident.

Both the Chevron and Tesoro incidents could have been prevented, if inherently safer equipment materials of construction had been used. Although inherently safer technology is the most effective major accident prevention approach in the hierarchy controls, and the hierarchy of controls for those, many of you know, inherent safety, eliminating the hazards,

engineering are at the top of the hierarchy and as you go down at the bottom, you have things like administrative controls, procedures, training, things that rely on people, that are -- tend to be less reliable than eliminating the hazard in the first place.

Although inherent safer technology is effective, this hasn't been -- this hasn't been implemented or enforced, either through the general duty clause, which labels EPA to regulate through -- by identifying hazards and standards that require those hazards to be controlled in certain specific ways, or through other regulatory provisions of the risk -- EPA's risk management program.

EPA has the authority to require the application of inherently safer technology through the general duty clause. Furthermore, the Clean Air Act provides the authority for the EPA to develop and implement new regulations requiring the use of inherently

safer systems, analysis and the hierarchy of controls, to establish more effective safeguards for identified process hazards to prevent major accidents.

I will now summarize the team's proposed -- these are draft recommendations and they're only in effect by a vote of the Board, but they're being proposed for public review by the professional staff, for the Board's consideration.

The first recommendation is to the U.S. Environmental Protection Agency.

Revise the Chemical Accident Prevention Provisions under 40 CFR Part 68, to require the documented use of inherently safer systems analysis and the hierarchy of controls to the greatest extent feasible, in establishing safeguards for identified process hazards.

Until this revision is in effect, develop guidance and enforce the use of inherently safer systems through the Clean Air

Act's general duty clause.

Recommendation to the Washington State Legislature, then Governor of Washington. Develop and implement a step-by-step plan to supplement the existing process safety management regulatory framework with a more rigorous safety management principles of the safety case for petroleum refineries in the State of Washington.

In the Section 8 of the draft report, there are more details about these recommendations. For example, one of the recommendations to the State of Washington, Legislature and Governor is to adopt and implement the use of leading and lagging process safety indicators and have those reported publically.

Recommendations to the Washington State Division of Occupational Safety and Health, Labor and Industries.

Perform verifications at all Washington petroleum refineries to ensure

prevention of equipment failure because of HTHA and that effective programs are in place to manage hazardous non-routine work.

In addition, provide oversight for the development of a process safety culture program at the Tesoro Anacortes Refinery, and in the specific recommendation, there are specific things that are identified as part of that safety culture review, particularly to Tesoro.

Recommendation to the American Petroleum Institute. Revise API standards to prohibit the use of carbon steel equipment in HTHA susceptible service, and require verification of actual operating conditions.

Make additional revisions to establish minimum requirements to prevent HTHA failures and to require the use of inherently safer design.

Recommendation to the Tesoro Refining and Marketing company, LLC.

Participate with API in the

revisions of API standards to establish minimum requirements to prevent HTHA failures and to require the use of inherently safer design.

Follow the standards revision, develop and implement a plan to meet the new requirements, improve process safety management programs for damage mechanism hazards to require the hierarchy of controls and the use of inherently safer design.

A recommendation to the Tesoro Anacortes Refinery, implement a process safety culture program that will assess and continually improve any identified process safety culture issues at the Tesoro Anacortes Refinery.

With that, we conclude tonight's presentation. I would point out in our report and recommendations, the CSB and our Board have adopted a causal analysis approach that requires us not only to look at the immediate causes of an incident, but organizational

failures, failures in culture and also, regulatory deficiencies.

I think you'll note, and we have addressed all those areas and included recommendations to a wide range of recipients that include the refinery, Tesoro Corporate, standard setting bodies, such as API and regulatory agencies.

This is a full accident investigation report. We have placed on the web, I believe over 1,000 pages of documentation, including technical reports of testing and analysis, including reviews of the testing by third-party independent contractors hired by the CSB.

So, there is a quite a bit of reading material there, in addition to the investigation report, and there is a number of appendices, and one of the appendices we've included is our draft Chevron report, which adds a lot more detail about the proposed regulatory system recommendations.

We would now like to have public input comment, questions from the audience, and I'll turn the meeting over to Hillary Cohen, to facilitate that public comment period. Thank you.

MS. COHEN: Good evening. I am Communications Manager Hillary Cohen. We're going to go ahead and start with the list that we have the sign-up outside. Please come to the front and make your public comment. It will be transcribed.

Do you want to go down there and do it?

MS. ROSENBERG: Hi. I'm Beth Rosenberg. I'm one of the Board members, and I just wanted to offer my condolences to the friends, families and coworkers of the seven people who died.

Seven deaths leave holes in many, many hearts and those holes will get smaller over time, but will never, ever go away.

You have a right to be angry at

the company that permitted unsafe conditions to exist and to a much lesser extent, us, who have been overdue in giving you the answers you deserve.

But tonight, we've begun to answer those questions and offer some solutions.

Among other recommendations, we asked you to consider a new regulatory regime, the safety case, which might down the road, be more protective of workers.

I have some serious reservations about how you -- how it gives labor a meaningful role, but it's worth considering.

More immediately, I want to support the increased funding for process safety management unit. As Don Holmstrom pointed out, there are only four inspectors, four PSM specialists to inspect nearly 270 hazardous chemical facilities.

So, I think a more near term improvement would be to bolster staffing and create a separate PSM unit, with added

capacity, to oversee refineries and other PSM covered facilities.

So, we really want your input on this report, so we -- so, it can do the most good.

Let us know what we're missing and I'm looking forward to your feedback. Thank you.

MR. GRIFFON: Hi. I'm Mark Griffon, another one of the Board members, and I understand this is a staff presentation and it's mainly a listening session, but I just wanted to make a quick remark also.

I wanted to also express my condolences to the family and friends of the seven workers tragically killed in this incident.

This tragedy again, points to an ongoing process safety failure in the refinery sector.

I must first say I am disappointed that it has taken so long to have some answers

for all of you. I do, however, feel that at this point, the most important thing to make sure of, is that the final report is beyond reproach.

To this end, I would urge your participation and commenting on this draft report. We value this input and will fully assess these comments in finalizing this very important report.

The draft report notes deficiencies of the facility, as well as deficiencies with regulatory oversight.

First, at the facility level, it must be emphasized that this incident was not simply a result of not using the correct material for the heat exchanger. The badly corroded metal was a symptom of a broader process safety problem. The process safety problems need to be addressed.

Second, and of particular interest to me, are the organizational findings and the findings related to safety culture.

The report includes findings which for those of us who have studied this issue, appear to be symptoms of poor safety culture, normalization of deviance, which is the idea of gradually sliding into less safe practices, also group think, which is a decision making process that tends to marginalize dissenting opinions.

These are just two examples of such symptoms noted in the report.

What is of greater interest, however, is how and why these types of things happened. What are the causes of these lapses?

We should not be satisfied with trying to treat the symptoms. We should strive to prevent the illness.

Lastly, the regulator. A key finding in the report is that the regulator DOSH is not adequately resourced for process safety inspectors to cover the state. This should also be addressed and the team should

consider a recommendation to strengthen the regulator's capability, with regard to process safety.

Again, I apologize for this far overdue report, but I look forward to receiving your input and finalizing this, as soon as possible. Thank you very much.

CHAIRPERSON MOURE-ERASO: Hello. My name is Rafael Moure-Eraso. I am the Chairperson of the Chemical Safety Board.

First, I would like to echo the statements of my fellow Board members, and give you my condolence for the deaths of seven of your brothers and sisters that died in this accident.

I would like to tell you that I am here with the CSB professional staff, and we are for refinery safety reform.

I am presenting to you and they presented to you today, our work of four years to make the changes that the staff of the CSB recommends to prevent further fatalities, not

only in Tesoro, but in the whole sector of the refineries in the United States.

As the Chairman of the Chemical Safety Board, I fully stand behind the findings and recommendations of the report that you saw today, and that we made available in this presentation.

The report from the CSB professional investigation team with recommendations is finished, as far as the professional investigation team is concerned.

It is -- we have hard copies in the entrance. There are -- you can go to our website and you will find both the report with all the appendixes and the supporting materials, in addition to the video, and we would like you to spend the time looking at this. You are probably the most important stakeholders on this particular situation, the most important stakeholders to try to prevent these things from happening in the future, because you are there. You work there. You

know what is -- how it is.

That's why we are asking for you, that in this next 45 days, read very carefully through the report and send to us, through emails and electronically, any comments that you believe will help or will improve the report, as we are presenting it.

After that comment period, a vote will be taken by the Board and -- on the report, that will include your comments, that will include whatever changes came out of this 45 day period of comments.

I believe that we have an opportunity here, if we work together, to make a difference on the safety and management of refineries, and that the recommendations here go a long way to prevent tragedies as we experienced here in Tesoro. Thank you.

I'll give you back to the podium, to Hillary for -- to direct the comments that could come from the group. Thank you.

MS. COHEN: As I was saying, we'll

start with the list that I have, and then we'll open up the floor. If you could please spell your first and last name, and they will -- all your public comments will be transcribed.

The first person I have is Mr. Steve Garry.

MR. GAREY: Thank you. My name is Steve Garry, last name is spelled G-A-R-E-Y. I worked as a machinist in the Tesoro Refinery for more than 20 years now, and I am here also as President of the United Steel Workers Local 12-591. In that capacity, I'm representing about 500 people who operate and maintain both the Tesoro and the Shell refineries, as well as the general chemical plant on Marshall's Point.

I will add, the 14 members of our Local who have lost their lives, in either the Tesoro or the Shell refinery in the past 15 years, we will not forget them.

I am gratified that we finally

have an opportunity to move towards a final report that the Board can approve. I am also very frustrated, as I've heard you express, with how long it's taken. I am frustrated with a number of assurances that have not been met along the way, and I'm particularly frustrated by the fact that some of these assurances have been characterized by little or no communication.

So, actually, I have a recommendation for the Board right off. You need to start communicating properly with stakeholders and you need to do it right away.

I have a second recommendation, also for the Board, about the most recent assurance we were given, which is that a final report would be ready for the Board's approval tonight.

We will participate in the public comment process, but I would like to see this Board return to this place with a final report that can be approved by the Board, so that

this community can finally receive the assurance that they were promised.

Some initial thoughts about the report and the recommendations. We've only had it for about a day now, so, very, very preliminary, but again, we will participate in the public comment period and provide more detail, and I encourage everyone else to do that same thing.

Those who care about refinery safety, we have an opportunity now for input. We want to take that opportunity.

The recommendations do appear to be a very, very heavy lift in this political climate that we're in, and I think it might make sense actually, to have more of a short-term and long-term approach, if possible, and identify perhaps a couple priorities that might be achievable more short-term, that could provide real benefit, and I am going to come back to that here in a minute.

I want to talk about what I think

are four truths, or four facts, that people who don't know a lot about refinery safety need to keep in mind, if they're going to really understand what we need to improve across the entire industry.

The first fact, as stated, is that the owner/operator owns the responsibility to manage and -- a safe workplace. They are the duty holders. They are the ones who have a responsibility under the law, to maintain a safe workplace and most importantly, they have that responsibility, irregardless of how viable or capable the regulator is or the workforce is or any other stakeholder.

The second truth that I'd like to discuss is that these owner/operators, they know what they're suppose to be doing.

Again as stated, the regulations and the industry's best practice standards that are -- they're written with the word should'. They are full of what these owner/operator should be doing.

They know what they should be doing. The entire industry, including Tesoro, and this is the third fact, they're not doing what they should be doing all the time. They're not doing what they should be doing often enough. That's why we have seven killed at Tesoro. That's why we had 15 killed at Texas City eight years ago. That's why we had 11 killed in the Gulf of Mexico, with the entire Gulf of Mexico polluted. That's why Cherry Point burned up north a short while ago. That's why Chevron refinery in Richmond, California nearly killed 20 people and put thousands in the hospital. They're not always doing what they know they're suppose to be doing.

So, that leads me to the fourth truth. The most effective changes that we can make, I think at least short-term, will be those things, any thing that can effectively compel or require them to do what they already know they need to be doing.

I'm going to give one example to close, of a simple change, perhaps not simple. Wrong word. A change that might be effective in compelling compliance.

I think we should mandate public disclosure of all leaks or losses of primary containment, of all hazardous substances subject to the process safety regulations anywhere they occur in the operation, either inside or outside the refinery, whether it's a rail car coming down the tracks in the Columbia Gorge or an exchanger in the refinery. I think if it leaks, if it leaks containment, the public ought to know about it.

Public disclosure acts as a lever. It leverages the industry's very real interest in maintaining a good public image. Tesoro actually should be commended. They remind us all the time, that we serve at the pleasure of the community. Public disclosure acts as a lever with that value.

Public disclosure compels them to do the right thing more often. Public disclosure is like opening a door and turning on a light in a room that has been very dimly lit up until now, but it's a room where far too many people have died. Thank you.

MS. COHEN: Thank you, Mr. Garey. Mr. Kim Nibarger.

MR. NIBARGER: Good evening. My name is Kim K-I-M, N-I-B-A-R-G-E-R. I'm a health and safety specialist for the United Steel Workers International Union. We are the Union that represents the operators and proprietary maintenance employees at the Tesoro Puget Sound Refinery.

We're troubled by the direction this meeting has taken, since the Federal Register announcement in December.

The USW, which was a major stakeholder in this investigation, was not consulted or notified of the intent to change the character of this meeting from a report

presentation and vote to something termed a community listening session.

A little confused, as we do not recall the CSB ever having a community listening session, prior to a report release.

In discussions at the request of the CSB Chair in September, the local union expressed their anxiousness to get the report out, but that if it meant delaying the report until March or April, in order to obtain a quality report, which addressed some specific issues, they would prefer the delay.

The local union was assured at that time, that getting it out by the end of the year was no problem.

The CSB proposed releasing the report and holding the public meeting several days prior to Christmas, which the local union advised they did not think was an appropriate time to hold the meeting.

The CSB then proposed late in January. At no time, did anyone allude to the

fact that the report was not actually ready, despite conversations we had with the investigators, as late as the 21st of January.

Then a week prior to a scheduled vote, the plans changed. We found out through a Federal Register notice that Congressman Rick Larsen's office sent us, and asking -- asked us if we knew what was going on.

What we want now are some answers. We want a firm date that the Tesoro report will be voted on and approved. We want a confirmation of the location of that vote and we would request that it be held here in Anacortes. We do not want to find out there was a notation vote taken at a CSB Board meeting, or another public meeting in another part of the country.

We request that the CSB respond to our question on the location of the vote, on the final Tesoro report, so we have it on the record.

We have obviously not had time to

review the final draft of the report that was released late last night, but be assured that we will supply written comments during the 45 day comment period.

I want to close with a quote from the National Chemical Safety Program at Texas A&M University regarding the Phillip's chemical explosion.

"The most critical responsibilities for chemical process safety rests not with Government agencies, but with industry, and specifically, with each petro chemical producer at each location or workplace. Through regulation, enforcement, technical assistance, training and other means, OSHA acts to ensure the employers fulfill their responsibility with regard to chemical process safety for employees, as well as other types of worker hazards."

"OSHA's role, however, is not that of a supervisory body for the industry or for the individual plant. As specified in the OSH

Act, the responsibility for the safe operation of any workplace always remains with the employer."

So, no matter what system of regulation is in place, unless the employer executes their own written plan, these types of tragedies will continue to happen in the petro chemical industry in this country.

Thank you for the opportunity to present some of our concerns with the direction this investigation has taken.

MS. COHEN: Thank you. Mr. Butch Cleve.

MR. CLEVE: Good evening. My name is Butch Cleve, C-L-E-V-E. I'm a proud member of United Steel Workers Local 12-591, which represents me, as well as the other workers at the Tesoro Anacortes Refinery, the Shell Refinery and other petro chemical sites in the local area, as well as Hawaii.

I appreciate the opportunity to address the group. I haven't had an

opportunity to thoroughly review the report, but we will -- I will take advantage of that over the next 45 days.

Because I can't make comments about the report itself, I'd like to talk a little bit about the process that led us here to this night, and I'll address my comments directly to Dr. Moure-Eraso.

Almost four years have passed since the terrible events of April 2nd, 2010. That time has been about promises and patience, promises from you, that the report would be done in a timely fashion and patience on my part, waiting for the report from the capable, compassionate investigation team the came to our aide and shed light on our situation in really, one our darkest hours.

I understand there has been a technical investigation, and there have been a number of resource constraints that have gotten in the way. There have been tragedies in other parts of the country.

I also recognize that you're faced with attrition and other resource issues, some of which have caught the attention of the Inspector General and Congress.

What I can't understand are the promises that have been made, but not kept.

In 2011, you issued an emergency communication related to mechanical integrity and said that the Tesoro Anacortes report would soon follow.

More than two years ago, you promised some of my coworkers a finished report by the end of 2012. In September of 2013, five months ago, you personally promised me a completed report by the end of December.

I assured you at that time, that it was more important to have a good, thorough, completed investigation than it was to meet some arbitrary date on a calendar. You told me that at that point, the report was already done, and that additional time would be of no value, and yet, here we are tonight.

Supposedly, allegedly the Government shutdown delayed this meeting tonight into January, but again, here we are, almost four years down the road, with no final report.

The families, the refinery workers, this community deserves better than empty promises. This community deserves an opportunity to weigh in on a finished report and be available and participate in that meeting, where the final acceptance vote is taken.

So, I have a question for you, Doctor. When and where will the final vote take place and will it be in a public setting where the vested parties, people with real interest can participate, not buy a ticket to the east coast, but come to a meeting like this and participate, provide feedback, when that vote is taken?

CHAIRPERSON MOURE-ERASO: First of all, the report is there, 250 copies of it.

MR. CLEVE: A final draft.

CHAIRPERSON MOURE-ERASO: Exactly, that's what it is.

MR. CLEVE: That's not final, by any means.

CHAIRPERSON MOURE-ERASO: You know, after -- we are giving the opportunity to the community, because this is such an important case, to comment on the final draft. The final draft that our technical staff put out.

So, we are going -- we are doing this simply to allow all of you to get into the report and to be part of it.

The report is there. The report is finished. When we get your comments, we evaluate your comments, we will set up a vote for the Board to finalize it.

But our findings and our recommendations are there in the report. You can read it.

MR. CLEVE: Then what exactly is

the purpose of the comment period?

CHAIRPERSON MOURE-ERASO: The purpose of the commentary is if, for any kind of reasons, those recommendations or those findings are not accurate, we would you, as an interested stakeholder, to put out to me, before we take the vote. That's the purpose. That's the process that we decided to proceed.

MR. CLEVE: And not knowing exactly what that final draft is going to look like, not knowing exactly what the vote will be taken on, again, people with a vested interest in seeing a good, accurate, thorough, complete report --

CHAIRPERSON MOURE-ERASO: I am asking you to make a comment on this final draft that we have here, to improve it and to make it better. That's why we are following this process.

I am giving you the opportunity to correct any kind of mistake or any kind of things that are not addressed in the report.

That's why we are having this meeting here. That's why we are having the listening meeting, to get that input from you, the people that work in the plant.

MR. CLEVE: So, you're asking me to be patient and wait.

CHAIRPERSON MOURE-ERASO: No, I am asking you to give me you input, so that we can include it in the report and we have a final report that truly reflects what will be needed for you to prevent the things that have happened, to happen.

MR. CLEVE: I appreciate the opportunity to speak.

MS. COHEN: Thank you. Mr. Ryan Anderson.

MR. ANDERSON: Good evening. My name is Ryan Anderson, R-Y-A-N, A-N-D-E-R-S-O-N. I am a maintenance employee at the Tesoro Anacortes Refinery, as well as the Local Unit Chair for the Tesoro United Steel Workers Members. I represent them as their lead

negotiator.

I'd just like to reiterate tonight, the deep level of frustration felt by myself and our members, not towards the good work of the investigators, but towards the delay in the release of this report.

Seven of our friends were killed in this tragedy at Tesoro. Seven of our coworkers, seven of our brothers and sisters. Seven families were devastated. Our membership was devastated. Our communities were devastated, and for almost four years now, we have all waited for a factual of accounting of how this could have happened.

For almost four years now, we've waited for a final CSB report.

Yet here we are, closer, yes, but still waiting. Kathryn Powell, Matthew Bowen, Darrin Hoines, Lew Janz, Donna Van Dreumel, Matt Gumbel and Dan Aldridge deserve better.

For almost four years now, we've waited on the CSB recommendations, to help

stop a tragedy like this from ever happening again. Recommendations that could help reign an industry out of control, an industry that kills workers because profits and production trump people.

We all deserve better. So, I would ask this Board to please take this to heart and bring us back a final report and have it approved here in this community, as we were promised. Thank you.

MS. COHEN: Mr. George Welch.

MR. WELCH: Thank you very much. George, G-E-O-R-G-E, middle initial E, Welch, W-E-L-C-H. Although I am Executive Vice President of my Local Union and past President, past Bargaining Unit Chair of one of the bargaining units, I speak more of my experience in the industry.

During the report, I heard some really promising things. It is the owner's duty to provide us with a workplace that is safe, and Brother Gary talked about should'.

It's obvious that they are not doing what they should do.

They'll tell you that they do. They tell our NOSH inspectors, "Oh, no, we're just fine." The process safety management standard is a performance standard and in my mind, the red bell and flag that goes off is, "We're doing fine, as long as we don't kill people."

Brother Gary and Brother Anderson and Butch talked about the number of our members. These two refineries have been running for together, almost 115 years, together.

We have had near two dozen killed in our refineries, and Ryan read their names off.

We have had to hold hands with the six families of the folks that were killed in (inaudible) in 1998, for the past 15 years, and the hope was that it got somebody's attention. Unfortunately, we relied on hope

and luck.

I really am pleased to see some of the recommendations about putting some teeth, some teeth to the Chemical Safety Board, some authority teeth, and the recommendation is that you saw some deficiencies within Washington and (inaudible).

We have been pushing. Steve talked about a heavy lift with the current political climate. We pushed to get a separate process at the group formed within the State of Washington, as well.

I am pleased too, I did note that the Chemical Safety Board had some postings, some postings, and that's always good to see the progress that's being made.

But enough deaths are enough deaths. For the human beings, we all talk about patience. I have the utmost admiration for the family members, some that I finally got to meet last night in my union hall, and the ones that I haven't met, for their

patience and persistence, and we'll see what they think about the report, because they also will probably have comments.

I will write you something though. Thank you very much, Hillary.

MS. COHEN: Thank you. Mr. Leido Cantee? Ms. Nancy Miner?

MS. MINER: It's Nancy Miner, M-I-N-O-R. I came here from Philadelphia. I represent 700 oil workers of Philadelphia Energy Solutions.

Historically, we have referenced and used investigations at the CSB as completed in our facility, in order to get the company to change their minds on certain things.

I can say I am disappointed in the way things have been handled, with respect to the Anacortes explosion. Seven families, which I want to express my condolences to the entire local and to those families, lost someone. Somebody isn't there with them, and

they do need this report to be finalized, so that they can move on with their lives.

The report appears to be as close as possible. It appears that the administration hasn't planned very well.

When we made our plans to come here, we expected a public meeting, not a listening session. There were things that need to happen for these people, and they need to happen soon, and they need to have these delays stopped. I believe that's all I need to say.

MS. COHEN: Thank you. Mr. Brian Hughes.

MR. HUGHES: Hi. That's Brian, B-R-I-A-N, Hughes, H-U-G-H-E-S. I am a root cause analysis consultant and I'm based out of Seattle, and I wanted to express my condolences to the family members. I'm terribly sorry for your loss. It's got to be terrible.

I have a unique perspective, in

that I get to see failures in a lot of different industries, including oil and gas and including chemicals, as well was aerospace and the other industries, as well, and what you end up seeing with something like this a lot of times, underlying everything, is there is a big financial motive to get things up and moving as fast as possible, to keep things moving as quickly as -- and as efficiently as possible, and I would stop short by saying -- of saying that people take risks on purpose, but there -- it's a culture of risk that is encouraged, starts at the top, starts at Wall Street and it starts with incentives from the managers at the very top, that that risk -- the thing is, is that with risk at the top like that, it's easy for them to sort of diversify that away, whether you hold assets of a company in a portfolio, that the losses on one side can be made up for by gains another.

You know, the risk is really at

the other side of the country, or just so far away from you, or if you are a manager, you know, it's easy to sort of have those risks be a long way away from you.

But people, like lost their lives in this incident, they're at the sharp end of that risk and they aren't able to diversify that away, and that's the truth, whether it's in this incident or in the incident in West Virginia with the spill, or with other incidents, even outside the United States.

As we increase our production of petroleum products here in the U.S., as that comes online with natural gas production, I'd like to say that even though a lot of people are frustrated by the CSB and the delay of this report, you guys are kind of a shining star in a lot of ways to bring forward these kinds of incidents, for us to all learn from them.

When I do an investigation, it's always shuttered behind some kind of

confidentiality agreement, and I understand the need for those kinds of things, but you guys don't have those constraints.

So, what I'd like to see, as a part of this and other investigations, is a little deeper dive into the systemic sort of financial motives that caused these risks that start out on a spreadsheet made by a bunch of MBA's, that translate down into real life safety risks and reliability risks and even quality risks down on the plant floor.

I think that you guys at the CSB, you have a unique opportunity to sort of bring that systemic risk forward, in particular as production ramps up in the United States.

I mean, we're building the refineries and we're building new chemical process facilities here, and I think that the time is now, to get in front of this, otherwise I'm concerned that what we end up with is another incident kind of like the financial crisis, when there is a rush to

profits throughout the late 1990's up to 2008, and they're like, "Why did we not see this coming?"

You know, and so, I hope that in -- you know, the next few years, that we can see a reduction in risk and we can see -- we can get in front of these systemic risks, you know, so that we don't have a repeat of that sort of manifestation and we can see a reduction in deaths and injuries and every other kind of failure, you know, result from failures.

So, thank you very much for allowing me to address this.

MS. COHEN: Thank you. Mr. Steve Irkees? Mr. John Colvin?

MR. COLVIN: The name is John Colvin, last name is C-O-L-V-I-N.

Unlike the rest of my coworkers, I will speak directly to the report. I spent last night working the control board for that unit, reading your report.

API-941. You said it's very important to change that, to identify HTHA.

As soon as that was known, that should have gone out to the entire industry, saying, "We need to change API-941. You need to look at this equipment."

There are 130 refineries across this country that could possibly have this problem. That needs to be addressed and not 45 days from now, not two years from now. It needs to be addressed right now.

As for your other recommendations with the Washington State PSM standard, that standard helps Washington State. It helps us here, but it doesn't help the other 49 states.

They might look at our program and say, "Hey, that's great, but it costs us too much to do that."

So, instead of recommending the improvements to the Washington State PSM standard, recommend the improvements to the United States PSM standard, because states

like Washington and California will have to at least meet that minimum requirement, if not higher.

The fact that anyone would assume they knew why there were seven people in that unit that night is presumptuous at best.

I was on that team. Those were my friends. It was a team building exercise, nothing more.

You guys addressed in your report, the last time those units were started up, they did not leak. So, they were prepared, in case there was a leak, but they did not anticipate a leak on the unit start-up.

There is no way, and I will repeat this, absolutely no way to predict a catastrophic failure of a piece of equipment at any given time.

Twelve hours before that, I had 230 contractors within 50 feet of those heat exchangers, and a change to our composition of feed or innumerous many other changes could

have triggered that explosion.

So, part of your investigation, I believe is flawed, because you know, one casualty is bad. Seven casualties is horrendous. Two-hundred casualties, we probably would have had an investigation done in six months.

But it doesn't matter how many people died. People died. Why they were there in the first place, I believe is irrelevant to your investigation.

The HTHA, the API-941 and the PSM standard are the things that you should be focusing on.

MS. COHEN: Thank you. Mr. Dennis O'Hern.

MR. O'HERN: Hello. My name is Dennis O'Hern. D-E-N-N-I-S, O-H-E-R-N.

I am retired from Tesoro as a machinist. I'm a member of Local 12-591 and I was -- I'll read a short letter for you.

"Following the tragic fire and

explosion at the Tesoro Plant on April 2, 2010, I was asked to sit in on the investigation interviews conducted by the Department of Labor and Industries."

"My role was to intercede if necessary, on behalf of union members being interviewed. During the course of these interviews, several documents crossed the table, which were very disturbing to me personally. I have a few questions in regard to these documents."

"The first was a recommendation dated in 1998, when Tesoro purchased the Anacortes Plant. This was an inspection report, stating that the 6,600 exchangers were structurally sound at that time, but should be inspected again within a 10 year period."

"The second document was from Tesoro's own inspection department. It was written following an exchanger failure and release occurring in the DHT unit of the refinery. This document stated that all

exchanges in hydrogen service, including the 6,600 exchangers be inspected."

"None of the operators interviewed could recall ever having issued a permit for the inspection of these exchangers, at least not an entry permit into the exchanger shells themselves."

My role here was very limited and I had no access to inspection records. My questions are all related to the inspection or possible lack of inspection of the 6,600 exchangers.

One, did any follow up inspections occur? Two, if not, did this information factor into the CSB's report? Three, again, if inspections did not occur, has the CSB made any recommendation to correct the problem? Four, again, if not, are the people who decided not to inspect the exchangers still in a position to make similar decisions today? Thank you.

MS. COHEN: Thank you. Mr. David

Miller.

MR. MILLER: Good evening. My name is David Miller, and I am the standards director of the American Petroleum Institute.

API appreciates the opportunity to provide verbal comments at the U.S. Chemical Safety and Hazard Investigation CSB listening session on the April 2, 2010 Tesoro Refinery accident.

API represents more than 550 companies involved in all aspects of the oil and natural gas industry, including exploration and production, refining, marketing, pipeline and marine transporters, as well as service and supply companies that support all segments of the industry.

API and our members are significantly affected by the efforts of the CSB and are regularly called upon to respond to and implement the CSB recommendations.

The oil and natural gas industry is committed to operating in a safe and

responsible manner, while minimizing our impact on the environment. Protecting the health and safety of our workers, our contractors is a moral imperative and a top priority.

No incident, no incident is acceptable. Our industry takes every incident seriously. Continued vigilance is essential in helping to present -- prevent future incidents.

API and the U.S. refining companies have worked, and continue to work with many stakeholders, such as the U.S. Chemical Safety Board, OSHA, the American Fuel and Petro Chemical manufacturers and others, to improve refinery safety.

Industry has a long-standing history of safe operations, demonstrated safety, performance and we are committed to continuous improvement.

An intricate part of API's efforts to improve refinery safety is our standards

program.

The API standards program has grown from our first published standard in 1925 to now more than 600 standards and technical reports.

API currently maintains more than 185 safe operating standards, recommended practices and technical reports for the refining of petro chemical industries.

API and its member companies are committing to ensuring that all standards contain the latest science and technologies, that they recognize industry proven ensuring practices and that they incorporate lessons learned from incidents and near-misses.

The API standards program is accredited by the American National Standards Institute or ANSI, the authority on U.S. standards development and our program undergoes regular audits, to ensure it meets ANSI's essential requirements for openness, balance, consensus and due process.

This is the same body that accredits programs at several national laboratories.

API standards are developed through a collaborative effort with industry experts, as well as technical experts from Government, academia and other interested stakeholders.

API standards are referenced in Federal regulations, because they are recognized as proven engineering practices.

Overall, 130 API standards are referenced in more than 370 citations by Government agencies, including the Bureau of Safety and Environmental Enforcement, the Coast Guard, the Environmental Protection Agency, the Federal Trade Commission, the Department of Transportation's Pipeline and Hazardous Materials Safety Administration and OSHA.

Additionally, API standards are the most widely cited and used petroleum

industry standards by state regulators, with 180 API cited over 3,300 times in state regulations, including 33 here in Washington State, cited 130 times.

Part of API standards development process includes revisions to the standards, when technical or safety justification exist for such updates.

As part of API's learnings from the Tesoro accident, API has taken the following steps.

API reactivated its recommended practice 941 steels for hydrogen service at elevated temperatures and pressures in petroleum refineries and petro chemical plants task group to be in work on the next revision of this document.

API prepared an industry alert on high temperature hydrogen attack, HTHA, which was posted on API's website in September 2011, and distributed via API smart-brief electronic newsletter, which has a circulation of over

26,000 users.

API staff and committee members met with members of the Chemical Safety Board staff at API's Spring 2012 refining and industry standards meeting in Dallas, to discuss potential revisions to the API recommended practice 941.

Work is progressing on this critical document and proposed revisions will be balloted for consensus approval and made public for comments later this year.

Like many in the audience, we have not had a chance yet -- an opportunity yet to review the report, as it was just provided to us, but we will do so and provide comments, and also consider its content as part of our work on 941.

In closing, every incident is both one too many and a powerful incentive for API and industry and all the stakeholders to improve training, operating procedures, technology and industry standards.

As everyone else has said, our thoughts remain here with the families of all of those who lost their lives in this tragic accident, and we stand ready to work with the CSB and all interested stakeholders in improving refinery safety.

Thank you for the opportunity to make these comments. I forgot to spell my name. D-A-V-I-D, M-I-L-L-E-R. Thank you.

MS. COHEN: Thank you. Mr. Corey Nibarger. I have three Nibarger's. I think they made the sheets -- did they get messed up? I have Brook and Cole. If you'd like to make a public comment. Ms. Shannon Bigger?

I'll just go through the list. I apologize, if it got confusing.

Ms. Tessa Gerhart. Ms. Miguel Perry, Mr. Miguel Perry.

MR. PERRY: My name is Miguel Perry, M-I-G-U-E-L, P-E-R-R-Y. I am a carpenter, recording secretary, Local Union 70 in Mount Vernon. I am also a representative

for the Carpenter's Union, and I'm here with other carpenters, as well, that are here.

I believe for the same reason that everyone is here, first of all, show support to the families of the seven workers who died almost four years ago.

We're here to show support to the United Steel Workers International Local Union 12-591 and also, the trades that are here and the labor, and we're here to show support to this community of Anacortes.

With labor, we have some -- a say that says a wrong done to one is a wrong done to all. As a carpenter, often times, I have hit my thumb with a hammer, holding -- fingers holding the nail and the pain goes, not just in thumb, but the entire body, and I think there is an open wound here, and from what I hear and what people are saying here, it's about time to bring this to a closure.

You can bring a lot of healing by bringing closure, by bringing final reports,

and I think that is important.

What is the worth of a life? How do you measure the cost? What is the value of a life?

I don't think there is to expense too large, to trouble too great, there is no -- no expense too large, no trouble too great, no safety measures taken too costly, but it is worth it, to save -- to keep a life safe at the workplace, and whatever it takes, the worth of a life is beyond all the profits and all the wealth that anybody can accumulate, and I would ask you to bring this to a closure.

I want to say thank you for the work you've done, and I believe that you put a lot of work into this. So, I want to thank the CSB for all they're doing, but I would ask to finalize the process.

MS. COHEN: Thank you. If there anyone who didn't sign up, who would like to make a public comment, you can come to the

microphone in the front of the room.

MR. RICKS: Good evening. My name is Brian Ricks, B-R-I-A-N, R-I-C-K-S. I'm a member of the USW Local 12-591, the local that represents the workers at the Tesoro Refinery and the Shell Refinery in Anacortes.

I am an operator and the process safety representative at the Shell Refinery.

In just over 60 days, we'll be at the four year anniversary of the tragedy at Tesoro, that claimed the seven lives.

With the magnitude of this tragedy, it is troubling that it has taken so long for the CSB to complete the investigation of this tragic event.

In September of 2013, I had the opportunity to talk with Chairman Moure-Eraso about the timing for the public meeting to consider and vote on the final investigation report into the April 2, 2010 tragedy at the Tesoro Refinery.

At that time, I was assured the

report would be completed and the public meeting to consider and vote on the final investigation report would be in early December 2013.

After the Government shutdown in October 2013, the date for the vote on this report was rescheduled to tonight.

Early last week, I found out the meeting to consider the vote on the report was cancelled by the CSB and a listening session meeting would be held instead.

The lack of communication from the CSB to the local union about this change or the reason why the public meeting to consider and vote on the final investigation report was cancelled has been very disappointing.

In the Federal Register, the CSB states this listening session is to obtain additional stakeholder and community input on a draft final investigation report into the April 2, 2010 explosion and fire that fatally injured seven employees.

Since the draft report wasn't released until last night, comment on the -- I won't be able to comment on the actual report.

When I do read the report, I'm hoping to see some details on why these exchangers were fouling in the first place and required so much maintenance work and taking in and offline, while the unit was running.

I'll be developing my written comments and submitting them to the full Board after I have had time to review the report in more detail.

I have briefly reviewed the recommendations in this report and believe some of the recommendations will take quite some time to implement. So, I hope the -- there are recommendations that can be implemented in a more immediate time frame.

I look forward to the full Board of the CSB coming to Anacortes as soon after the 45 day comment period as possible, to

conduct a public meeting to consider and vote on the final investigation report into this tragedy at the Tesoro Refinery. Thank you.

MS. COHEN: Thank you, sir. Is there anyone else who would like to make a public comment?

MS. BIGGER: My name is Shannon Bigger. I thought that was a sign-up sheet, but I actually do have a comment to make.

I am here in representation of my husband who was an operator at the Shell Refinery, who is working nights at this moment, and unable to attend.

The comments I make are comments that he makes at home repeatedly.

The sentiments you've all expressed regarding the lives, I don't mean to show disrespect, but they seem very hollow and shallow.

You stand here and read the documentation, as if there is no impact to your personally.

If we stop caring about what -- the tragedy that happens to one, then how can we call ourselves a society?

We are here to stand up and to hold accountable, rather than blame, rather than accuse, and to not shirk responsibility.

It is very clear by the draft report, that you have a regulatory system that does not function in maintaining accountability. You've made recommendations.

However, there has been a four year delay. That speaks for itself as to the value you all place on life.

The fact that the API has not created a standard change that is held accountable is absolutely -- that is so tragic, how many more lives, how many more times do we need to turn away and have a dollar value and diversification scheme representing a life, so that corporations who have obtained personhood, can have benefits, whereas the individual who works, who raises

their family, who contributes to the community, that has a ripple effect that is far beyond what any corporation could ever achieve, is minimized and devalued.

So, I make these public comments in lieu of my husband, because he is unable to attend, because he is on the Board, functioning as an operator and is continuously taking off special projects because he is a continuous advocate for safety, for accountability and for maintenance and for process change. Thank you.

MS. COHEN: Thank you. Any additional comments?

MR. MONTGOMERY: Good evening. My name is Tom Montgomery, M-O-N-T-G-O-M-E-R-Y. Retired member, proud member of the oil -- excuse me, the old OCAW, the International, which is now United Steel Workers.

I have a son. I retired from Shell Oil six or eight years ago. I still have a son who works there. I have lots of

brothers and sisters out in this audience who work there.

The explanation that wasn't given on the delays from the Chairman. The one that I want to point out in this room, and there's possibly several more, but one that I know for sure, that absolutely should have an explanation is Herschel Janz, right up here in the front row.

His son was one of them who was killed out there, and for Butch's questions to be dismissed as they were was absolutely appalling and very unprofessional.

We deserve more than that. Herschel Janz deserves more than that.

MS. COHEN: You want to go ahead and go to the microphone?

MR. POWELL: My name is Estus, E-S-T-U-S, middle name Ken, K-E-N, last name Powell, P-O-W-E-L-L.

I would like to commend the Board on their fine work that they have done. I

understand that it has taken a lot of work to accomplish what they have got.

I have no problem with your report. My problem is the time that it has taken to do this.

My question is why was there a period of about eight months, that there was no work done on this report, what so ever? No expenses, not one nickel was spent, not one minute was put on to it. You went to other refineries, other incidents and so on, and left us hanging.

Were we not important? It makes us feel that we were second-class.

My daughter was one of the ones that was -- that was killed. I stood by her bed while she was on life support, watching the monitor as it clicked the heartbeats, 8:05 a.m. in the morning, it stopped.

My life has been forever changed. All I want to know is, does anybody care? It seems we can get nobody to have any teeth in

anything, to get anything done.

We can make recommendations until hell freezes over, but if somebody doesn't put teeth behind those recommendations, and get something accomplished, we will never have anything done. Thank you.

MS. COHEN: Thank you, sir.

MS. HOWLING WOLF: You're Katie's dad? It's good to see you again.

My name is Maria Howling Wolf. M-A-R-I-A, my last name is two words, H-O-W-L-I-N-G, Wolf, W-O-L-F.

At the refinery today, there is no -- made no mention of this report coming out, and it used to be that when we go through our emails, that we would see, "Hey, CSB came out with this investigation. Here is a learning experience for you. Here is something for you to see."

We used to see the videos and that, and since the explosion and since the death of our coworkers, we don't hear that

anymore, and today, we haven't heard anything. In fact, towards the end of the day, internet was lost.

I think it's really, really important that it is preceded with fast, that some teeth are added to this.

It's still impressed upon us, you know, we still have those think-tanks, you know, where a bunch of us are sitting there thinking and throwing out our suggestions and we're not the subject experts, but they got everybody's input, and it's still impressed upon us, you know, to be our brother's keeper, but if I tell my brother there is a hole there, that doesn't fill in the hole.

You know, if I put tape around it, it doesn't take care of the hole, and there is still, I believe 185 of us that are union represented and over 300 of us that are still working out there, and we need a safe place to work at, and while these thought processes are still carried through, when we're still

thinking in this manner, and I think it does matter, you know, that at times, we're taught or trained to respond with a steam lance.

I've only gotten to page 55 of your report. I've only gotten past the part where the actual hydrogen attack took place next to the welds, where it was found to be stressed, where it wasn't properly heat treated.

So, I've only gotten to that part of it, but I'm reading through it.

But the faces to it, you know, the Gumbel's, you know, Matt Gumbel, laying there on the floor naked, laying across that cold, dirty floor, with a blanket on top of him, and our FRC's floridum retardant clothing only does so much.

You know, his clothing was intact outside the operating shelter. Matt wasn't intact. He was swollen up, because he had been cooked.

So, if you take a flame to

something over a piece of foil, you know, what's underneath doesn't get crisp right, but you take it right here, and it burns, and the bodies of these people were crisp. They were charred.

FRC's isn't going to do it, you know. Behavior, us looking out for each other, doing team work out in the field can actually be dangerous for us.

There is still a lot of us out there, and we're still out there working and we're still in a place that they're telling us to -- where they're not acknowledging us, where they're not going ahead and saying, "This is out," and I was thinking about Katie's dad, before he went up there, and he told me that the way identified his daughter was by her pretty toenails, because she used to get manicures and pedicures, and Katie was a beautiful young woman. She was this holly-hobby looking woman, you know, young.

Well, we deserve and it is an act,

whether we have the right regulations, that we deserve and it is our right to work in a safe workplace, and we do everything that we can do, and what I've read in your report so far, that one of the parts is, is that in this country, we have to prove that there is a danger that exists, where in other countries, they prove that they're safe to operate.

I'm still reading on it and I'll come up with whatever I can, and I'll keep working with everybody, but I think about everybody. I think about all of us being safe. You know, I want us to live and I want us to have a good place to work, and we -- this country is said to be a country, and I've heard it expressed over and over again, where a lot of the trades moved out, but we want to be technologically advanced.

You know, we want to have the smarts and we want to have everything going into this, and we need the people, not just little think-tanks with people who don't have

the skills, but with the people who are -- have -- are the chemical engineers, the people who do have all this information, the engineers, the inspections, and we do need the paper-pushers, because it's important that it gets through in a timely manner, and we need that, because we're still out here working.

I'd like to think that while it just happened, just happened four years ago and it's just us, but it's been going on for a long time, and those regulations need to come out faster and faster, because our equipment is getting older and older.

So, I care about my coworkers. I wanted to work and live in a safe place, and I remember the paramedics coming in that night, and taking Matt away. Matt stood himself up and he wrapped himself in a blanket and he sat himself down, and all he talked about was the care of his workers, you know, that Dan, "Oh, God, Dan, Dan is not okay. Dan couldn't have made it through that." Dan

Aldridge.

"Tell my dad that I'm okay. Tell him I'm okay." He was telling me all these things, and he was walking out and I'm like, "Matt, I'll call everybody," and he wasn't okay and he didn't make it. He lasted, I think 22 days.

Yes, there is a lot of faces behind this. You know, Katie's dad, his youngest daughter, you know, his baby, you know. I guess I am going on and on about it, but there is some relevance and there is some faces to it. You know, there is Lou. He was a union member and he became a supervisor, right.

His FRC's, when I found his hat and his eye protection, it laid on the ground, it looked good, but the guys that saw it, that found Lou, one of the last telligble things he said on the radio was, "We're dying out here," and when our coworkers went and got them and put their lives at risk, Lou was running in

circles on fire saying, "No, no, no," and they took him to the ground.

Those FRC's, we still cook. We still -- we have a flash point. We catch on fire, and it's not auto-ignition, but we do burn.

You know, we need stronger regulations. We do need to be protected and it doesn't feel that way, right now. It doesn't feel that way when they're not acknowledging it at work, when they're not -- when today, everybody is up here speaking, including the American Petroleum Institute, everybody is holding some kind of accountability, and we don't have anybody telling us -- and I'm hearing on a day-to-day basis, "Hey, are you looking out for your brother? Hey, you guys got the right protection on," and some things have improved, but that overall culture, it's a big fight, and it's not a winning battle. It's something, you know, we're still getting hurt

out there.

So, please, faster, more. We'll work on our part too, you know.

MR. ERLANDSON: Hello. My name is Douglas Erlandson. D-O-U-G-L-A-S, E-R-L-A-N-D-S-O-N. I am a retired refinery worker, 36 years at the other refinery, and I was watching the report here, and I have a nagging question. I hope the investigation consider it. I am not sure if someone had raised the point.

They talked about exchanger leaking during start-ups was common, and I wonder if that was due to the bolts having lost their tinsel strength and it wasn't possible to tighten them enough.

So, that's just something I wanted to bring up. Thank you.

MS. COHEN: Do we have any other comments? We'd like to thank everyone. Do you want to go ahead? Go ahead, sir.

MR. HOPLEY: My name is Doug

Hopley, D-O-U-G, H-O-P-L-E-Y, and on top of the E-6600's which is gathering all the attention here, I just wonder if anyone ever commented about other things that were going on, after the fire, and one that comes to mind is a column that had corrosion under insulation and there is actually a hole in the skirting of the column, and in order to fix it, they had to big cranes holding it up, and I just wondered if that had been addressed. Thank you.

MS. COHEN: Thank you.

CHAIRPERSON MOURE-ERASO: I would like to say that I really appreciate your candor and the emotion that came from -- as a reflection of your loss.

As our Chief Investigator from Denver said, we do take responsibility for the delay. We would like very much to have been able to have the report sooner than we are presenting it today.

I would like to say that in my

conversations that I have with the representatives of your local in Pittsburgh, last September, we discussed these issues and the issues of the delay, and probably I took the decision when I -- after that conversation, that it was pointed out to me that if more time will be necessary to have the best possible report, that we should take that time, and that is what gave me the idea of the importance to have your input on what we are doing.

The recommendations that were presented here are very, very difficult and it's strong recommendations, that -- by the extremes that we have with other refineries, specifically Chevron, have ourselves an incredible amount of opposition from a lot of quarters, specifically from people in the industry.

So, the reason for me to have this listening session is to ask you to look at those recommendations, and to see if you can

support them, so that we can face the opposition from the people that don't want to comply with it.

So, what I am asking of you in these 45 days is to carefully look at those recommendations, be aware that there is tremendous amount of opposition for any one of them to be really acted upon, and to see if you can support or what can you say that we should do, to present -- to prevent these things from happening.

Again, I want to say that I appreciate your candor. I appreciate you telling in such a painful way, the feelings that you have on the experience that we have with this investigation.

I hope to get your input, to have the report that we can really present and we can really move over an action for prevention.

Thank you. I don't know if anybody from the team would like to add anything more.

PARTICIPANT: Where do we send you the information in writing? Is there an email address?

MS. COHEN: The email address is TesoroComments@CSB.gov.

Thank you, everyone, for coming. We appreciate your time and we appreciate you being here.

(Whereupon, the above-entitled matter concluded at approximately 8:30 p.m.)

C E R T I F I C A T E

MATTER: Public Meeting RE Tesoro Refinery

DATE: 01-30-14

I hereby certify that the attached transcription of pages 1 to 130 inclusive are to the best of my belief and ability a true, accurate, and complete record of the above referenced proceedings as contained on the provided audio recording.

Neal R Gross
