UNITED STATES OF AMERICA

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CHEMICAL SAFETY AND HAZARD

INVESTIGATION BOARD

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BOARD OF INQUIRY

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THE TOSCO INCIDENT

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WEDNESDAY

SEPTEMBER 15, 1999

+ + + + +

Contra Costa County Board of Supervisors Chambers
County Administration Building
651 Pine Street
Martinez, California

BOARD MEMBERS:

PAUL HILL
ANDREA K. TAYLOR
IRV ROSENTHAL
CHRIS WARNER
GERALD POJE

PARTICIPANTS:

GARY SWEARINGEN
DENNIS WALTERS
ARMANDO SANTIAGO

MAUREEN WOOD
PHIL COGAN
DON HOLMSTROM

PARTICIPANTS: (CONT.)

BILL HOYLE
JIM WESCOAT
KEITH RICHTER
ART LATHROP
LEW PASCALLI
RANDY SAWYER
IVOR JOHN
PERRY CALOS
BILL ALTON
BILL KRESHA
LARRY ZIEMVA
STEVE SULLIVAN
RICHARD BERRY
JOHN BERARD
JEFF JEWELL
JEFF FELIX
BILL RIETZEL

C-O-N-T-E-N-T-S

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

(9:00 a.m.)

CHAIRMAN HILL: Good Morning. My name is Paul Hill and I'm Chairman and CEO of the United States Chemical Safety and Hazard Investigation Board.

We are here today to review and compile information for the official CSB docket and file on the investigation into the accident and fire at the Tosco Avon Refinery of this year.

Assisting me today are my colleagues on the Board. Dr. Irv Rosenthal to my right, Dr. Andrea Kidd-Taylor to my far right, and Dr. Jerry Poje to my left. We are further assisted today by General Counsel to the Board, to my immediate left, Mr. Chris Warner.

I'd like to begin by taking a moment to express our condolences to the families of the victims of this tragedy. As hard as we may try, we can never recast the events of February 23rd. We can never bring back the lives of those who were lost, and we cannot heal the scars of the families, the friends and the coworkers brought about by their loss. We can, however, learn from this unfortunate set of circumstances so that some good might come out of this situation. The CSB is committed to conducting a thorough, factual and comprehensive investigation into this unfortunate set of circumstances. For these reasons, the CSB is dedicated to prevention. We will utilize all powers and resources available to the Board to find out what happened that

morning and to make recommendations to ensure that it doesn't happen again. The presentations today will assist the Board in accomplishing these goals.

Today's venue is called a Board of Inquiry. This is a term of art which may not be familiar to many in the audience. While I have directed the CSB staff to provide public information regarding this function and the context in which it should be viewed, let me make a few points about the entire investigative process at the CSB, and in a few moments I will further describe today's process and procedure and the sequence of events that we hope to carry out here today. I also will like to recognize the other participants who will be providing testimony.

I note that our sister agency, the National Transportation Safety Board, is carrying out a very similar exercise today outside of Chicago, Illinois. This is a very similar process, resulting from a train crash several months ago. They're holding hearings to collect further information. Lives were lost. Questions are opened.

In the case of the Tosco incident we have a similar situation. Lives were lost. Those individuals who could tell us exactly what was occurring are no longer with us, and so we must rely on the testimony and information that is compiled and provided by others. That is the reason for carrying out these types of hearings.

Now a word about the investigative process. A typical Chemical Safety Board investigation begins with the notification of an

event, and results in deployment of a technically trained investigative team which provides the basic factual evidence, conclusions and preventative recommendations. Usually, this results in a final report on the incident which is made available to everyone in the public, all interested parties.

What happens in between these events is a great deal of research and analysis. In some cases, such as the one today, the CSB takes the additional step of holding a Board of Inquiry.

An Inquiry is quite simply an official pause. This pause sends three messages. First, it says the investigation is nearing completion. Secondly, it says the direction of the investigative team and its earliest findings are to be aired for accuracy to everyone. Third, it says if there is additional information that should be considered, additional facts that are out there, they should be brought to the Board's attention as soon as possible. Let me perfectly clear, this is part of the investigative process.

A final report or decision on this case will come only when the CSB, its members, feel that all the available facts have been established. Today, our own investigators will present their case to-date relative to the causes and circumstances of the Tosco incident. They, the investigators, and we, the Board, are here to elicit, receive and consider any and all additional facts which may not have come to their attention previously. By giving ample opportunity to solicit,

corroborate, and include this information into the public record, such facts as may be forthcoming from all parties, the Board is assured of considering all compelling evidence and completing a comprehensive report.

At a later date, this Board will deliberate those issues and make recommendations, again, in the interest of preventing an accident, such as this one, from occurring again.

I know some of you are very much familiar with the fact that there are several investigations going on of this event. You may wonder how our investigation would differ from others. In speaking to the press recently I have tried to convey the Board's unique authority in this regard. We have participated directly with all of those other agencies in the basic fact-finding, and it's likely that the basic facts of this case will be similar in all of the reports. That is, what happened, the chain of events. However, the Board will conduct its own independent analysis through our investigators of those facts.

The key difference lies in our mission. This mission is set out by the Congress and the President. The Board is freed from the need to regulate, to assess fault or to impose penalties in any way. Instead, we've been empowered to focus on determining what went wrong, determining those circumstances, looking at the larger picture, and providing recommendations to the entire safety system. In so doing, we are free to go wherever the investigation takes us to look at

regulations, to look at industry practices, chemical properties, ergonomics, human factors and so forth.

The CSB's broad authorities reach beyond existing regulations, standards and practices in use today, to ask the central question: what would prevent this from happening in the future? In this way, the Chemical Safety Board does not merely avoid duplicative efforts, but also makes a unique and all-encompassing contribution to protecting workers, the public and the environment. These findings should have direct carry over to other refineries and the refining industry as a whole. Recommendations may also be provided to any party. They may go the company, to employees, to other agencies, to state's and indeed to the US Congress as a last result.

Although my colleagues on the Board are present today, we will not deliberate the merits of this case until the record has been completed. I alone or a member of my staff could have collected this information. However, at my request, the Board members are present here today to hear firsthand the testimony being provided. I'd like to publicly thank them for being here at today's session. I believe this speaks loudly to their professional integrity and their commitment to a thorough understanding of this case.

Although Dr. Poje has provided some leadership and direction in this case and we have received progress briefings previously, today the Board will hear the investigators most extensive

presentation on the Tosco investigation. Board members come at this information very objectively and are in a position to question and probe the issues for clarification and improved comprehension of these facts.

As I have said in the past, federal safety boards utilize public sessions as exercises in accountability. An open inquiry such as the one today provides the public a window into the Board's evidence gathering, fact finding, and comprehensive assessment.

In deliberative board meetings, another venue, the public may actually observe the actual workings of the board as it prepares to render a final decision. Thus, in either venue we are accountable for conducting a fair and thorough investigation.

Thus, either of these venues, we are accountable. The company is accountable for operating safely. Regulatory agencies are accountable for regulation of the industry. And indeed, the workers are accountable for meeting the standards of their professional fields. Those of suppliers of equipment, materials, technology, or contract services are accountable for the quality of their product stewardship of those goods and services. Collectively, there are many aspects to this country's complex safety systems.

We all play a role in providing and improving upon chemical safety in our workplaces and our communities. Our goal must be to explore each of these aspects and determine if, when and where a failure may have occurred that resulted in tragic consequences. We have one of

the best safety systems in the world, but we can always find ways to improve it.

A Board of is a fact-finding proceeding that has no adverse parties or interests. We are here for facts. We do not come to judge or find fault. The Chemical Safety Board will not attempt, in any way, to determine the rights and liabilities of any party, person, company or agency. Congress has given us this unique safety role and we will follow it accordingly.

Any matter which may arise out of the testimony presented today which directly relates to such rights or liabilities will be strictly excluded from the final record. As chairman of this inquiry I alone, by the power vested in me, will make all final decisions and rule accordingly on issues as they arise. Any questions concerning this event today should be directed to me. Objections regarding materiality, relevance and competency of investigators testimony, exhibits or physical evidence will be denied. Any information that is not deemed pertinent, germane or relevant to the focussed analysis of the Tosco event in question will not be retained in the record. All presenters are reminded to speak only to the issue at hand, that is, the incident and fire of February 23rd at the Tosco Avon refinery.

In order to supplement the CSB's investigative teams efforts, this team's efforts, several additional parties, all with access

to firsthand information or on site knowledge are present to provide information for the Board's consideration.

Let me begin by thanking each and every one of you for appearing here today and for making a contribution in the interest of chemical safety. For those in the audience, these discussions may become highly technical. While the presenters and the investigators are all technical professionals, their analyses and insights are essential to ensure both the public and the Board that everything that can be done is being done to ensure safety of refineries, chemical manufacturers, warehouses, water treatment facilities and, indeed, all chemical -- all commercial and governmental entities that involve hazardous materials.

Even after today's presentation has been concluded, all parties, including the public, will have the opportunity to submit proposed findings of fact, conclusions and recommendations to the Board. If you choose to do so, you may send your information for the Board's consideration over the next three weeks, up to the close of business, October 6, 1999. You may -- additionally, you may ask that your name be withheld from the public record if, for some reason, you do not wish to identify yourself. However, you must provide enough information so that the CSB investigators may reasonably follow up on this information to verify any facts you may provide. Broad allegations and innuendo are not useful.

If anyone has information that he or she deems pertinent to the Board's investigation, I urge them to take advantage of the written comment period. Even those who are present today providing information orally will also have this option to supplement the information provided here before us. Mr. Cogan is available and can give you the address, but let me give it to everyone quickly on the record. The Board's address is 2175 K Street N.W., Suite 400, Washington, D.C. 20037. As you see, a court reporter is taking -- making a transcript of today's proceedings. That information will be available on the CSB's website in approximately three weeks from today. And it will be available, of course, to the public. The CSB's website is www.chemsafety.gov.

At this time, I'd like to introduce the members of the CSB's investigation and analysis team. I'd like you gentlemen to stand and be recognized as I call your name.

First, we have Mr. Armando Santiago, who is the CSB's investigator in charge. With him we have Mr. Dennis Walters from Pacific Northwest Laboratories. Mr. Gary Swearingen, also of Pacific Northwest Laboratories. Mr. Don Holmstrom of the CSB Office of Safety Programs. And Mr. Bill Hoyle, also of the CSB's Office of Safety Programs.

These team members have worked collectively to both gather and analyze the information growing out of this case. They're all technical professionals, as I indicated earlier, in various disciplines. They have extensive experience with industrial processes, including

refining. Their resumes have been presented to the board members and are available to the press and anyone else who may be interested by seeing our contact staff.

Also present today are the CSB staff, as I just mentioned, to assist with various issues and information requests that may come forward. Mr. Phil Cogan, in the back of the room, and Ms. Maureen Wood, who is also on the CSB staff, who is also in the back of the room. We're further, as we said earlier, assisted with General Counsel, Mr. Chris Warner. If any of these individuals may be of assistance to anyone in the audience today, you will recognize them by their name tags, please feel free to call on them.

I'd now like to recognize the other agencies. Again, let me thank you for appearing here today and for sharing your knowledge and expertise with the CSB. When I call your agency would the senior spokesperson for the agency or group please step to the microphone in the center of the railing, identify yourself, state your affiliation with the organization, and identify any other individuals who are with you who may be providing -- working with you or providing additional testimony today. Would you just please introduce them.

First, I will begin with the Contra Costa Fire District.

MR. RICHTER: Good morning. I'm Keith Richter, Fire Chief for Contra Costa County Fire District, and I will be providing the information for you this morning.

CHAIRMAN HILL: Thank you Chief. Secondly, Contra Costa County Emergency Medical Services.

MR. LATHROP: Good morning. My name is Art Lathrop. I'm the Emergency Medical Services Director for Contra Costa County. I'll be providing information to you this morning. Also in the audience is Ms. Barbara Center from our office who is available to answer questions if there are questions.

CHAIRMAN HILL: Thank you, Art. Next, Contra Costa County Health Services Division.

MR. PASCALLI: Good morning, Mr. Chairman, members of the Board. I'm Lou Pascalli, director of the hazardous materials programs for Contra Costa County Health Services Department. And with us today is the director of the Health Services Department, Dr. William Walker, who is in the back. As part of the team that will be presenting today is Mr. Bill Alton, who is the chief investigator for the root cause analysis, and Mr. Perry Calos, who assisted in the investigation. In addition, we have several members of the staff, Ms. Tracy Hein-Silva, who is our public information officer, and Mr. Randy Sawyer, who is another engineer investigator for the Health Services Department. We will be presenting initially for the agency's response to the incident, and then this afternoon the root cause analysis presentation.

CHAIRMAN HILL: Thank you Dr. Walker. Next, the State of California Occupational Safety and Health Administration.

MR. Caynak: Good morning. My name is John Kenna. I'm here today representing the California OSHA program. Also with me I have Ms. Carla Fritz. To arrive shortly later this morning will be Mr. Bill Krycia.

CHAIRMAN HILL: Thank you. TOSCO Refinery Company.

MR. ZIEMBA: Good morning. I'm Larry Ziemba. I'm general manager of Tosco San Francisco Area Refinery, which includes the Avon facility.

CHAIRMAN HILL: Thank you, Larry. Next we have the Paper Allied Industrial Chemical and Energy Workers International Union, PACE, also joined by the PACE Martinez Local.

MR. SULLIVAN: Hi. My name is Steve Sullivan, a representative with PACE. We have with us the regional vice president, Bill McGovern, representatives from the Local, Jim Paine, secretary, treasurer, and staff field rep, Jeff Clarke. Thank you.

CHAIRMAN HILL: Thank you again. I think that covers all the initial introductions. I think someone indicated that there will be people arriving who will be providing information later in the day. For the record, we will ask them to state their name again when those individuals do arrive at the time of their presentation.

Again, let me -- let me express my thanks to -- to many on behalf of the Board and all of those present who otherwise assisted the Board in some way. This, of course, includes Pacific Northwest

Laboratories, who worked directly with us; Contra Costa County Health Services Division, who was extremely helpful with us, worked directly with the Board's investigators; the Board of Supervisors for allowing us to use this chamber today, certainly appreciate their contribution to our efforts; and Region Nine of the US Occupational Safety and Health Administration, US OSHA, also was extremely helpful, as was California OSHA, another partner in this process of collecting the information in this case; Contra Costa County office of Emergency Services also was initially involved with the investigators when they arrived on the scene, as was the Contra Costa County District Attorney's Office. So, I think there are lots of people.

Again, this is how government should work in that there are lots of contributions from people with lots of different talents that come together to collect information in the interest of everyone that we can get to cases like this. And on behalf of the Board I express my appreciation.

I'm also pleased today that the media is covering this event because many who could not be with us today, or many individuals in the community in the state of California and, indeed, around the entire nation, will only know about our efforts, most likely, through what is reported through the media. You play a very important communication role in reaching out, particularly when we're seeking additional information like this or communicating results as -- as we will follow both venues

today. I would ask, however, that if you conduct any interviews with anyone, you do so outside the Chamber.

Let me now pause for a moment -- if I could take an additional sip of water -- and ask the board members if you have any procedural questions at this point. Are we fairly clear on our process? Also, anyone I introduced. I think everyone has been briefed on the process.

Okay, then we will proceed, then, with the agenda. I'd like to ask, then, that as we follow the agenda that has been developed that we first call on the Contra Costa County Emergency Services Officials. I'll ask our team to move back from the table and allow the Emergency Services Officials space to come up and make the initial presentations.

Would Chief Richter and Art Lathrop please come to the presentation table? Gentlemen, again, I hate to ask you to do this again, but for the record, would you state not only your name but also your position or your profession and any credentials or qualifications you might hold. And if you have exhibits to enter into the docket, would you please identify these at the time, before you begin your testimony?

First, I'll call on Chief Richter and ask you to go forward. Thank you.

MR. RICHTER: Yes. My name is Keith Richter. I'm the Fire Chief of the Contra Costa County Fire Protection District. And I do have a one-page exhibit that I'd like to submit to you.

This is basically a synopsis of what the -- what the Fire District did on the -- on the day of February 23rd, and the units that were dispatched and responded to the Tosco refinery.

It was approximately 12:26 when the dispatch center received a call from the Shell or the Martinez Refinery Company security. They were reporting smoke in the area of Tosco Avon. Telephone contact was made by Contra Costa County dispatch center with Tosco Refinery personnel who requested us to respond to assist them. This refinery does not fall within the jurisdiction of the fire district, but we have a process of sending aid to them on request.

We have -- on that day we had an initial dispatch for an oil refinery fire. Included in the assignment were three engines, one ladder truck, one breathing support unit which is a -- to refill air bottles, basically, and one battalion chief.

On the arrival of the first battalion chief we also requested subsequent units, which were a technical rescue unit and a second battalion chief. As the unit -- units arrived, they staged at gate B near the Tosco emergency command center. Engine nine was first on the scene and staged on Solano Way at the entrance to the incident site. When our first battalion chief arrived, contact was made with the

security control officer and all units were cleared to proceed directly to the incident site. Out response time to the incident was 12 minutes. The incident site is several miles away from our fire district stations.

Contact was made with Tosco rescue personnel and some initial assignments were initiated. Tosco had established a command structure and we served in a support role to the incident. The fire was extinguished by the Tosco personnel, so we had no actual fire on arrival of our units.

The following identifies the tasks performed by our district resources. The first engine arriving, engine nine, is a paramedic equipped engine. Their role is to utilize their advanced life support capabilities to assist the ambulance company in the care and treatment of patients prior to their transport to the hospital.

Engine six, along with breathing support seven, was assigned to coordinate medical helicopter operations, basically to assist in landing of those -- those helicopters. This involved establishing a landing zone and coordinating the arrival and departure of the four medical helicopters that were used in the rescue. They also obtained a temporary flight restriction for non-essential aircraft in the area. In other words, to restrict any other planes flying over, due to the proximity of the airfield to the Tosco site.

Truck six and engine 12 crews were staged throughout the incident, so they were not used in the operation. While they did create

an equipment cache, neither the equipment -- neither the equipment nor personnel were committed to the incident. Rescue 310, which is our technical rescue unit, was utilized on the tower, assisting Tosco rescuers in removing the victims from the scaffolding.

Our first battalion chief was cooperating with the Tosco operations commanders, coordinating our fire district resources. And the other battalion chief served as liaison in the emergency command center at Tosco to assist with media relations.

Tosco Avon personnel established an internal command structure and performed all fire suppression activities, as well as coordinating the rescue operations. American Medical Response triage treated and coordinated the transport of victims. The Fire District provided resource to Tosco to utilize as necessary. As a provider of mutual aide resources, we served primarily in a support capacity.

That was the extent of our operations. We did have resources on the scene for about three hours. And once the victims were removed it was primarily just in liaison with Tosco.

CHAIRMAN HILL: Thank you, Chief. Any questions from the Board members? Okay. We'll go on to Mr. Lathrop.

MR. LATHROP: Mr. Chairman, members of the Board, good morning. My name is Art Lathrop. I'm the Emergency Medical Services Director for Contra Costa County. I do have a copy of my remarks to bear into the record as an exhibit.

Emergency Medical Services is a division of Contra Costa Health Services. The EMS division provides overall coordination for the county's Emergency Medical Services system, including administration of the County's emergency ambulance service contracts. The EMS division staff responds to the Sheriff's dispatch center during multi-casualty incidents to provide support functions, including ensuring the availability of ambulance services to support the incident, hospital notification, and the distribution of patients to appropriate hospitals. This report will provide a brief overview of the EMS response to the Tosco Avon fire last February 23rd.

The EMS agency's responding to the incident included, of course, Tosco Fire and Contra Costa Fire, as you've just heard, to provide rescue and medical first responder services at the scene.

American Medical Response was the ground ambulance provider at the scene. CalStar and REACH provided medical helicopter services at the scene of the incident. California Highway Patrol provided a rescue helicopter service, basically a fifth helicopter that did not actually land but was available in the air. Contra Costa Sheriff's Department provided dispatch services and a liaison from the incident site to the medical dispatch center. John Muir, Doctors, San Pablo, Alta Bates, and UC Davis hospitals provided patient care to the patients that were transported from the incident. And of course my office, Contra Costa

Emergency Medical Service, provided support to the multi-casualty incident.

Other agencies which were standing by and ready to provide services included UC Davis Life Flight, which was another medical helicopter service. And all the other Contra Costa County hospitals and several other specialty centers outside of Contra Costa County that were standing by and ready to receive patients, had they been needed.

The initial notification of the fire by Tosco was, as Chief Richter said, made through Contra Costa County Fire at 12:26, and in by Tosco to American Medical Response, the ambulance service, at 12:29.

American Medical Response, or AMR, was requested to respond to burn victims. And just note that some of the times I give are taken from clocks by different agencies, so they may not be totally synchronized.

AMR's initial response then included two ambulance units. The first ambulance unit arrived on the scene at 12:37. Additional AMR units were then dispatched as the estimate of the number of casualties increased to between six and seven victims. Altogether, AMR responded seven ambulance units and one supervisory unit to the scene of the incident.

Between 12:37 and 12:45 a medical helicopter response was requested, both from CalStar and from REACH. Both of these services have helicopter units based at Buchanan Field in Concord, as well as other

units based at nearby locations. Both -- CalStar arrived at the scene as the first helicopter at 12:46 and altogether, as Chief Richter indicated, four medical helicopters did respond to the scene and land, two each from CalStar and REACH. And then, as I indicated earlier, a fifth rescue helicopter was available in the air from CHP, but was not used.

Contra Costa EMS staff were initially given a heads-up notification of the incident at 12:37 by AMR via an alpha-page system. At 12:44 Contra Costa County Fire did call Sheriff's dispatch to activate a medical advisory alert for six to seven burn victims at the Tosco refinery. Now, medical advisory alert is the first level of alert under the county's multi-casualty response plan. And what that does is initiates a notification to hospitals and other supporting organizations, including the on-call health officer, that an incident is in progress.

At about 13:02 the medical advisory alert was then upgraded to a full multi-casualty status, based on reports that we had of perhaps six to seven critically injured victims.

Hospital notifications began at 12:53. All nine Contra Costa County Hospitals as well as five specialty centers, burn centers and trauma centers outside the county were notified of the incident and directed to be prepared to receive victims. Twenty beds were identified at just the trauma and burn centers throughout the region as available to receive critical victims if they were needed. And this, of course, was in addition to beds that were available to other hospitals.

Patient transport began at 12:54. The first patient was transported to John Muir Trauma Center by ground ambulance and it arrived at the trauma center at 13:28. This patient was subsequently transferred the following day to Alta Bates Burn Center in Oakland.

The second patient was transported by CalStar Helicopter at about 12:58 and arrived at the Doctor's Hospital San Pablo Burn Center at about 13:08.

Rescue operations then continued for the third and fourth patients. The third patient was transported by REACH Helicopter at about 13:55 and arrived at the John Muir Trauma Center at about 14:20. This patient was then immediately transferred from the John Muir Trauma Center to the Doctors San Pablo Burn Center, arriving there at about 15:07.

The fourth patient was transported by REACH Helicopter at about 14:08 to the UC Davis Burn Center, arriving there at about 14:22.

At 14:13 EMS was notified by American Medical Response that four patients had been transported and that three to four additional patients were being rescued from the tower, and also the possibility of additional fatalities. That information was subsequently corrected at 14:19 by an update from AMR stating that there were, in fact, no remaining victims to be rescued and that there was one fatality that was remaining at the scene. The multi-casualty incident was then canceled at 14:29, and that concluded the emergency medical response to the incident.

CHAIRMAN HILL: Thank you, Mr. Lathrop. Could you, for the record, tell us what REACH is?

MR. LATHROP: Yes. REACH -- REACH and CalStar are two privately owned medical helicopter services that provide patient transport, essentially an air ambulance service staffed by nurses and/or paramedics, and they're designated to respond to emergencies in Contra Costa County.

CHAIRMAN HILL: Does REACH stand for anything specifically, again, for the record, or --

MR. LATHROP: I'll ask my assistant to answer that. Barb?

CHAIRMAN HILL: That can be provided later. That's fine.

MS. CENTER: It's Redwood Empire Air -- I could look it up.

MR. LATHROP: We'll supply that to you.

CHAIRMAN HILL: That's fine. Again, it's just for the record. I wanted to make sure we had that name. Any additional questions? Dr. Poje.

MR. POJE: Thank you for the testimony. Was there any formal or informal assessment of the effectives of your plan and its implementation around this incident?

MR. LATHROP: Following the -- following the incident we did conduct what we call a debriefing, and that's essentially a meeting where we call in all the agencies that participated in it, and without -- without conducting a evaluation as such we asked the agencies to indicate

first the sequence of events, the what happened, and then what things worked well and what things, you know, may need improvement. And so that was -- that was conducted.

As -- as always occurs in these things, there are a list of things that, frankly, could use improvement, and a list of things that went well. I think the overall assessment was that the medical response went quite well.

CHAIRMAN HILL: Okay. Any other members? Dr. Rosenthal.

MR. ROSENTHAL: Yes. It sounded to me like you did a very professional job. One question. Was there any analysis of whether medical outcomes might have been effected had you been able to access -- had access to victims in a different fashion?

MR. LATHROP: I'm -- I'm an administrative, not a medical person. That -- that's always a question. What I would say is that the -- in looking at the injuries sustained by the patients, that question did not come up as something that required further investigation. I think the combination of the injury sustained and the -- the difficulty of the rescue operations led the responders on the scene to conclude that things had worked well. And I'm not really able to answer the question.

MR. ROSENTHAL: Let me be more specific. I noticed that you had access to the -- to the first victim sometime. I guess it was like 12:56. Something of that type. And the subsequent victim was late as 14:08. There was a considerable lapse time. Could you comment as to

why that was the case and whether that might have effected the medical outcomes?

MR. LATHROP: I would have to defer to the rescuers on the scene. And Chief Richter may want to comment, or perhaps someone from Tosco, around the rescue. My understanding, again, from the debriefing that occurred, was that the rescue operation was highly technical and really could not be speeded up without jeopardizing the safety of both the rescuers and the patients being rescued, so that that issue did not really -- was not pursued further.

MR. ROSENTHAL: Let me make just one last question. What -- was there a physical reason for the delay between the first and the last -- the 14:08 thing -- victim?

MR. LATHROP: And I think I will defer to Chief Richter on that.

MR. RICHTER: The patients were located on different levels on the tower, and the rescue operation was very complicated by the fact that there was still flammable liquids on the tower and we still had some ignition sources in the area and the operation had to be, just because of the risk to both the patients and the rescuers, very deliberate and very calculated. We had some delays in trying to use equipment that was on the scene, mainly a crane that was being used in this repair operation. We had to assess its usability after the fire, before we could actually use it to lower the victims that were higher on the platforms, and the

delays that were caused by that, I think, were necessary, as I understand.

I was not on the scene, but the information that was given afterwards leaves me to believe that the delays were a necessary part of the operation for the overall safety of the rescuers, as well as those that were injured. The severity of the injuries were such that it's doubtful in my estimation, and my highest level of training is paramedic, but the physicians that I've talked to also have indicated that there's very little chance that the outcomes would have been different had we gotten them down 10, 20 minutes sooner.

MR. ROSENTHAL: Thank you very much.

CHAIRMAN HILL: Okay. Lew.

MR. PASCALLI: Mr. Chairman, members of the Board, my name is Lew Pascalli. I'm the director for the Contra Costa Hazardous Materials Programs. This is a division of the Health Services Department which is responsible for the regulatory oversight of businesses dealing with hazardous materials in Contra Costa County. In that capacity we are also responsible for responding to major events to determine what the community impact and offsite consequences might be for any release of these materials.

I do not have anything to submit to the Board at this time. The more detailed analysis will be given this afternoon by our staff that did the root cause analysis.

On Tuesday the 23rd of February, 1999, at approximately 12:23 we received through our incident response emergency page system a call from Tosco indicating that they had a fire, a level two fire, and requested our arrival on scene. At 12:28 we received a call from one of our staff members who was conducting an inspection in Concord, which is a town just to the southeast of the Tosco Avon plant, indicating that she had scene the page and noticed, looking toward Tosco, that there was a thin plume of smoke that rose into the air, dissipated, and then had suddenly had stopped and was no visible smoke coming offsite, or nor was there any odors or smells in the air at that time. She was approximately two to three miles away from the scene.

At 12:37 the incident response team was dispatched and the hazardous materials operating center was put into effect to respond to this event. We also started receiving a large number of calls from the media, asking us what -- what had occurred, and we were in the throes of attempting to find out what the facts were of the situation.

Our staff arrived on scene at the Tosco Avon Plant at approximately 12:44 and were immediately dispatched to the front gate toward the scene. At that time on the way they saw no evidence of smoke rising, nor detected any odors from the plant.

At 12:48 they determined that there was no offsite consequence occurring at that time, proceeded to the scene, and

determined that the event that was occurring and the activities were more related to a medical rescue and response.

The team responded to the technical command center of Tosco and discussed with them what the facts of the situation were, which was relayed back to DOC, Department Operating Center. And then we relayed that information to the press and to the people who were calling in to get the additional facts of what we knew at that time.

The staff talked to us via our communications media and indicated that there did not seem to be a chance that the event would reignite, although there were some materials around the -- the scene. They would stay on site until such time as was ascertained that it would not reignite, nor were there any other emergencies that would occur.

In -- in the Tosco command center our staff was also discussing the event with other members of regulatory agencies, such as the Bay Area Air Quality Management District. And from their evidence and their observations around the scene they determined that there was no offsite consequence, since their staff had not determined or observed any evidence of any smells or odors or smoke going offsite.

At approximately 1:15 the staff called and said at that point in time it appeared as though the event was over since the fire had been declared out at approximately 12:38, and that they should be brought back to the command center and then reassembled after the inspection team or the evaluation team was brought together.

At approximately 3:15 our staff returned. Three members of the staff that were going to do the inspections returned to the site and were told that -- to come back at approximately 17:00 because the site was not yet declared safe because of the materials that were around as well as the heat that was still emanating from the hot surfaces.

At 5:30, 17:30, the staff reassembled with other regulatory agencies. Cal-OSHA instigated a site security cordoning off of the area, and then our team proceeded with the accident investigation.

At this time that's all I have regarding our response to the events. Are there any questions?

CHAIRMAN HILL: Any questions of the members? Dr. Taylor.

MS. TAYLOR: You mentioned that because there was no visible smoke or smell that there wasn't a need to investigate there any further. Did the Air Quality Management Group conduct any air monitoring at all at the facility afterwards or no?

MR. PASCALLI: I believe there was staff out in the field with the equipment that would -- and I don't know the type of equipment they have, but basically it's the type that's used around refineries to determine if there are any materials that are emanating offsite, and they were determining that they did not. And since the wind was basically calm and the smoke went straight up and dissipated, that there was no probability of an offsite consequence.

CHAIRMAN HILL: Dr. Rosenthal.

MR. ROSENTHAL: Well, I -- you did these measurements. Specifically, were attempts made to determine benzene content?

MR. PASCALLI: No, sir.

MR. ROSENTHAL: Thank you.

CHAIRMAN HILL: Okay. If there's nothing further then I want to thank the emergency response personnel, all three of you who appeared here today to give us an orientation as to the events that morning. I think this was important to begin with this orientation to understand the chain of events as they unfolded on the morning on February 23rd. Again, thank you for your testimony. I would now like to call on our other members. Thank you, gentlemen, for providing that.

At this point, with all the exhibits having been entered into the docket, I'd like to ask the CSB investigator in charge, Mr. Armando Santiago, to present an opening statement of the Tosco event for the record, as well as the status of the investigation. At his direction he will identify the next members of the team who are to make remarks for the record. That individual should state his name for the record and state and credentials that he may hold, and this process should be followed until all the presenters have made their remarks. Mr. Santiago.

MR. SANTIAGO: Thank you, Mr. Chairman. On February 23rd a fire at Tosco Avon facility 50 crude unit killed four workers and severely injured another.

Workers were attempting to replace a six inch diameter piping attached to the crude fractionator tower while the process unit was in operation. The piping contained flammable naphtha liquid and was neither isolated, nor drained.

The piping runs from the tower at the height of 112 feet to another vessel at the height of 38 feet. During the removal of the piping Naphtha was released onto the hot fractionator tower. The Naphtha ignited and the flames engulfed workers, four of whom were unable to escape from their elevated positions. One worker jumped from the tower, sustaining serious injuries.

My name is Armando Santiago. I am a chemical engineer. I have worked for 21 years in research, development, testing and evaluation of industrial and military chemical processes. I have conducted failure analyses studies and incident investigations for federal agencies, including the Department of Defense, the Environmental Protection Agency, and now the Chemical Safety Board. Most of my investigations were performed in cooperation with a variety of national and local government agencies. All of them are responsible for implementation of OSHA Process Safety Management programs and the EPA risk management program.

I would now like to introduce my fellow investigators, Mr. Dennis Walters and Gary Swearingen. Dennis.

MR. WALTERS: Mr. Chairman, my name is Dennis Walters. I'm a project manager with the Pacific Northwest National Laboratory, located

in Richmond, Washington. I have -- which is a Department of Energy operated national laboratory. I have a Bachelor of Science degree in electrical engineering and a Bachelor of Arts degree in education, which included math as a background. I have 23 years of electrical engineering, supervision and management experience, primarily in the utility industry. I have been specifically trained in management oversight risk tree analysis techniques which include events and causal factors, energy barrier target analysis and change analysis techniques, as well as other investigative processes. From 1993 to 1996 I was one of the key technical reviewers of all serious accidents in the Department of Energy, and I helped develop the program at that time. I also was the technical editor of a Department of Energy wide technical publication called The Safety Observer, which was a sharing of lessons learned for the industry. Thank you.

CHAIRMAN HILL: Thank you.

MR. SWEARINGEN: Good morning. My name is Gary Swearingen. I'm a senior research engineer at the Pacific Northwest National Laboratory. Dennis is an associate. Same department. I've had 19 years of experience, primarily related to technical support of operations for various commercial utilities, both nuclear and non-nuclear, chemical labs, project management of radioactive facilities.

For the last six years I've been participating with the Department of Energy on accident investigations that were across the country, generally fatality-related.

My bachelor's degree is in nuclear engineering. I have a professional engineer's license in mechanical. A master's degree in engineering management. I also have experience in the naval service as a navigator, gunnery officer, communications officer. Thank you.

CHAIRMAN HILL: Thank you. Armando.

MR. SANTIAGO: I would also like to note that the full investigation team has been supported by other agency safety professionals with extensive refinery experience. Two of them are with us today, Don Holmstrom and Bill Hoyle.

On February 26th a team of investigators from the Chemical Safety Board arrived at Tosco Avon facility. There were already other investigatory agencies on site. During the days that followed we met with all interested parties, including, of course, the company, union officials, Cal-OSHA, and the County investigators. The intention was to coordinate all investigatory activities. To minimize the impact of the duplicate requests by CSB and other agencies, we cooperated in the fact-finding phase of the investigation. We shared factual information with Cal-OSHA, Contra Costa County Hazmat investigators, and the company.

During the fact-finding phase of the investigation we reviewed extensive documentation, including procedures, inspection

records and permits, process data, equipment inspection sheets and laboratory test results. We also conducted several interviews, both at the management and workers level. We organized the information by performing or using several techniques, some of them Event and Causal Factors analysis, Barrier Analysis, and Change Analysis.

As in any investigation there were several tests that had to be conducted, both on chemical samples and metallurgical samples. Cal-OSHA was very instrumental in a lot of the chemical testing. They actually took the lead in the testing and analysis of the chemical and metallurgical analysis. This was done to identify corrosion problems in the naphtha line at the time, the chemical composition of the sludge is found inside the line, and to determine the failure mechanics of the piping and bypass valve. Tosco itself was also instrumental on providing testing for leakage rate on one of the valves.

I would -- at this point I would also like to thank some of the other stakeholders, because in the course of our investigation we received assistance and cooperation from several of them. As I said before, Contra Costa County Health Services, Cal-OSHA. Both of those helped with the technical resources, preservation of evidence and evidence gathering.

I also would like to thank Fed-OSHA for assisting doing the initial deployment of our team up here to the West Coast. Federal EPA has been instrumental in providing technical information support. Don't

want -- Don't want to leave out the PACE union which provided invaluable assistance during interviews and evidence gathering process. And the American Petroleum Institute has been providing references, standards and documentation to assist in the analysis.

The investigation team will provide facts and findings relevant to the five major safety issues, as you see in this viewgraph. We continue to probe into these and other safety issues for potential lessons learned. The final results are still to be determined.

The issues under evaluation are: the shut-down of the process unit to safely conduct repairs; Tosco's management oversight of process operation on maintenance activities; maintenance operation procedures including process in isolation, drainage and opening; management of change as related to mechanical integrity program of 50 Unit; and the safety personnel mission and deployment in Tosco.

Later in our presentation we will examine each of these issues in detail, providing evidence uncovered during our investigation.

As previously stated, the February 23rd fire occurred while workers were attempting to replace a six-inch diameter piping attached to the fractionator unit. It is important to note that in addition to Tosco personnel, other contractors were scheduled to participate on this job. That included riggers and crane operators from Bigge Crane and Rigging Company, scaffolding personnel from Interstate Scaffolding,

Incorporated., and vacuum truck operators from Waste Management Industrial Services.

Gary Swearingen will walk us through the events preceding this incident.

MR. SWEARINGEN: Start -- starting with the fractionator-- the tall tower is what we call the fractionator. That represented both here -- the large picture is the fractionator in still shot, and then in drawing it's the tall. From the fractionator -- go ahead. Next slide.

The naphtha draw line, as the system is designed, comes off a tray inside the tower. It runs off the upper flange. We're going to reference some of these items through a block valve, down the six inch pipe, through a control valve, into what's called a naphtha stripper, although as Tosco was currently using this naphtha stripper it was more a tank than a stripper. The flow is designed to go through the control valve as part of the normal operation.

Tosco had been having operating problems with the control valve, and subsequently as a way to continue operations they had opened the bypass valve, and the normal flow at the time, February of this year, the flow was through the bypass valve, rather than through the control valve.

We started our time line on February 10th. That is the date that a leak was detected. The leak was on the naphtha draw line, just downstream of the first block valve there on an inside elbow. And

personnel at ground level detected the leak and activated a response to the leak. They isolated the valve, both up above here and down here at the control valve and the bypass valve, attempting to isolate this line. So, again, the leaks up here high inside elbow. This valve was closed. The bypass valve was closed. The control valve was closed.

MS. TAYLOR: Excuse me. Can you go back and show me where the leak was again at the top? I saw the arrow but.

MR. SWEARINGEN: Okay. The leak is on the inside elbow.

Okay. After the picture of the leak you can just barely see a small leak underneath insulation, difficult to see even after -- got it down off the tower.

MR. POJE: That's a six inch diameter pipe?

MR. SWEARINGEN: It's a six inch diameter pipe.

CHAIRMAN HILL: Can we turn the lights down to see these a little better? Is that possible.

MR. SWEARINGEN: Yeah. That shows up a little better.

CHAIRMAN HILL: Okay. And this is the piping at the top?

MR. SWEARINGEN: This is the elbow, inside elbow in a, well… here, between the sectional pipe and the elbow of the pipe. This is from the outside of the pipe. This is down on the ground. We removed that -- the sectional pipe had been removed and was on the ground before the accident.

After the day of the leak, which was February 10th, they inspected the pipeline, made the determination to replace the naphtha draw line. On Saturday, February 13th, the leak was detected again. The -- again, the response was to turn the valves harder. The operator logged -- there's a log entry that the naphtha draw line is full.

Part of their problem -- this is a picture of the solid material in the bottom part of that pipeline down here. We found extensive solid material. That's why the control valve wasn't being utilized. This is another shot of the material, that's why they were operating on the bypass. Here's another shot of what we called the gunk. It was more liquid, but still fairly solid. This was downstream of the control valve. This hampered draining the line, this hampered operation of the control valve.

Wednesday, February 17th, the leak is detected for a third time. And again they try harder on the isolation valves. The same three. They attempted to drain the valves out of the drain valves, which will show in the drawing here, but failed because the drain valves were blocked down here. They tried draining small drain valves plugged with material.

Thursday, February 18th, they tried drilling out those valves. The cable broke. They did not succeed. The maintenance work order for that was marked as incomplete.

On Friday, February 19th, they removed some of the piping sections near the control valve, observed some of the solid material, and still didn't succeed. Down here they indicate they removed a pipe section and didn't succeed in draining the pipeline.

We have now this kind of conceptualized in yellow is what we feel the naphtha was remaining inside the drain line. In between those leaks, this level in the naphtha stripper tower cycled several times with a rising level, and the operator response to that rising level was to open a downstream valve to keep the level from rising. That was another indicator that we had leakage through the system.

We now move up to Tuesday morning, the day of our event. We just picked 6:00 o'clock. That's the start of day shift. This is where we see the condition of the system. These valves are closed. This valve was leaking. Tosco personnel are not aware of that. This vent line here connects both the fractionator tower and the stripper tower as 12 psig, pounds per square inch. So, there is a pressure head on this side, so you've got what we call a loop seal. So, the level up the run up the fractionator tower is higher.

At 7:00 a.m. the preparations to do the pipe replacement really get into gear, with contractors arriving, workers arriving, assembling to proceed with the job.

At 8:50 a safe work permit was signed. Shortly thereafter they continued their attempts to drain the naphtha draw line.

Down here they were working in the control valve area in the morning of the day of the accident. They were not successful.

At about 10:20 they proceeded with the cut up high on the line. This was the section with the leak. The leak is up here in this elbow. They cut the pipe. They didn't really have any indication of liquid material at all. They then flanged up here to isolate that valve, and this piping section was removed by drain or ground. That was -- I think that's an as-is photo, before we started moving.

MR. POJE: How large a section of pipe was that?

MR. SWEARINGEN: That was about, oh, 15 feet.

So, we have the first cut about 10:00. About 10:40 they then drop down. What we call it, the height of the tower. It's only eight feet. And they set up on a platform there, indicated on the drawing. That's what we call the second cut. That's a installed platform. They got leakage. Naphtha right here. And they stopped working there. Had some conferences. They still added to the pressure head. They moved their drainage attempts in this area and started setting up to drain by breaking and spreading this lower flange, which was directly below the second cut area.

Okay. This is a picture after the event. This is at the second cut area. What you see there is the cut in the pipe, six inch pipe again. This is a picture of the saw. This is pretty much as found after the event.

MR. ROSENTHAL: Excuse me, Gary. Do you know why the drain valve that you indicate on that lower loop was not utilized in an attempt to drain the line?

MR. SWEARINGEN: This valve right here?

MR. ROSENTHAL: Yes. Do you have any information as to why that was not utilized?

MR. SWEARINGEN: They didn't -- we talked specifically to some of the operators, and it never -- one operator called it a vent. And it just never seemed to have gotten considered as a possible drain path for this.

MR. ROSENTHAL: Was the -- was the cut in the lower -- in the spreading of the lower flange covered in some type of operating order or some type of instruction, or was this done as -- at the moment, without formal analysis.

MR. SWEARINGEN: Correct.

MR. ROSENTHAL: There was no formal analysis?

MR. SWEARINGEN: Correct.

MR. ROSENTHAL: Thank you.

MR. SWEARINGEN: At 11:30 the job broke for lunch. Everybody stopped, came down off the tower. At -- it would be 11:00 o'clock was a break for lunch. At 11:30 they returned from lunch. At about 11:40 they start draining at the lower flange area down here into a

bucket. And then from a bucket it is sucked out by a vacuum truck, via hose, nearby.

MR. POJE: Was the vacuum truck utilized to draw off the observed naphtha at the second cut?

MR. SWEARINGEN: No, the naphtha -- or the vacuum truck is being used to draw the naphtha that drains out of this lower flange area.

MR. POJE: Oh, when the second cut was originally made it was identified that there was naphtha?

MR. SWEARINGEN: There was leakage.

MR. POJE: There was leakage. And how was that managed?

MR. SWEARINGEN: They stopped. They had a discussion on the tower. And basically it -- we don't have good records of those conversations specifically, but it appears the decision was made to shift the drainage point and that they were going to drain from here.

MR. SANTIAGO: Dr. Poje, before lunch they brought a clamp to clamp where the cut was made to stop the leakage.

MS. TAYLOR: I'm sorry. I missed that, Armando. Can you --

MR. SANTIAGO: They brought a clamp to stop the leakage at the second cut before lunch, before going to lunch.

MR. POJE: But had not applied it yet? Had they applied the clamp to that site before lunch?

MR. SANTIAGO: That is what the evidence -- the evidence at this point points toward. We do not have any direct witness that saw somebody specifically putting the clamp on. But in the position we found the clamp afterwards, it seems that they could have used it before lunch.

MR. SWEARINGEN: Okay. This is a picture of the bypass valve that -- in the closed position. With Tosco we conducted a -- a leak test, and it failed. We have the data to --

MS. TAYLOR: With the valve closed?

MR. SWEARINGEN: That's with the valve closed. There's pressure on the other side of the valve. And this is the open end. The expectation would be very little to no liquid, and we got a lot more than expected. That's this valve right here in the closed position under low pressure. That was a lower pressure than the 12 pressure -- 12 pounds of pressure that was the actual operating condition.

MR. ROSENTHAL: Did you -- Gary, again, do you have any estimate of the amount of material that was drained off from that bucket? In other words, did you have a measure of the amount of material in the vacuum truck to give you some idea of what the rate of leakage was?

MR. SWEARINGEN: We do have the amount out of the vacuum truck, but again, it's not real clear what the heel was at the start of the day, and so it wasn't real conclusive. They did draw off some.

MR. ROSENTHAL: Was it of the order of a gallon, 10 gallons?

MR. SWEARINGEN: It was about 70 gallons, seven zero.

MR. ROSENTHAL: Okay. Thank you.

MR. SWEARINGEN: I guess the point -- at this point they were draining down. The other efforts were never really successful in draining off naphtha. They were draining naphtha at this stage here. It was coming out, the vacuum truck was removing it.

MR. POJE: Can you give us some description of how that was done? The flanges were opened?

MR. SWEARINGEN: The flanges were forced open. Spread.

MS. TAYLOR: The valve is still closed, and where is the leak at that point?

MR. SWEARINGEN: Okay. Right now we have a pipe that's open to the atmosphere because the first section has been removed. We have a -- this is closed. It's leaking. And this section is still blocked. Right now there is a section gone. A section of the pipe has been removed.

We've indicated where the level of both sides of our loop seal are starting to go down. We suspect that the drop below our second cut -- that's what this arrow indicates -- which is, we hypothesize, why they began cutting again.

At about 12:15 they're still continuing to drain down here. We suspect they drop the level enough that basically they lost their loop

seal. So, there was a pressure surge of some sort from this path, 12 pounds of pressure, through the bypass valve that won't isolate.

MR. SANTIAGO: At this stage vapor is getting into the line.

MR. SWEARINGEN: Right now. Yeah. This is vapor. We've now got pressurized vapor being introduced into a liquid line. We have various descriptions of naphtha now coming out of the platform where the saw was located through the cut area as shown in the area, out the top of our open naphtha draw line now, and out of the lower flanged area. This variously described as spray, a sheet. It doused all the workers in the area. We had a worker down here working on this lower flange draining. We had the person at the saw. The crane supervisor was up on the platform next to the person at the saw. And two scaffolding personnel were above the saw, ready to assist with the removal of this next pipe section.

MR. POJE: Could you please tell us what the elevations were for the people at these three different positions?

MR. SWEARINGEN: Yeah. Over here in the drawing we've got elevations.

CHAIRMAN HILL: We can bring the lights back up if you would like at this point, but are you at a point where you would like to continue talking about this information first?

MR. SWEARINGEN: Go ahead and bring up the lights.

CHAIRMAN HILL: Okay. Could we -- I just want to bring the lights back up. Okay. Gary, please proceed. Dr. Poje's question was about the heights.

MR. POJE: If you could just repeat the places where people were located and their jobs and the relative heights?

MR. SWEARINGEN: And I can -- I'll just -- the flange here -- I'll show you a later picture with the scaffolding. They were scaffolded all the way up. There's a platform down here. We had a Tosco employee down here working on this flange, break the flange, draining into a barrel. It was sucked out by hose off the vacuum truck. This section of the pipe is now gone. It's like a 78 foot elevation. You have where the saw was located. You've got a person operating the saw. Right next to him was the crane supervisor.

Basically, that was a -- an installed platform, and the third field division down to the crane. Above them, because to move this section of pipe which was then relatively tight, and they had scaffolding around it and they were going to move scaffolding and lift it and lower it, were two scaffolding workers above the -- the saw area.

The area of ignition, we got -- had witness statements. Can't determine exactly. We had lots of hot surfaces with the right temperatures to do that. But it was above the person at the flange. It was below the saw area. So, it was down in here, as indicated on the

drawing. And a fire ball, that's the description most people use rather than an explosion.

MR. POJE: What's the temperature of the unit itself?

MR. SWEARINGEN: Let's see. Down at the lower end, well, ask for some aid here for the -- 750. And it gradually declines for the naphtha draw. It's about -- what is it up there? Six? No. Two seventy-five. We'll get that to you directly.

MS. TAYLOR: Definitely above the --

MR. POJE: Above the ignition.

MR. SWEARINGEN: Yes. Above the ignition point of naphtha, which is based on which MSDS you read, from 650 -- around 650.

MR. POJE: Could you just characterize naphtha as a material? I know you showed us a pipe that had sludge in it. That's not naphtha.

MR. SWEARINGEN: Okay. The naphtha is a liquid, a clear liquid. Again, I don't have a direct leak in terms of my leakage. They're drawing off of this colder of different fluids. You've got gasoline, you've got naphtha, you've got kerosene, you've got diesel. So, this is between diesel and gasoline.

MR. WALTERS: Dr. Poje, naphtha is also used as a commercial product, as lighter fluid for charcoal and for lighters.

MR. POJE: It wouldn't be represented the material that was in the blocked portions of the pipe?

MR. SWEARINGEN: No.

CHAIRMAN HILL: Yeah. Gary, the individuals on -- who were involved in the fire were actually where the second cut level is on the white area on the actual tower photograph?

MR. SWEARINGEN: Right. Up here. Two were here and two were above them in the scaffolding.

CHAIRMAN HILL: Okay.

MR. SWEARINGEN: Those were the fatalities. The survivor was down at the lower flange, and he jumped off the tower and, in addition to burns, had significant injuries from the fall off the scaffold.

MS. TAYLOR: Gary, just for definitional clarification. You mentioned that the valves were isolated. You mean they were closed?

MR. SWEARINGEN: Isolated or closed.

MS. TAYLOR: Okay.

MR. SWEARINGEN: Yes.

MS. TAYLOR: All right.

MR. SWEARINGEN: Same meaning. And that's -- that's during the leaks, first, second and third leaks. They tried wrenching harder on these valves to close them.

CHAIRMAN HILL: They were trying to isolate.

MR. SWEARINGEN: Well, they thought they were succeeding because the leaks went away.

MS. TAYLOR: Except for the bypass valve still had the leak.

MR. SWEARINGEN: Except when we pulled the bypass valve and tested it, it was still leaking.

CHAIRMAN HILL: Gary, you mentioned something called a loop seal that you described here in this process. When the naphtha sort of moved up the column and then out through the cuts that had been made in it. Is -- for -- in laymen's terms, is that somewhat like a -- when you're picking up the water hose in your yard and it has a bit of liquid in it and you move it to a certain point and it burps out?

MR. SWEARINGEN: Yeah.

CHAIRMAN HILL: I mean, I'm putting it in very basic terms.

MR. SWEARINGEN: Very good analogy. The kitchen sink trap. If there's liquid there, you push so one side --

CHAIRMAN HILL: When the air pressure drops enough on the other end, wherever that is, it allows that material to move up.

MR. SWEARINGEN: Yes.

CHAIRMAN HILL: Against gravity.

MR. SWEARINGEN: That's your point. You've now got -- you're no longer pushing against water, you've now got an air-water mixture with pressure behind it. Excuse me, in this case instead of a air-water, a air-naphtha mixture.

CHAIRMAN HILL: Any other questions of the members for Gary? Proceed.

MR. SWEARINGEN: Okay. Next, a basic description of what happened. Now we'll move -- pass the baton back to Armando to start in on a more detailed explanation of some of the issues.

CHAIRMAN HILL: Armando, would you like to take a 10 minute break before we do that?

MR. SANTIAGO: Yes, I would appreciate that.

CHAIRMAN HILL: Okay. I think others would as well. I now have about 10:35. Let's come back about 10:50. Give us time to stretch our legs. Thank you.

(Off the record from 10:35 to 10:50 o'clock a.m.)

CHAIRMAN HILL: Let me just say while everyone is resuming their seats that in the interest of clarity we've had the lights down. We will -- we'll try to only do that for short periods of time just to improve the quality of some of the information. I would also point out to everyone that the information is available in the handouts that I know the staff has provided. These small view graphs. It does not have the photographs in there, but it does have the printed information that should be available for those who want to follow along if they can't see this information from the audience level.

Again, we'll try to improve everything by keeping the lights up as much as possible.

Now that the investigation team has gone through what they believe physically happened that day in the events, how the material escaped and what transpired, I think we're now at the point to look at the major issues that are still being looked at by the investigation team, and some of their findings as well.

Mr. Santiago, you have five major issues here. I understand you're going to take us through each one of those.

MR. SANTIAGO: Yes. Our intention is to give details on these five major issues. You will be seeing this viewgraph come back over and over every time we go to a new issue, and we will highlight which one we will be discussing.

In this section of the presentation we will review and analyze the conditions present in the 50 Unit to determine if the naphtha draw line piping removal could be conducted safely with a unit online or if it required the unit to be shut down.

CHAIRMAN HILL: Armando, do you want the lights up or down?

MR. SANTIAGO: They're fine.

MS. TAYLOR: Can you see? I mean, it's pretty dark.

MR. SANTIAGO: Fine.

MR. WALTERS: The piping replacement issues that we were looking at here was to decide whether or not this was non-routine and high hazard work and -- or whether it was a routine work practice.

In interviews and multiple opportunities in talking with various people at the facility, the work was actually considered to be kind of routine. And we're -- we're going to sort of talk about some of the things that we felt in looking at this that more or less made it clear that this was not a routine function.

One of the primary things is there are multiple sources. Could I have the lights up, please?

There were multiple sources of ignition on the tower. If you look at the tower over here on the right, you will see that all of the little round circles that are on the side of the tower are manways that go exit -- that are entrances to trays that are located in the fractionator. Those are metal that are -- do not have any insulation on them. The manways, where people are walking up and down the tower, are adjacent to those on several sections of the tower, so that you have access climbing the ladder to the manway entrance to the fractionator tower.

This tower has been in existence quite a while, and so it has a -- it has an older design than what you might find on newer towers, and some of these issues would be resolved under a new design; but unfortunately, industry doesn't often have the opportunity to compensate for old design. It's just not -- it's not cost effective.

The -- the multiple sources of ignition that existed here included the manways, some of the piping where it exits the tower. We

also had, in close proximity, the vacuum truck, which was located within about 30 feet of the base of the tower. That's an approximate dimension. So, there were sources of ignition present.

The other issue here is that if you look over at the other scale, the other drawing here, you'll notice at the top of this line, of the naphtha draw line, there is an isolation valve, but there is no vent valve. That creates a problem in trying to fully vent to drain, and also to steam the line to purge it of any hydrocarbons that would be remaining in the line prior to cutting it. So, this is a particular application where one could not easily purge the entire system.

Where if you recall back on the original, one of the sketches we had, there was a small valve that we asked about whether or not we could use that to drain the system, and one of the operators referred to that as a vent valve. That valve would have been useful if we were making a replacement to, like, the control valve, where we would then be able to clean and purge that section of piping where the work was being done. And that would be the normal kind of routine maintenance activity that would take place on a unit like this. Replacing piping is not something that you generally do day-to-day. It's usually something that's reserved for unit outages.

The other part of this that creates additional risk and hazard is the fact that we're having to move heavy pieces of pipe using a

crane in close proximity to an operating unit. And that -- that increased the risk of doing that kind of work.

The piping replacement, also, because we were unable to drain the pipe, we knew that we had a flammable material in the piping and that we had not been successful in eliminating that hazard. In control of hazardous energy, which is also referred to generically as lock-and-tag, OSHA requires that you eliminate the sources of energy and you control that condition before performing work on the system. In this case, with the naphtha in the line, you had an energy source, which is the hydrocarbons that provide the energy when burned.

The other piece was that we were doing a replacement of 80 feet of pipe, which was a fairly complex task. The intent of this project was remove the pipe on Tuesday and then come back and have -- be staged and ready to put the new piping in by the end of the week by Friday.

One thing I want to point out is that in order to accomplish this task there are a large number of individuals and organizations-- Next slide, please, and turn the lights down for me, please.

You'll see that in the center is the naphtha line. That's basically representative of the tasks that had to be performed. Immediately around that are the individuals -- the maintenance crew, the crane crew, the scaffolding crew, work planners, I'm going to skip the

operation supervisors, the day shift operating crew, night shift operating crew, unit engineer, vacuum truck operators. Those eight individuals and organizations all had participants at the scene or should have had some participant in the planning and execution of the job. The one that did not get utilized in this particular application, in this particular job, was the unit engineer, who had technical expertise and could probably have helped in the planning and execution of this task, but he was not brought into it.

On the top and bottom layers of this we have the managers and supervisors that are also related to this. At the top there's the business team leader. The business team leader is the overall manager who decides what the output of the unit should be and has general technical lead of the operation of that unit as well as others. The maintenance supervisor is the -- has the maintenance crews working directly for him, and, in fact, the maintenance supervisor was present during this work. And over on the right management is -- other managers are also available to assist in doing these kinds of things.

At the bottom, health and safety operations supervisor and shift supervisor, these are more technical people that could be available to help plan and ensure the safety of this kind of an activity. But what I'd really like to kind of point out from this slide is that there is a very complex interaction that has to occur with effective communications, clear direction, clear roles, and understanding of how to accomplish the

task. It is not as simple a worker in the field turning a wrench or opening a line.

The other two elements that are particularly important in this shut-down, in whether or not this unit should be shut down, as we pointed out, this work is taking place at a high -- at an elevated platforms high above the ground level, with very limited means of egress. There are single ladders that one has to climb down. If you'll turn the lights back on again we could look at the tower for a moment. Lights, please?

If you look between the levels where it says "area of ignition and second cut," that's a single run of ladders that one would have to climb to get to the platform where the second cut was done. Once on that, on the lower platform where it says "area of ignition," you then walk over about 12 feet and find another ladder which then takes you down to the next level, which may be the ground level in this case. So, it's not like there are multiple ways or paths that one can leave the scene of the incident. These conditions, we feel, were -- contributed to the hazards that had to be managed effectively to do this work.

Another element that happened, as -- as --

MR. ROSENTHAL: Let me interrupt for a second. Would -- would this be something, then, when you say it needed management in terms of it, that would require something of a formal process for analyzing the

situation, or what did you have in mind when you say "needed supervision"?

MR. WALTERS: If -- we will answer that in a few minutes, Dr. Rosenthal, if you can wait for us? Thank you.

The other element of this is that when the operating crews were -- had multiple indications that there was something not working the way it should have been working. And their evaluation of that was consistently one or more of the valves is leaking by and I will put more torque on that valve to try to get it to stop leaking. And because of conditions that were occurring, these leaks appeared to come and go. And so they were getting intermittent indication that when they took their action, it was effective at finally stopping the leakage, until the next time when a different operator might have found it and then had to react.

So, from crew to crew there were some issues of trying to isolate, and that information may not have been -- does not appear to have been effectively communicated between crews or between -- or with members of supervision and management beyond the operating crews.

MR. POJE: Could you just go back? The second point, then, is the repeated need to pump out the stripper level? Could you repeat what you had told us earlier, then, about the number of times that that had occurred?

MR. WALTERS: Yeah. There's approximately five times where that occurred and where -- show on the pointer. Approximately where the

level indicator is up above there. When the level indicator in the stripper indicates zero, it's approximately three quarters of a way up, up the stripper itself. So, there's about 20 feet of liquid in that tower. And it has a -- it has a stand, which is a sort of range where it measures, and that range of measurement is about 18 inches. And so from zero to 100 percent level is really an 18 inch change.

And what the operators were finding is that they would -- they would open the downstream flow control valve and the level would drop, and then several hours later they would see it ramping back up and then they would repeat that, that activity. And so that was done approximately -- I need to look back at the time line a moment -- on the 14th of February. So, approximately four days after the initial leak and the initial attempts to isolate were done that they were still having difficulty doing this.

One of the operators was concerned that because the level was filling, it could back up into the piping, and so he left the downstream flow control valve open so that the level and the stripper would not recur. And that -- Gary was referring to that, that caused the loss of information that would tell them that they had not yet successfully isolated.

Some of the conditions that demonstrate that they had the inability to drain, clearly the vent -- the drain valves were unable to -

- didn't operate the mechanics that tried to get the drain valve to clear were unsuccessful.

There is an issue that came up in looking at the draining of the system, and that is operators and maintenance responsibilities were unclear at this point, I think. I'm going to say unclear to some. Because one of the things that was operating here is the operators were -- they are not the individuals who are supposed to clear clogged valves. They are the individuals who are supposed to prepare equipment to make it ready to do the maintenance.

So, in this particular instance, the operators, recognizing that the unit could not be drained, assumed that it is still in the maintenance department's hands to get that going. So, that was one of the confusions that was occurring between shifts and between maintenance and operations, as to who's doing what. And it points to some of the communications problems that existed.

MR. POJE: For clarity sake could you please point out on the drawing again the drain valves and the control valves that you're -- you're --

MR. WALTERS: The control valves.

MR. POJE: The control valves are there.

MR. WALTERS: And two drain valves. One on the upper --

MR. POJE: And the two drain valves. Okay.

MR. WALTERS: Another element I wanted to point out here was that if you give -- you show us the horizontal section of pipe just above the bypass valve, that horizontal section of pipe runs between the stripper tower area, over to the fractionator. And it -- because it's a level -- it's a level piece of piping and we aren't sure whether or not it has a characteristic drain that would cause the line to drain, self-drain because of gravity, there could also be a potential, even though you might have drained the system, to still have pockets of naphtha in there if you couldn't -- if you could not positively flush the -- steam the system to flush it out.

MR. POJE: So, this would be why you wouldn't just drain. You'd also want to be assured on the steaming or washing?

MR. WALTERS: That's correct. Okay.

This is a -- this is a tough slide. In looking at this incident there are a couple of decision points that were missed, and this is -- these are -- these are them. This is part of them.

The decision to cut into a pipe that wasn't drained and isolated, that had system pressure on it, in the presence of an ignition source, was -- was a critical decision for all the people involved here. And in doing our long-term research and trying to come together with what root causes are, this is -- this is part of the question that has to be answered. And as I say, we're not there yet.

The next bullet down below it, "Opening flanges to attempt to drain while we had naphtha in the pipeline," was also an issue for doing that kind of drain, especially when we had a drain valve available elsewhere. That's another -- it has to do -- I would characterize it as sort of mind set of operators in this case. There is a common practice in the factory to drain using flanges. And so the consideration of a valve wasn't necessarily -- wasn't done.

Although there were multiple hazards here and we had multiple opportunities to stop and consider, we can -- we progress in the face of uncertainty, as this work was taking place, the workers and managers and supervisors progressed in a condition of uncertainty to perform the work. That's all I have at this point. Any questions on that?

MS. TAYLOR: I just had one question when you mentioned that the unsafe activities that occurred, triggering -- that should have triggered a shut-down, did you say that many of the workers considered this was routine work versus non-routine to actually work on piping? I'm a little confused on --

MR. WALTERS: Through a number of interviews we received both, "This was routine work," and also, "We should have shut down, we shouldn't have done it this way." So, there -- within the -- there was not a unified, clear understanding that this work was high hazard. That's basically all I could say on that.

MS. TAYLOR: Okay. So, the next question would be, then, if it was considered routine, had this happened somewhere before where they actually cut into the line or drain or closing off the valves at other points? Do we know of that? Has information been given to that effect?

MR. SANTIAGO: We have asked that question to the company, and I'm still expecting a response on that. They haven't provided us any information that says they have done it before.

MR. ROSENTHAL: Coming back to the question of this being a high hazard area. There are lots of high hazard operations that are performed within any refinery. The question I'm interested in, and perhaps the answer will be coming later, when you're faced with a high hazard situation, one can analyze the situation in some fashion to decide whether the risk of carrying out that operation meets generally accepted standards of prudent practice. Was such an analysis done by people expert in the area, or was it a common practice to do that in terms of saying, "Here are high hazards. Not necessarily mean that you'll do A or B. You might shut down, you might not shut down, depending on the analysis." But my question, was there a formal process for doing a risk assessment or risk analysis?

MR. WALTERS: The -- there was no formal process for how to make those decisions. Plant procedures indicate that every worker is responsible for safety, and every worker has the opportunity to shut a

unit down, and that's the extent of that, of the guidance, to do that kind of an analysis in a directed way.

CHAIRMAN HILL: But you're saying there was no mechanism how to implement that kind of a policy?

MR. WALTERS: That's correct. That's correct.

MS. TAYLOR: Yeah. Because my next question would have been how would that occur, had that ever happened before, where a worker would say, "We're going to shut down"?

MR. WALTERS: We found indications in talking with workers that they had confronted management with safety concerns and had been upheld and different actions were taken. We talked to one or two, I believe. I can recall one where he had some difficulty with a supervisor several years ago. There was no discussions with any of the interviews that we had that indicated that workers at the facility had tried to implement that stop work and had been chastised or had any adverse consequence.

MR. ROSENTHAL: But again -- so, it was up to the worker to do this risk analysis without particular guidance as to whether to shut down or not. He had to make that fairly technical judgement?

MR. WALTERS: Yes.

MR. ROSENTHAL: Thank you.

MR. WALTERS: Any other questions?

CHAIRMAN HILL: Proceed.

MR. SANTIAGO: We'll be moving now into the second issue. This one is called management oversight of process, operations, and maintenance activities. Management processes did not assure positive control and effective monitoring of operations and maintenance actions.

MR. WALTERS: I'd like to take just a few moments and kind of go over a management model so that we sort of have a common understanding of what we're talking about when we say "management processes" and "management systems" and so forth.

This -- this model is adapted from a model used in the Department of Energy in a program they call integrated safety management; however, I've seen very similar models in other organizations and other applications. So, it is not specifically a safety model. It is a model for managing effectively.

Starting at the top of the model is defining the work. And this is essentially the scoping, the direction, what is it we're trying to accomplish and why do we need to be doing it sorts of things. Then, once that is determined, the hazard analysis, analyzing the hazards to -- in a safety sense it would be analyzing the hazards, in another model it might be managing the financial risks or managing other conditions of production, et cetera. In a safety sense, it's analyzing the hazards. How can we do this work safely.

The next bullet -- next area here is developing and implementing controls. Once we've identified that hazard, what are we

going to do to mitigate the consequences and the potential for that hazard to actually be realized. Then we're able to perform the work. The implementation process. That's the doing it in the field.

Then the last element here is feedback and improvement. While this is kind of shown in a circle, feedback and improvement are something that should happen in all phases of management systems, and they should be determined -- and the efficacy of those -- of those actions and programs should be known to management, so that they recognize whether or not their direction is going to be carried out.

So, I'm going to -- in this next piece, I'm going to look primarily at the feedback and improvement, and then after that we're going to talk a little about procedures and process, to get back to Dr. Rosenthal's issues, and those -- as they fit kind of around this model.

What we had here is a complex task that has multiple individuals having to interact effectively. There were multiple hazards that were present in the work that was being performed.

Supervisors and managers that were assigned to the unit were new, generally not having been at the unit for, I think, more than six months for those people that were present at the day of the event. In one instance the maintenance supervisor had been assigned to the unit for less than two weeks.

There was little specific knowledge of that management of the general -- the day-to-day operation and the technical operation of

the 50 Unit. And I want to clarify that to say the managers were technically knowledgeable of refinery processes. They were not specifically knowledgeable of the 50 Unit. And so it's -- it's a -- there's kind of a distinction between those two.

The operation was taking place in a self-directed manner. By that I mean the number one operator and the maintenance supervisor that were there conducting the work were basically on their own, trying to work through a problem where they did not have guidance and control and procedure and process to back them up.

One of the systems that are in place was the safety permit process. And in looking at safety permitting, one of the things that one would expect is that as the hazard -- as the hazard rises, management involvement should also rise. And in the process that was followed, that elevation of issues to management is not clearly directed, and it is unclear in its implementation from a worker's standpoint as well.

In the execution phase of doing work, the -- the oversight processes for management should ensure that the work is being executed in accordance with management direction and expectations, and that's the purpose of being out there in the field and monitoring performance. And that, we had not found that that was happening, in this case or in other cases at this facility, and that there was, in fact, insufficient direction from management to perform at the level that management expected.

One of the things that contributed to this, the problem of making decisions, is that in some of the procedures, and I don't want to steal too much of Gary's section of this, but one of the -- there's a general statement that appears throughout procedures that implies that one must demonstrate that it's not safe. And I'm going to say it in this -- kind of quote -- paraphrase the words. The words basically say, "If you cannot do this safely, then shut the unit down," is the way I'm used to hearing it. But when you say, "Unless you can demonstrate that it's unsafe, keep the unit online," is sort of the concept that is in many of those kinds of guidance statements.

I don't -- I'm not saying that management is intentionally sending that message. I'm saying the message that was being sent was confused by the way it was written.

MR. ROSENTHAL: I come back to the same point because for me it's particularly important. Almost any operation, or many operations in a refinery, are potentially hazardous. It's the nature of the business. When you have high hazards present and you cannot eliminate the risk. The question is were there means of rating work orders in regard to the type of hazard available? Was there a system by which an employee could ascertain whether the risk involved, as to what constituted safe or unsafe, was of a high level, medium level, low level?

MR. WALTERS: In the safety order system that was documented, and a process that they had, there were indications of when

an issue should be elevated, but the conditions under which -- the conditions were not well specified. There were no criteria that one would be able to say, "I'm now in a condition that I need to go upward in management." It was more -- it was more as an open communication.

MR. ROSENTHAL: Thank you.

MR. WALTERS: In the -- one of the other elements here is that there was an awful -- there were few direct interactions between management and -- management and outside supervision with the operators themselves in a day-to-day basis. In looking at the oversight function, a lot of oversight is occurring in the form of telephone conversations and e-mail traffic moving back and forth between managers and the workers at the unit. I wanted to point out that there were two -- there's two activities that were taking place at Tosco that were recently initiated.

I know one of them was initiated after the San Francisco area refinery manager came to the facility, and I believe the other one was initiated just three months before that. The one that was initiated back around the October time frame was a program called Layered Safety Survey Program, and this was a positive step forward because it caused managers to go out and start walking spaces, looking specifically for safety hazards and so forth.

One of the difficulties in this process, however, was that the process didn't document the findings and it wasn't clear what corrective actions had been taken. And so you really couldn't determine

from a management's standpoint how effective that program was, and you also were unable to trend to see if there were problematic issues that these, the conditions you were finding in the field, sort of lead you toward.

MS. TAYLOR: Can I just ask a question? The layered safety survey program has been into effective for how --

MR. WALTERS: Since October of '98. So, this is approximately three months.

MR. POJE: And Dennis, could you clarify that a little bit more? Do you have an understanding of what this layered system approach would be?

MR. WALTERS: Well, basically what was happening is each manager was assigned, had a requirement to do a fixed number of these. And I'm not sure if they numbered two to three to four a month. And during those they were to identify conditions and correct conditions. And it's a positive step because it demonstrates a management commitment to safety. It helps individuals working in the workplace see what is important to management in terms of safety. And it has the effect of correcting conditions that need to be corrected. So, it's a good program. The -- but the weakness with the program is we're not documenting what we're finding, so we can't share what I found in my unit with what was found in someone else's unit to see whether or not we have similar conditions elsewhere in the facility, for instance.

MS. TAYLOR: So, there's no written checklist or documentation of the findings at all that can be passed on to the system, at this point?

MR. WALTERS: That's correct. On that part of the system at the time we looked at it.

The other element was that within the senior management meetings that the San Francisco area manager was holding is he had a segment in those sessions where he was directly talking about safety concerns and issues. And I think he also kind of surprised his management when he did walk-throughs of their facilities and determined that they had problems. And in his management meeting when he raised issues that they may not be aware of, I think that they found that to be kind of a startling condition. And I think that was also another beneficial process that was taking place.

I think it's important to note that while an accident occurs, it does not necessarily mean that the organization is on a downhill or an uphill or whatever, that there are conditions here that show that there were things going on to improve the safety. They were not effective in this case.

That's all I have. Are there any further questions?

MS. TAYLOR: I wanted to ask, just before you left, that -- can you go back to that previous slide where you talk about audit work activity on the process unit?

Are audits being conducted now, since October? Is that what we're talking about at some point, because my understanding of an audit would be that you would go in with some documentation and checklist, or --

MR. WALTERS: We saw no -- no procedures or documents that showed that the site management had done self-assessment and oversight of their programs. I believe that there was a corporate audit that included some elements of safety in it. And we saw some pieces of that. We never got to see the entire audit.

MR. ROSENTHAL: Your usual situation in auditing in many companies is that the primary reliance on auditing is a -- a facility function, generally done by someone in the staff position reporting to the facility manager. And then, in addition, less frequent corporate audits, if it is part of a multi-facility unit. Was there a formal internal audit system that called for audits at some specified period, a method of reporting the findings of the audit, and a system for following up whether such findings and recommendations were corrected?

MR. WALTERS: It's unclear to us whether that existed.

MR. ROSENTHAL: Thank you.

MS. TAYLOR: Thank you. Even before or now?

MR. WALTERS: Either then or now.

I also -- I would like to add one more piece that I have here in my notes, that the -- in terms of management had some concerns

though about procedure compliance and so forth. And one of the other activities that had taken place in the January time frame was a all hands meetings that were being conducted by senior management at the refinery, emphasizing procedure compliance and performance.

MR. SANTIAGO: Okay. Any other questions? Okay. We will proceed with the -- we will proceed with the third major issue. And this one involved the maintenance and operating procedures, specifically the process equipment isolation, drainage and opening.

Procedures here to safely operate the 50 Unit, and the -- control the replacement of the naphtha draw line were not effectively implemented because either the procedures did not exist, the procedure was not clear, or the procedure was not followed.

So, Gary will discuss that.

MR. SWEARINGEN: Okay. You're going to start to see the threads, interrelationships of some of the issues that have come up, as pointed out in our initial unit for shut down of the unit. There was no formal decision-making protocol to how you decide do I need to shut down the unit. In terms of who decides or how do you decide. And so it's informal. Management was involved in the decision to stay online. They were aware of that element. But it is not documented what the considerations were or what the criteria was in making that decision.

So, that's an example of something that didn't exist. Also, we're looking for an -- once again, an overall guidance procedure

on how do you do work at the Tosco refinery, from identification through completion. And while there is much documentation in what I call at the worker level, there is no overarching integrating, you know, use the word you want, coordinating, telling you how to do it as a process.

And so again, that was -- so, we're missing some hazards identification criteria. Again, another example of something that wasn't there.

Nonconformance in procedure execution. They have a procedure -- I'll get the right name for it here. The major fire and vapor cloud procedure. On February 10th, when the first leak was identified, they responded in the manner prescribed by that procedure with response members in turn-out gear, fire hoses protection, management involvement. Basically meets the intent of that procedure. On the subsequent second and third leaks, those precautions were not executed. It just did not get implemented. So, again, that's an inconsistency where we saw it done right once and then it didn't happen later.

And so the safe work permitting. When you look at the safe work permit copies, part of our exercise -- we were just trying to find out if any of them were filled out the same way. And it was very difficult. Very surprising, the variation in how these were filled out at the working level, in some cases for the same job. So, again, that was kind of an example of not followed.

In terms of the ambiguous routing, we take a specific extract of the "Control of Hazardous Energy Procedure." And it says, "Operations will block and bleed line pressure to zero pounds, where practical, before blinding." It doesn't tell you what "practical" means. They had been trying, since February 10th, basically, to get our line drained, and for 13 days they hadn't succeeded. So, practical wasn't well defined. They didn't define what happens when it isn't practical. So, again, it wasn't real clear whose responsibility it was for these conditions. So, it wasn't unreasonable to say, "Well, I've tried for two weeks to drain this line. I'm pretty practical. I'm ready to move forward." And again, it's not clear what you're supposed to do then. So, that was an example of ambiguous.

They have a lot of procedures. A complex refinery operation. And we were harsh in our review because we were looking for weaknesses, and we found some. And so we found, again, back to how Armando said that they weren't there, they were ambiguous, it was not clear as -- at the working level, and it wasn't integrated -- that was probably a bigger -- between the departments.

MR. POJE: Could you elaborate on that, integration between two departments? I know Dennis presented some information earlier that looked at the complexity of this particular job from the different types of organizations that needed to be involved in it. What would be your sense of integration for this kind of a task?

MR. SWEARINGEN: We had great difficulty in trying to identify responsibilities for the flow of the work order to get this pipe replaced, as to -- because in -- clearly in our evaluation, the pipe starts in operation's hands and eventually ends up in maintenance hands, and then it transfers back. And where are those points? And it looks like it's not defined clear enough so that -- for people to successfully do the work in this case. There was confusion, and responsibilities weren't clear.

MR. WALTERS: If I could, too, I'd like to add to that. Another element of this integration process would be the operator who is the number one operator online the day of the event was not involved in the planning of the work package, because he's on a shift that rotates through time. He is given direction to put the plant in a condition to accomplish a task. And he is not given input, generally, into the specific task that's taking place. That's being done elsewhere in the organization.

So, at the point when the work begins is pretty much the time when the operator gets his first information that he is going to do it today. I -- to correct that a little bit, his information came out the previous day, about 4:00 o'clock in the afternoon. And he gets off shift at 6:00. So, he had about two hours to plan that time, and then came in first thing in the morning.

MR. POJE: In many installations, the person -- and ideally, it's a person, but at the most two people who sign a work permit are held accountable. And that accountability is verified by picking up work permits from time to time on an audit basis and verifying where the work was executed, according to both the work permit and whether the work permit was consistent with company procedures. Was, quote, a statement, the responsibility found with regard to responsibility for people who signed work permits? And the second part, was there a system that verified on an audit basis the degree to which one is able to do this? Was it 95 percent of the work orders were done correctly? Ninety percent? We're sure 100 percent never are.

MR. SWEARINGEN: Well, I would -- I'll take that one to start with. In terms of the first part of your question it's fairly -- it's clear about the responsibility on the safe work permit part on the responsibility on the individuals, but in terms -- we have no evidence of the auditing part of how successful the system is working.

MS. TAYLOR: I'm sorry. The safe work permit responsibility on the individuals who issued, signed the work permit?

MR. SWEARINGEN: On who should sign it.

MS. TAYLOR: Okay.

MR. SWEARINGEN: Now, again back to some of the criteria that you evaluate, it is not, again, clear.

MR. POJE: So, there's no evidence of anyone having been disciplined for issuing a work order that did not meet the company's requirements for safe work?

MR. SWEARINGEN: No, we did not receive any.

MR. WALTERS: We asked that question and -- and did not receive a response to it.

MS. TAYLOR: Okay. Thank you.

MR. WALTERS: Any other question?

CHAIRMAN HILL: Earlier, Dennis, you indicated that while there didn't seem to be a process for kicking a decision making into a higher level process when problems are encountered, such that the process cannot be carried out, you indicated that -- that management -- there was documentation that management was aware or had adequate information to be aware, but there is no mechanism as to what happens to kick it into that second order; is that correct?

MR. WALTERS: No, I didn't say that. What I've said is that management knew that there were some issues with procedure implementation, and so that was -- that was known by management. Specifically what that meant was not clear. What the tone of the all hands meetings was was more follow the procedures as written. So, it doesn't recognize, at least in that piece, it did not recognize that there were systemic issues or programmatic problems with the implementation on procedures and with the content of those procedures.

So, that part was not recognized. However, there was strength -- there was a strong, clear message about the expectation to do work using procedures.

MR. POJE: Okay. One last one. Were there any information in regard to representations or actions by any of the unions representing employees in regard to the work permit system or decisions on shutdown and safety?

MR. SANTIAGO: No, the union representatives were not required to be part of the signing process of --

MR. POJE: No, I know they were not required. I'm asking did you, in the course of interviews, find that there had been representations on behalf of the members by the unions in regard to vaguery or ambiguity in terms of shutdown and not shutdown, or was the union silent on the issue? I'm just asking, did you inquire about that?

MR. SANTIAGO: Okay. We inquired about it and, in other occasions, they have had participation, because it has been requested by some of the workers. But in this particular case, it was not.

MS. TAYLOR: And it wasn't very clear on what that meant?

MR. SANTIAGO: They weren't requested to participate. No.

MS. TAYLOR: And you had to demonstrate that the unit was unsafe, which was not clear what that meant?

MR. SWEARINGEN: Correct. Yes. Yes.

CHAIRMAN HILL: Okay. I think since we have testimony this afternoon from the union, we can ask that question again.

Armando?

MR. SANTIAGO: Our next area of investigation covers management of change as related to Tosco's mechanical integrity program for unit 50.

Safe operations of oil refinery crude units require effective monitoring and close control of corrosion to maintain process integrity.

MR. SWEARINGEN: I just stole this definition from the Chemical Manufacturer's Association of what management of change is. Different industries call it different things. Basically, I like this definition.

It's a formal mechanism -- again, a process -- for ensuring changes don't degrade safety, and that this one, in specifically, related to safety that's designed in the original process operation.

There were several significant changes from the design of the 50 Unit operations that we felt contributed to this event that did not get adequately evaluated under the management of change process. The crude mix was changing as input to the refinery. The fractionator is at the front end of the refinery process. The crude mix was changing, it seems, almost daily. They were working the spot market. It was getting

increasingly sour, which was altering the chemistry that they were inputting into their system. The front --

MR. POJE: Gary, can I just stop you there? Can you give us a little bit more context to what you mean by the crude mix and the nature of sour versus sweet?

MR. SWEARINGEN: I'll default to the chemical person on that one.

MR. SANTIAGO: When you process crude, each one, depending where you extract the crude from, each one of them have different characteristics in terms of the different combination of chemicals that comes.

MR. POJE: So, Louisiana crude might be different than --

MR. SANTIAGO: Exactly.

MR. POJE: -- Venezuelan crude, and --

MR. SANTIAGO: Some of them have more impurities, more sediments, more water content. So, depending on the composition is the conditions that you have to set your fractionator tower, and associated equipment, that extracts a lot of those impurities, like the desalters, from it.

MR. SWEARINGEN: So, the crude mix that they were inputting it frequently exceeded the design limits for the 50 Unit. And that change was not evaluated.

At the front -- before the 50 Unit is a piece of equipment called the desalter, and its primary purpose is to remove water, contaminants, undesired pieces, contamination in your crude, before it gets on its way to the refinery.

They were operating that piece of equipment with a crude mix that it wasn't designed for at a flow rate that exceeded its design flow rate, up to 150 times -- 150 percent, not 150 times.

Again, this had not been evaluated for what would be the possible impacts of that, those changes downstream. The heavier crudes have, generally, more impurities, salts, sediments, acids. One of the impacts of what's going to happen is these impurities are going to make it through the desalter into the rest of your system. And for the 50 Unit, the impact of that was our leak. It contributed to accelerated corrosion. It would be hard to say it was totally responsible, since corrosion is such a complex mechanism. But it looks like we have a direct acceleration of the corrosion rate in the pipe wall of the naphtha draw line. So, this is a contributor to the leak.

We have additional contaminations also, leading to the deposition of solid materials in our lower levels of the pipe. Our solids and gunk that should have been there. That should have been naphtha. So, that's a contributor to why we couldn't drain the pipe.

It also contributed to the deposition of the solids that then blocked the control valve, so they switched to the operation of the

bypass valve. The bypass valve is not designed to be operated full time. Its internals were eroded by the flow, so when it came time to isolate, that valve would not isolate.

So, we've got a very mixed bag of impacts for these issues that it did not get evaluated formally for items that exceeded design limits in the 50 Unit.

MS. TAYLOR: How often was the -- I mean, how long had the bypass valve been used? Is there any information on how long?

MR. SWEARINGEN: We have limited documentation, but it appears that the operators had been struggling with the control valve for two years.

MR. WALTERS: Around September of '97 there's an operator log entry that says, "We are operating off the bypass."

MR. SWEARINGEN: And nothing that said, "We repaired the control valve," or restored it or anything like that.

MS. TAYLOR: And you mentioned that that practice would not be common.

In your estimation, how long would you -- how long would be feasible to operate the bypass versus the actual control valve? Is there any time frame?

MR. SWEARINGEN: There's no set guidance, but again, that, in my experience, that should have triggered an evaluation as to how long is acceptable or how long are we going to live with that until we get the

valve repaired, because you're in the business to make money and you don't shut down for everything, and so you need to evaluate for equipment efficiencies on whether you can keep running. And whether that's a power plant, a ship or an oil refinery, that happens. So, there needs to be a process.

CHAIRMAN HILL: But your response was that that had been approximately two years that that issue had been going on?

MR. SWEARINGEN: That's correct. Yes.

CHAIRMAN HILL: Okay.

MR. SANTIAGO: Small clarification. The control valve had been checked in a shorter time, a shorter time frame than that. It had been checked. There was a work request for checking the operation of the valve, and the maintenance department did check the operation of the valve and they found that that was not the problem. They found the valve was operating within the range and the limits that they were supposed to. So.

MR. WALTERS: In other words, they verified the function of the valve but not the function of the system. The maintenance crew that came in verified the valve stroked properly and had proper indication. And -- and that information -- again, this is another integration issue in that that information does not find its way back to the operating crew for sometimes never, and sometimes not for some period of time, because the initiator won't necessarily be informed that that took place, unless

they go back and do a search through a database to determine that that maintenance item had been corrected.

MR. ROSENTHAL: Let me just for clarity see if I understand what you're saying. It is generally accepted, according to the type of statement that you put up from the American Chemical Manufacturers Association that there should be a process for evaluating the impact of change on the safe operation of a process, that whether or not these particular things were directly responsible for the incident we're talking about, a system for evaluating the impact of process changes on the potential safety of employees and the equipment did not appear to be systematically in place?

MR. WALTERS: Correct. It is not the fact they were operating at 150 percent, it is that they didn't analyze and correct for that condition.

MR. ROSENTHAL: You're looking at a system failure, rather than ascribing a direct relationship between the one and the other?

MR. WALTERS: Correct.

MR. ROSENTHAL: Thank you.

MR. POJE: If I can also ask a further clarification. This is akin to the discussion that was raised about formal procedure, formal decision making protocol for determining the need to shut down. In this instance, what is the conditions of operation that may be outside the normal parameters, that would again invoke some formal decision making

that says if you operate 150 percent you have to increase your maintenance surveillance of desalting operations, and you may need to check line operations in ways that would have an accelerated understanding of corrosion procedures. Is the kind of system approach that you would --

MR. WALTERS: Yes, and there was a system in place, again, a procedure not followed. They have an incident reporting process that says when you violate operating limits, then it is necessary to initiate an incident and then manage that incident. So, it would require analysis and interactions. There are multiple cases where they violated design limits, as indicated through their system, and did not initiate that event. And in discussions with some management, it became clear that that was sort of a system that would be used to help elevate, but not use to just normally document.

So, if I wanted to emphasize my condition, then I would initiate that report. So, that was a tool that some people recognized as a way to elevate an issue.

CHAIRMAN HILL: Just one quick question. You used a definition that is used by the Chemical Manufacturers Association for management of change. Do you know if there, a similar definition is applied in the petroleum industry, utilized by API or other sources that -- that captures the same basic program?

MR. SANTIAGO: Yes, I do.

CHAIRMAN HILL: Thank you.

MR. SANTIAGO: Any other questions?

CHAIRMAN HILL: Proceed.

MR. SANTIAGO: Okay. Coming to the last major issue. This one concerns safety personnel mission and deployment.

We believe that safety specialists can provide additional assurance of process safety during the conduct of high hazard maintenance activities. They can provide independent analysis of potential hazards due to their specialized expertise.

Safety personnel were not involved in the review and approval of the naphtha draw line replacement in this case. Work permit system did not require the involvement at any stage in this job. And we believe that safety personnel involvement in this high hazard work would have provided a specialized safety focus to prevent this type of incident.

In conclusion, we have presented the major findings and issues uncovered during our investigation of the Tosco incident of February 23rd, 1999. Bear in mind, this is still an ongoing investigation. Additional follow-up activities are underway. We encourage all parties to provide relevant information that can provide these and all issues relevant to this accident. We have an open comment period of three weeks, as you mentioned before, which extends until Wednesday, October 6th, 1999, close of business. Any questions?

CHAIRMAN HILL: Let me ask you, Armando, regarding the last point you made about safety personnel. Was it your finding that the -- there were -- was no one with specific professional safety expertise who was asked to review this process before it went forward?

MR. SANTIAGO: I will qualify my statement by saying some -- some of the people that had the expertise that weren't part of the system, systematic process that will force them to be part of the decision making.

MR. ROSENTHAL: Let me try and get some greater clarity. Are there people who are -- whose primary function within the facility is designated to be safety?

MR. SANTIAGO: Yes, there are.

MR. ROSENTHAL: Are there people who are designated to be process safety experts?

MR. SANTIAGO: Yes. In the units. Sure.

MR. ROSENTHAL: Okay. Were any of these people formally involved in approving this specific operation?

MR. SANTIAGO: Not to the best of my knowledge.

MR. ROSENTHAL: Are any of these people involved in carrying out systematic audits of the operations?

MS. TAYLOR: Audits.

MR. ROSENTHAL: Audits.

MS. TAYLOR: Audits. Do they audit the operation of work?

MR. SANTIAGO: Will you repeat that again?

MR. ROSENTHAL: Are any of these specialized people in this central unit involved in an operation that calls for an audit of safety practices in the different sub-units of this facility?

MR. SANTIAGO: We don't have any evidence of that. No, sir.

MR. ROSENTHAL: Okay. Thank you.

CHAIRMAN HILL: Thank you. Any -- any of the members have any further questions?

MS. TAYLOR: No.

CHAIRMAN HILL: I see that concludes your testimony, Mr. Santiago. Thank you, gentlemen. We certainly appreciate this detailed presentation of the information regarding your investigation.

As you indicated, you've raised several very serious issues here which you're pursuing, and hopefully by your presentation today we will have further information come forward if, indeed, it does exist. That is part of the reason for this process. I want to stress that to the audience.

Right now it is approaching 12:00 noon. Since you have concluded, we will come back after lunch and proceed with the other individual organizations who are on the list, beginning with the Contra Costa County Health Services Division. Is it okay with representatives of the County that we start about 1:15 or 1:30? Is 1:30 okay, to give

you a little additional time to go to lunch? Okay. We will stand adjourned until 1:30.

(Whereupon, the luncheon recess was taken from 11:57 o'clock a.m. to 1:35 o'clock p.m.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

(1:35 p.m.)

CHAIRMAN HILL: Okay. At this time we would like to proceed with this Board of Inquiry.

Next on the agenda we have presenters from the Contra Costa County Health Services Division.

I would ask -- Mr. Alton, you will be the chief spokesperson -- to proceed with any -- any information that you might have to submit for the record, first. Also, state your name for the record and your position with the organization, and credentials you may hold, and then proceed through the other presenters.

MR. ACTON: Okay. Are we on? It's on? Good.

Mr. Chairman and the Board, my name is Bill Alton. I am a -- I guess we call ourselves accidental release prevention specialists, with Contra Costa County. I've worked with the County since 1995, I believe it is. Before that time I spent 37 years at a major oil refinery at various engineering and operating positions, for the most part. I have a degree in mechanical engineering.

With me at the table is Perry Calos. And maybe you could just tell a little bit about yourself. But Perry was -- assisted in the investigation.

MR. CALOS: Yes. My name is Perry Calos. I've been with the County as an accidental release prevention specialist for two years now. Prior to that, a period of about eight years and operation in engineering experience with the refinery. And yes, I did assist Bill on the incident investigation and the writing of this report for the County.

MR. ALTON: I'd like to start out by stating that the investigative process started out for us on the late in the afternoon on February 23rd, along with Cal-OSHA, where we started establishing facts. And as stated before, we were then joined on February 26th by your staff.

During this period we all participated together in gathering facts. We all analyzed the facts separately and produced our own reports.

We came to some -- much of the same conclusions. And I'm going to sort of summarize what's in our report, and it's going to basically reiterate and repackage a little bit of what you've already heard. And I would like to use one of your great -- oh, can we have the -- okay.

As we were talking, the job we were looking at was replacing a piece of naphtha piping between there and there. When they made the decision to do this job on the run, with the plant operating,

this is the kind of job that you can do safely if everything goes for you properly. For instance, if they had gone through their proper procedures they would have closed these valves, they would have closed that valve, and if that valve was tight, then they would have drained from the low point. After draining it, they could have steamed the line out, and they could have steamed the line out by putting it -- spreading the flanges and steaming out from there. And then they could have then gone through the proper procedure putting in blinds. Put in a slip blind up at that valve, and put in slip blinds down here.

Now I've got a question. Does everybody know what a slip blind is?

MR. POJE: For everybody's benefit, why don't you describe it?

MR. ALTON: Pardon me?

MR. POJE: For everybody's benefit, please describe it.

MR. ALTON: Yeah. They're called a slip blind. The valves are connected to the binding by a pair of flanges. And they're called a slip blind because what you do is loosen the bolts on that flange and remove about three bolts, and you slip a steel plate in there. And that positively isolates and makes the line safe from anything that happens up stream of those blinds after that.

So, if they had gone -- if they had been able to do all that and, you know, do the draining to a safe location, this job could

have been done with the unit running. However, as brought out by your staff, these weren't the conditions that were there. We were plugged down here. That valve leaked badly.

So, that was one of our conclusions. The job could have been done safely if everything had gone for them, but because of the conditions present, they could not have done the job safely, and mainly because of the lack of being able to drain. When you can't drain it, you can't pull the rest of your normal procedures. And these are standard procedures. This is not a unique procedure to Tosco Avon. These are procedures throughout the industry, the basic turnover, preparing a line for turnover to maintenance.

So, we analyzed our facts and did a process of doing a detailed a time line and sequencing of events and did various analyses, and we came out with some causal factors, contributing causes and root causes to this incident. And one of our contributing causes was that procedures were not followed. And the permit was not properly made out. The job walk was not properly executed.

Once a permit is put together, procedures call for doing a job walk. A job walk means that the maintenance and operations walks a system and they are shown that the valves are closed, that the blinds are in place, that the drain valves are open. And only after that should you sign the permit. This permit was signed before the job walk. And we don't really know what transpired on the job walk.

Again, the isolation procedures weren't followed because they couldn't drain the line. To install blinds you should have a blind list. There was no blind list on this job, and there is no evidence of slip blinds on the site to even indicate there was an intent to blind. We call this contributing cause as sort of a serious and significant contributing cause.

The next one we called a contributing cause was that the stop work authority was not used. The events on the 23rd would have indicated that things weren't going right, and nobody stopped the job. Even after -- well, it don't show in this but shows over here, I guess, with the second cut. Even after naphtha started coming out of the second cut nobody stopped the job. So, we thought that was a significant and contributing cause. And we're calling these contributing causes because we didn't feel that things should have gone this far into the date of the 23rd.

One contributing cause which was obvious was the line plugging. And I might point out that one of the reasons you drain is -- the obvious reason, of course, is to get the liquid out of the line, but a second reason to drain is once you're drained you can verify that your valves are holding. If your valves are not tight, then the vapor is going to come out of the bleeder valve, and you know that you've got a problem on your hands. Without draining, you can't verify that. They never verified that that valve was leaking or not.

Something that your staff got into I'll reiterate in that there was a number of uncommunicated or unrecognized warning signs. There was a resumption of the leak up here twice, once on the 13th of February and once on the 17th of February, that indicated at least that the valve was leaking at that time. And apparently that didn't get to any of the managers because none of the managers or supervisors said they knew about it.

Another one that was referred to was the repeated pumping out of this vessel. It actually started on the evening of the 13th, but most of the action occurred on the 14th. The only way that vessel can be filled is through naphtha leaking through that valve, leaking through this system, and into here, a clear indication the valves weren't holding. And that information was never registered upon.

Again, on the 17th these two bleeder valves were reported as being plugged. They wrote a work order to drill them out. The drilling was not successful. The cables attached to the drill actually broke. That information was never followed up on by any of the supervisors to see whether the drilling out had occurred, and whether they could drain the line. That was a contributing cause.

Something we felt contributed to this lack of communication was the fact that there were two operating organizations exerting both authority and responsibility on this unit. They have what they call the production day organization that was basically responsible for doing

planning, and that planning included maintenance planning. And then they had a shift operations organization that was responsible for carrying out the execution of jobs. And there seemed to be a lack of -- I want to say it -- recognition among the operators of who their boss really was. When asked, for the most part they would respond with names from the production day organization and not their shift supervisor who was, in theory, their direct supervisor.

And so -- and bottom line was the supervisors, shift supervisors, never got involved in this job, and stated they would not have unless the production day organization got involved, and no one from that organization was involved in the detail planning and following up of this job. So, we feel that was sort of a -- maybe possibly the result of two operating organizations and both assuming the other one had the ball.

Job scheduling we thought maybe was a contributing cause. We don't know this for a fact. But on the morning of the 23rd, before we -- the line had been drained, you know, a Bigge Crane crew arrived, three people in a biggee crane crew; the vacuum truck; scaffolding workers. And the first thing they tried to do was the proper thing, which was to drain again. But when they couldn't drain, somehow they made the decision to go ahead and to cut the line. Now, they might have had pressure or felt pressure because here they had an expensive crane and crew sitting there, a vacuum truck, scaffolding workers. And what do you

do if you -- you've got to do something with those people. So, that might have been some pressure on them to proceed with that job.

Another contributing cause was benzene. This line, because this naphtha contains enough benzene, to be characterized as a benzene containing stream. And that's a very little bit of benzene. But had they followed procedures for handling a benzene stream in their refinery, you would have had your permits signed by a shift supervisor for the work. And that work would have included when they drained the -- when they drilled out those valves, that would have required a shift supervisor signing the permit. When they removed this piece of piping on the 19th, the shift supervisor should have signed the permit. And when they did the work on the 23rd, the shift supervisor should have signed that permit. That would have at least drawn his attention to the job and maybe realize that things were not going as well as they should have. And that wasn't done.

One contributing cause was -- and we've talked a little bit about this morning -- was this bleeder valve here. After the incident we discovered that that bleeder valve was very lightly plugged and could have been easily cleared and used to do draining and testing prior to the incident, and it was not used.

It was very close coupled to that. That's not very far from there to there.

MS. TAYLOR: Can you repeat that? You said that this, the valve there was opened and was not plugged at all?

MR. ALTON: This valve was, as reported as being very lightly plugged. They easily freed it up after the incident.

When they took the piping apart after the incident, they did so some draining, and that's -- that was the valve that was used for doing some draining, and it was very lightly plugged and easily freed.

MS. TAYLOR: Very lightly. Okay.

MR. ALTON: Yeah.

CHAIRMAN HILL: Bill, this issue was raised in the testimony during the last session as well. Did you find any evidence as to why that -- that maybe wasn't utilized in this case? No one ever seemed to know.

MR. ALTON: No. No.

CHAIRMAN HILL: Okay.

MR. CALOS: But I would like to stress that the existence of that valve was known to the maintenance organization, maintenance supervision. So, it wasn't a matter of them just not noticing it. In the week prior, when they were -- when maintenance was making sketches of this line to -- for fabrication of the replacement pieces, the question was asked of the maintenance supervisor, should this -- should that one valve be put in the drawing for fabrication. So, that -- that was

evidence to us that they knew about it. There was enough knowledge of that valve.

MR. ALTON: Okay. And I guess for last contributing causes here is control of ignition sources. The safe safety orders would require on opening a line like this that ignition sources in the area be controlled, meaning protected in some way, and that wasn't done. Now, with -- it might not have prevented the fire, but at least there was no effort in that direction.

So, those are our contributing causes and our root causes are really sort of complementary. One is we felt that -- I'm going to read this. Management systems were not in place and functioning to provide management with adequate information regarding the safety of the job. We say that because all members of management and supervisors said they didn't know what was going on here. They didn't know the line wasn't drained. They didn't know about the spool being removed and all the gunk that they found. And so there's a breakdown in communications, or there was no good communications system, so our -- one of our recommendations would address that.

Our other root cause was that management systems are not in place to ensure that managers and first line supervisors take appropriate actions that they should, based on responsibility and authority. And this gets into the kind of a job this is. You can't expect supervisors and managers to get involved in every routine maintenance job in a plant.

I mean, that's just beyond the scope. But they should recognize those jobs that they should get involved in. And this job here, which involved taking apart a line full of naphtha, or at least containing naphtha, located directly above sources of ignition, we felt is the kind of a job that management and supervisors should have been involved in from the early -- from the get go, from the very beginning. And had they been involved from the very beginning, they would have been knowledgeable of the fact that drain valves were plugged, maybe that things were leaking, that they had to pump this thing out three or four, five times. And they would have known that things weren't going right. And had they known that, I'm sure they would have taken appropriate action.

So, a couple of our recommendations. Recommendation one is to develop a system to improve communications between the operating shift organization and management and first line supervisors. And we feel that could involve more face-to-face communication. I know Dennis alluded to a lot of e-mailing and telephoning. Telephoning allows interaction, but e-mailing doesn't really facilitate a conversation or giving guidance or acute questioning and answering, and we feel they need more face-to-face communication on this kind of thing.

We would have recommended that they do away with two operating organizations on one plant. They did that during their stand down period. And so a recommendation on that is they make sure on that

one organization now that their lines of communication and authority are clear.

Recommendation two would be develop a system, foster a culture, philosophy -- maybe A.D. Little could help out with the proper terminology on that -- that encourages management and first line supervisors to seek to recognize a situation. They should exercise the responsibility and authority. You know, get it -- that could involve questioning the safety -- of the job, issuing written or oral instructions is they need to supplement safety standards, safety procedures, doing field follow-ups, and basically being pro-active to talk to the operators to find out what's going on with the plant and know that things are really going right.

And one final recommendation is to figure out a way -- and I'm -- going to tell them how to do it -- to determine that this is not plugged, and that can involve a better corrosion control, although I think that's maybe wishing too hard, a flushing system, or someway to keep that clear to verify that there's flow through the valve. One of Dennis's response was they went out and checked the valve, that it strokes up and down, that's fine, but they didn't have a way to check that there was flow through the valve, and that fell through a crack. So, that's one of our recommendations, is to ensure the integrity of the system right here.

And that was a very quick and fast synopsis of what we put together for our report.

CHAIRMAN HILL: Are there any questions from the members?

One thing that you said, Bill, regarding the benzene line designation. Just having a designation, a recognition that a line contained that substance carries a whole separate set of procedures, does it not?

MR. ALTON: Yeah, there is a benzene procedure. It's a well written procedure, and it wasn't followed.

CHAIRMAN HILL: Any questions?

MR. POJE: Bill, I don't know whether you had a chance to hear the presentation this morning, but some of the issues that were raised by the CSB investigators included issues like the shutdown of the process unit to safely conduct repairs. Did you see anything inconsistent with the analyses that you were doing in your investigative work with the evidence that was presented surrounding?

MR. ALTON: No. I should have mentioned that right on in the very beginning. We have no inconsistencies with what was presented to you, in either in facts or in some of the conclusionary things that might have started to draw off on it. No. We're together.

MR. POJE: I know it was just presented to you this morning, so, if you do, within the next three weeks in review and

analysis of what has been presented today, please act upon the Chairman's suggestion of getting back to us.

CHAIRMAN HILL: Any -- any additional information from the County?

MR. SAWYER: Yes. What I'd like to -- one of the things that also happened at the same time are the Board of Supervisors, County Board of Supervisors, asked -- excuse me. Let me introduce myself, first.

My name is Randy Sawyer. I work with County Health Services. I'm also an Accidental Release Prevention Specialist. I've had 15 years of industrial experience, and I've worked with the County for seven years in working on a risk management prevention program, and now the California Accidental Release Prevention Program. I have a BS, a bachelor of science in chemical engineering from the University of Missouri, Rolla.

But to go back, the Board of Supervisors, after the accident, asked Tosco to actually shut down the refinery to make sure it was safe to operate. And they did this request on Saturday, February 27th.

On March the 2nd, Tosco agreed to do what they call a stand down for at least 60 days during this period to do a safety evaluation.

On March 16th the Board of Supervisors actually agreed to a process to do a safety evaluation, and they hired, at that time, Arthur

D. Little to do this third party evaluation. Arthur D. Little presented their final report to the Board of Supervisors on April 27th, and during that period of time it was a very public process that Arthur D. Little went through. There were at least three public meetings they had to discuss what they were doing, what the process they were going through. And they also had a -- they gave a small presentation to the Hazardous Materials Commission, which is a commission under the Board of Supervisors in the County.

The final report they gave was on May 10th. After all the public comments were in they completed a report and submitted it on May 10th.

Arthur D. Little is still working with the County right now on a follow-up evaluation to see how Tosco's working to implement their action plan to implement the recommendations and findings that were found during the safety evaluation.

One thing I want to make clear, that what Arthur D. Little did was they did not -- they looked at the overall facility. One thing they did stay away from was the incident itself. They did not really evaluate the incident, they did not do an investigation of the incident, but they did an overall safety evaluation of the facility.

Right now I'd like to introduce Dr. Ivor John. He's representing Arthur D. Little today, and he was a primary evaluator of -- from Arthur D. Little during the evaluation.

MR. JOHN: Thank you, Randy. Members of the Board, my name is Ivor John. I was Arthur D. Little's team leader for the safety evaluation onsite. I was with Arthur D. Little for more than eight years, during which time I was involved in process safety management, safe -- developing management systems, conducting audits and assessments, and also doing risk management type projects.

The main objectives of the evaluation provide an impartial and objective review of the refinery's management systems and safety practices. As Randy said, the scope included the whole refinery and not just the crude unit where the accident occurred. The scope included management systems, human factors and safety culture.

The team was directed to interview Tosco management, Tosco employees and contractors. However, the crude unit was specifically excluded from our evaluation. In addition, any review of the accident was also excluded.

The refinery was shut down during the period of the evaluation, so the team was unable to observe workers performing their normal duties. Most of the evidence used to develop findings was gathered from interviews, from review of documents, and some physical observation.

The findings and recommendations were presented to the Contra Costa Board of Supervisors and Tosco. Tosco has subsequently

agreed to implement all of the recommendations that came out of our evaluation.

The main intent of the assessment was to identify areas where Tosco could improve their safety management systems and safety culture. It was never intended that the findings would be used to establish the cause of the accident that occurred on the 23rd of February. It was left to the Board's discretion to determine whether the evaluation findings have relevance to this inquiry.

The main findings from this evaluation that may be of interest to the Board are summarized as follows.

Number one. Based on our interviews, it was apparent to the team that there was an adversarial relationship between workers and managers at the refinery. This was considered to present a significant barrier to superior safety performance.

Number two. The general perception of workers at the refinery was that management's commitment to safety was lacking. We were repeatedly told that senior managers were not visibly committed to safety, and role models for good safety management were not widely recognized.

Number three. Safety communications up and down the ranks would frequently break down or get blocked. As a result, the Tosco safety message was not clearly and universally understood.

Number four. Organizational changes were not reviewed by Tosco management to evaluate their potential impact on safety. We were told that following certain changes, organizational changes, employees were asked to take on new safety responsibilities with only limited training. Many employees perceived that organizational changes had a detrimental effect on morale and safety performance.

Number five. The team did not feel that human factors issues were adequately addressed in the process hazards analyses. Examples of human factors concerns identified by the team were related to valve operation, remote controls for fire isolation, furnace operation, control panels, and radio communications.

Further details of these and all other findings are in the safety evaluation report which is available to the Board. Thank you.

CHAIRMAN HILL: Thank you. Any questions of the members? Dr. Rosenthal.

MR. ROSENTHAL: Ivor, this is just a guess, but if the recommendations you made in your report had been in place, would they have substantially altered the likelihood that the incident we're looking at would have occurred?

MR. JOHN: I don't think that's a yes-no answer, but --

MR. ROSENTHAL: That's why I said likelihood.

MR. JOHN: Some comments on that. These findings reflect on the safety culture at the refinery. And I think if the

recommendations to address these findings had been successfully implemented, then the culture at the refinery would be a lot healthier, and attitudes would be more favorable to working cooperatively with workers and managers to communicate the issues that we're hearing about today. And I think communications and the flow of information would certainly have helped. I'm not saying that it would have prevented the accident, but I think it would have helped.

MR. ROSENTHAL: A further follow-up question. Tosco has granted employees some rights in regard to shutting down operations that were considered to be unsafe. What factors in the culture affected whether or not workers employed that authority?

MR. JOHN: One of the issues relating to that that we heard about was the Avon refinery comes from a merchant refining background. It's been -- production, historically, was very important to the refinery, and the culture that that developed at the refinery has prevailed to a large extent so that historically there was a culture related to that.

In recent years, management has implemented change, the business environment is different, and some of those attitudes have been slow to change in the organization. And I think that's one of the underlying factors, I think, that has resulted in the culture that we have today. Production being very important. And not at the expense of

safety, but it is still perceived to be an important part of the operation. When I say that, I mean this is prior to our evaluation.

Nobody said that they did not have authority to shutdown a unit. Neither did we find examples of situations where units should have been shut down that weren't. But we did sense from our interviews that some people felt some pressure to keep the unit running when probably a more objective review of the hazards might be appropriate.

CHAIRMAN HILL: Dr. Taylor.

MS. TAYLOR: You mentioned that the team did not feel that human factors issues were adequately addressed. What human factors issues are we talking about in this instance?

MR. JOHN: Human factors -- we had a human factors specialist on our team, and he looked at human-human interactions and also human-machine interactions. In a normal process hazards analysis, since process safety management standards have been implemented throughout the '90s, industry standards have evolved for evaluating those human factors. At least with detailed checklists and studies specifically addressing human factors. The specialists that we had conducted numerous focus groups with the operators and did identify a lot of issues that I think if the process hazards analysis were really evaluating human factors effectively, might have been addressed in those studies.

CHAIRMAN HILL: Okay. Dr. Poje.

MR. POJE: Yeah, Ivor, thank you for your comments. Similar to the question that I asked Mr. Alton earlier, some of the analysis from the Chemical Safety Board investigative staff focussed on issues such as management oversight, of process operations, maintenance and operating procedures, including their rigor and their implementation and their clarity and management of change operations. Did you see anything? I know it wasn't your responsibility to conduct any investigation into the crude unit and the incident at hand, but do you see any inconsistencies with the analyses that were generated in the conduct of the investigation of this incident and your overarching analysis of safety culture and safety systems?

MR. JOHN: I think on the contrary it's assuring that a lot of our findings are consistent with the specific issues that are being identified here. And I think whereas our report looks at an underlying -- at the underlying issues in the management systems and the safety culture, here we're seeing specific symptoms at this unit.

So, a couple of things have been said that are possibly inconsistent. One is with the audits of the safety permits. We were told and did see some records of audits conducted by the Health and Safety Department of the work permit system. So, maybe that's an issue that we should resolve collectively. I think that was the main one, actually, that I'd like to raise.

MR. POJE: And one more question for Mr. Sawyer. You mentioned that the Arthur D. Little Group would be continuing to do some follow-up evaluation. What's the nature of that work, and do you have an anticipated completion date for that work?

MR. SAWYER: Yes, we do. What's going on now, someone from Arthur D. Little meets with Tosco about every four weeks and they spend about a day with him to go over what their plan is, how they're implementing their plan, and basically to make sure that their plan that Tosco put together is actually addressing the recommendations that they came up with and the findings that they found during the evaluation.

Late November or early December of this year Arthur D. Little will have a team come back onsite and do another evaluation to follow up on their evaluation that they completed last April, and then they'll give a report. That again will be a public process, and they'll give a report to the Board of Supervisors at the time, a follow up report.

MR. POJE: If I could ask for a clarification. Because your original work was done during the stand down period and obviously there was not ongoing operations and daily work being performed, would you anticipate that the second phase of evaluation would include some performance evaluation, examining particular work activities?

MR. SAWYER: We hadn't really brought that into the thing. Basically, what we're asking them is to come back and to ensure what they

had recommended in their report is being implemented and is being addressed.

CHAIRMAN HILL: Dr. Taylor had another question.

MS. TAYLOR: I'm a little confused. And I'm going to go back first to the presentation from Contra Costa County regarding the work procedures that you said were not followed. Were these again -- were these written work procedures that weren't followed, or work procedures that were understood?

MR. ALTON: These were written procedures that were not followed, and just add to that they are sort of standard procedures in the industry on how to properly prepare a line for turning it over to maintenance. So, it was both -- it was both written, and it's very standard.

MS. TAYLOR: Okay. The second question was that I think most of you mentioned that workers understood that they had the authority to stop the line. And I also heard that in interviews that were conducted in previous investigations that had been conducted, there had never been an instance where a line had been stopped. Is that my understanding? Is that correct?

MR. JOHN: No, that's not quite correct. Process units where upset conditions have occurred have been stopped. What we didn't establish is that what we saw is that no operator had been reprimanded for stopping a unit because it was cut in production at the expense of

safety. So, the units are stopped. They are shutdown. I mean, that is an occurrence that happens.

MS. TAYLOR: And we have some instances of where that has occurred with dates and times of explanations of safety problems, and they were stopped because of that?

MR. JOHN: There was at least a couple of letters that we saw which were from management, actually complementing staff employees for actually doing just that. This was a fairly recent occurrence. But within three or four months prior to the accidents there were three or four letters written by senior management complementing unit operators for their prudence in shutting down the units. So, at least in the written word, management did, you know, demonstrate a commitment to that.

CHAIRMAN HILL: Anything further? Okay. Anything further, Bill, from you or your team members? Any other presentation?

Well, we have -- we have a copy of your report, which you've submitted for inclusion in our record of conside o.0206n

CHAIRMAN HILL: We will also admit that into the record as well.

Again, thank you gentlemen, and certainly for all the cooperation that I know our staff had in working with you, we certainly appreciate that.

Next on the agenda we have the California Occupational Safety and Health Administration, which will present information. Again, I'd like you to come up to the table who is going to be doing the speaking. Any -- any information you have to submit for the docket, please do so at the time. Identify yourself as well as your credentials for the record.

MR. KRESHA: Good afternoon. My name is Bill Kresha. I'm a regional manager with Cal-OSHA compliance, out of Sacramento. I'm also the northern California process safety management team leader for Cal-OSHA.

CHAIRMAN HILL: Thank you for being with us, Bill.

MR. KRESHA: It's a pleasure to be here.

We responded to the incident within several hours. We initiated a compliance inspection with the standard opening conference. During the investigation we had approximately 15 personnel involved in this investigation from field staff industrial hygienist safety engineers to -- to attorneys to evaluate our final product. A little over a month ago we released our final product to the employer, which consisted of 33

violative conditions, which were cited with a total penalty of $810,750 to the employer. I believe that we've provided copies of those citations to your investigative staff, and if they need any other additional supportive materials we'd be happy to provide them.

Perhaps a better way, instead of going through each one of these citations individually, I've kind of grouped them in functional groups.

The first group of 12 citations is for our Section 5189, which is our process safety management standard. Of those 12 citations, four are considered to be willful serious.

The next group would be from our refinery safety orders. There are nine citations in that group. Five of those are considered to be willful serious.

The next group would be from Section 5218, our benzene standard. There are seven citations in that group, and no willful serious.

And then there are five additional citations that come from our general industry safety orders and would follow from our injury and illness prevention program and other associated standards. One of those citations is also willful serious.

There are 16 willful citations in our regulatory package, 10 of those are willful serious.

The citation package is under appeal at the present time. The employer has also asked for an informal conference which will be held in a little over a week from now. Because of the appeal, I'm kind of restricted to publicly discuss a lot of the individual matters of the case, but I'd be happy to try and answer any general questions you might have.

CHAIRMAN HILL: Okay. I was going to recognize that on the record, that my understanding is there is appeal pending legal matters regarding the citations. So, it will necessarily amend our ability to question as well as your ability to answer, I assume. But if you're willing and if the members have any questions about these, we will give it a shot and see what we run into.

Anybody have anything?

MR. ROSENTHAL: Well, since I don't know what you can't answer, you can answer, I'll ask the questions and then you tell me you can't answer or answer it.

I'd like to follow along the lines that Dr. Poje questioned other expert witnesses. Are there issues or preliminary findings that you've heard from the other presenters that are at variance with the citations, as issued?

MR. KRESHA: It's my understanding from talking with my field staff before lunch today that there are no significant surprises in the testimony as given so far.

MR. ROSENTHAL: Are there issues that your staff and experts feel were not addressed in the reports by either the County or A.D. Little, or the CSB presenters?

MR. KRESHA: None that I'm aware of.

MR. ROSENTHAL: Thank you.

MR. POJE: Bill, we're the US Chemical Safety Board and we have to keep our eyes open for the entirety of the country. Clearly there are opportunities that occur because of County related activities here in Contra Costa County, but also activities as a result of State specific functions. Would you care to comment about any differences that might occur between the California Process Safety Management regulations and, particularly, your refinery safety orders that you might have knowledge of as being different, for good or for ill, compared to the national standards?

MR. KRESHA: I don't believe I can fully answer that question at this time. I would like to say that in addition to the 15 staff people who have -- from the Cal-OSHA program, we did have assistance from Federal OSHA, as we usually do on larger events such as this. So, I would like to acknowledge that and thank them for their support as well.

MS. TAYLOR: My understanding of OSHA would be that you would not have significant difference unless there was an increase in

your regulation, versus something that would be different from the general Federal regulation, right?

MR. KRESHA: That's correct. As a general issue, that would always be true.

I would like to make one final comment before I leave. I would like to thank you for the opportunity to work with your investigative staff on this particular inspection. Although it's always a very serious issue, always a very somber issue, we truly appreciate the professionalism that your staff presented to us, and I'd like to thank you for that on behalf of the work team.

CHAIRMAN HILL: Well, likewise we express our thanks to you for the same sort of courtesy and cooperation and professionalism. It was reported back to us that the working relationship between the agencies went very well, and we hope we can continue that, albeit under those unfortunate circumstances.

MR. KRESHA: Thank you.

CHAIRMAN HILL: Thank you very much.

Okay. I see we're ahead of schedule, so I take it that most people in the audience and the participants don't mind that too much, so we'll continue moving forward.

Next on the agenda we have a presentation by representatives of Tosco. Mr. Ziemba.

Larry, I've been asked by the Court Reporter to ensure that you spell your last name. We should have been doing this for everyone, but just for the record.

MR. ZIEMBA: Okay. Well, my name is Larry Ziemba, Z-i-e-m-b-a. And good afternoon, Chairman Hill. I'm representing the Tosco Refining Company today. And thank you for inviting Tosco to address the Board in this process.

For the record, I have an engineering degree from the University of Illinois, and a masters from the University of Chicago. I've been working in the refining industry for the last 22 years in four different refineries across the United States. During this time I've held various positions of increasing responsibility in the maintenance organization, including field maintenance, operations, and engineering. Currently, I am the general manager of Tosco's San Francisco area refinery, which includes the Avon facility.

Before I make some comments on the February 23rd accident and the actions that Tosco has taken since that time, I would like to say something on behalf of all of us employees at Tosco.

We are very sorry that the accident occurred, and the memory of this tragedy will be with us for the rest of our lives. Our sympathy goes out to all of the families and the friends of those who were lost and injured.

Now, in keeping with the fact-finding nature of the hearing, I would like the Board to consider several points that Tosco would like to make.

First, since this accident occurred we worked closely with all of the agencies involved, including the Chemical Safety Board staff. We conducted our own internal investigation, and our conclusions generally agree with that of the Contra Costa County Health Department Services. And that is that if established procedures were followed, this accident would not have occurred.

Secondly, I'd like to emphasize that all of Tosco management did not knowingly or intentionally expose any workers to a dangerous situation on that day. In fact, there was no pressure to complete this job. It was being progressed on a normal schedule, straight time.

Third, much has been said about the decision to work this job while the unit was running. In many industries, including the refining industry, the removal of pieces of equipment from service for repair or replacement is done on a routine basis while the unit is running. In fact, many of the OSHA regulations provide for this type of work to be done while the unit's running. We believe that Tosco's procedures at the time were consistent with the OSHA regulations, allowing for the work to be done safely by properly draining, isolating and preparing the equipment for maintenance.

I'd now like to report on some of the action that Tosco has taken since the -- the step, the unprecedented step of shutting down the Avon refinery in March.

First, we've retrained all 700 employees in safe work procedures, essential job skills and operating procedures. We've worked cooperatively with the PACE union leadership to make safety related changes to the collective bargaining agreement, and we continue work, with the help of PACE leadership, to implement these changes and to further improve communications.

We've completed a very extensive inspection and maintenance project to ready the refinery for start up, and we've worked well over a million hours during this project with an outstanding safety record.

We've also retained Dupont Safety Services, a world renown consulting firm which is part of the chemical giant, Dupont. They will assist us in improving our safety management systems. Dupont will conduct an evaluation, hold leadership workshops, and help train managers, supervisors and workers in the same systems that it uses as one of premier leaders in plant safety.

You've already heard about the Arthur D. Little recommendations. We've embraced those and stand by our commitment to follow up and complete all of those recommendations by year end.

And probably most importantly our management team continues to emphasize to all employees that everyone working in the refinery has

the authority and the responsibility to stop the job, shut the unit down, if necessary, if they perceive an unsafe situation. This is a policy that's been in place at Avon. It's a message that I communicated when I -- in January and February of this year, prior to the accident. And it's a message that we continue to communicate to our employees.

That summarizes the work that we've done since the tragic accident. I did want to make a couple of comments about the -- some of the presentations today. We've listened intently to the presentation made by the Chemical Safety Board investigators today. We have some concerns that a number of statements appear to be inconsistent with the facts, as we understand them, and we will be submitting detailed comments to the Board. And as I've said earlier, we've cooperated. We didn't make the slide today on the groups that cooperated. But I think we've cooperated with your staff. I believe that we responded to all of the questions that have been submitted by the staff, and I was surprised today that there was a little clarity -- missing clarity on whether or not we had answers to some of those questions. But we'll be glad to meet with the staff again, and go through those.

And in order to clarify some of those questions, we have submitted a list of questions that I'd like -- answers to questions that I'd like to submit into the record today. These were submitted on September 3rd. And I think this will help clarify some of the things that didn't get answered this morning.

CHAIRMAN HILL: Larry, who had submitted those questions?

MR. ZIEMBA: Those were submitted by our legal counsel. It's a 14-page document.

So, Dr. Hill, we look forward to learning from this accident. I think the industry looks forward to learning and improving safety. We thank you very much for providing Tosco with the opportunity to speak today. And this concludes my presentation.

CHAIRMAN HILL: Thank you, Larry. I have one question.

You came into your position only a short time before the accident occurred; is that correct?

MR. ZIEMBA: That is correct. In January.

CHAIRMAN HILL: You had been at another Tosco facility?

MR. ZIEMBA: Correct.

CHAIRMAN HILL: Yes. Relative to the information you submitted, we will include that in the record. And we too look forward to continuing, particularly where there may be some inconsistencies, as you indicated, or we had questions that were raised today, that information either had not been forthcoming for some reason. We would like to see if we can resolve that by working directly with you through the investigators. So, we would like to get that information, if we could, depending on how that works out.

Any questions of the members?

MS. TAYLOR: You mentioned that you retain the safety services of Dupont. I'm a little bit familiar with their program. But I wanted to ask you regarding the safety, health and safety audit procedures, are you establishing at your facility, particularly the one here at Avon, the safety -- health and safety audit procedure for you to routinely check or check operations with a checklist or with documentation?

MR. ZIEMBA: Well, we -- as you heard earlier today, we had those procedures in place. The investigator said that they didn't have records or documents in regard to the results of those audits, and we've -- we've been doing those audits, we've increased the frequency of those audits, and we've also got some outside -- Health and Safety Services is also helping us conduct more audits in the facility.

MS. TAYLOR: And that's done how often or how routinely?

MR. ZIEMBA: It depends on the level in the organization, but typically, at minimum, once a week for a supervisor.

MS. TAYLOR: And if there is something that's identified as being a major problem, how does that get resolved, or how is that handled, to make improvements or changes?

MR. ZIEMBA: Hopefully, it's resolved right on the spot, but if necessary, there is a wealth of resources available in the refinery. We've got health and safety professionals, we've got a

technical services department which includes mechanical and chemical engineers. We've got the chain of supervision that's available.

CHAIRMAN HILL: Dr. Rosenthal.

MR. ROSENTHAL: Larry, what you announced as your ongoing program, based on my knowledge, sounds excellent, good practice, maybe even best practice. Why was there a need to introduce them at this time?

MR. ZIEMBA: Introduce what?

MR. ROSENTHAL: These programs at this time. I presume that they've been introduced since you arrived.

MR. ZIEMBA: I think there were programs in place at Tosco Avon and, you know, as any new manager comes in, they have special emphasis in certain areas and they want to make changes and improvements and enhancements.

MR. ROSENTHAL: One other question. I think the practice that existed prior to your arrival of empowering workers to shutdown processes is a very positive step. What measures exist since while you empowered them to do it, I'm sure, based on your remarks, that you consider that ultimately you also are responsible for seeing that the plant is operated safely. Do you have measures in place, or contemplating, that will offer you assurance that the workers and your other managers are properly employing this authority?

MR. ZIEMBA: Well, you know, I think that, you know, that's something we're going to have to do day by day by having our managers out -- out in the field and everyday seeing what's happening.

MR. ROSENTHAL: Let me ask you one last question. Were the -- this is maybe awkward. You may not be able to answer it. How would you compare the safety systems and management oversight systems at Avon to your previous refinery experience in Los Angeles?

MR. ZIEMBA: I -- I'm not going to comment on that today. We've heard from Mr. Kresha that there's an appeal process going on, and there's litigation pending here.

MR. ROSENTHAL: I can understand that. Just wondered if you could comment on it, and I understand why you can't.

MR. POJE: Yeah. Thank you, Larry, for appearing here today. It's very important that you be present at this Board of Inquiry.

I believe you were here when the CSB investigators were presenting some of their preliminary understanding of the facts and some of their findings. One of the issues that was raised in their investigative issues area was this concept of shut down of the process unit to safely conduct repairs, and went through a series of evidentiary trains, trying to show issues of high hazard and non-routine, and were perhaps pointing to the need of a specific protocol that would clearly delineate for all parties in a very complex operation involving multiple different groups how best to broker the existing risk management

expertise in the facility about the nature of that safe conduct of that work.

There would seem to be a sense that there was no a clarity of that process, according to their understanding. Do you feel otherwise at this moment in time, or do you have any sense of evolution that you've gone through that is bringing a more decision-making protocol for shutdown procedures around maintenance operations?

MR. ZIEMBA: Well, you know, I'm not sure I understand the question completely, but I think that we had, certainly, the procedures in place that -- the permitting procedures on the job. We had the procedures that required the proper isolation and blinding. And we had the procedures that required the unit to be shutdown if there was an imminent unsafe situation that developed.

So, and I, you know, you've heard testimony today from the County on the Arthur D. Little report and 72 recommendations, and I -- I -- we are embracing those, and if you're asking if those types of things are going to help improve safety, absolutely.

MS. TAYLOR: I have one other question. Regarding the use of the bypass valve, using for the naphtha draining, how long would you say the use of a bypass valve would be okay?

MR. ZIEMBA: Well, I -- you know -- you know, that's a difficult question to answer. I think -- I would suspect that we would not use a bypass valve on a regular basis, although they're installed for

that purpose, to bypass equipment online. So, I -- that's a difficult question for me to answer.

MS. TAYLOR: I guess because according to what the CSB investigators had in their records, which may be wrong, or may not be complete, was that it was 1997 that there was a recording of the use of the bypass valve in this particular case. So, it had been used for the last two years. Would that be the normal thing to do?

MR. ZIEMBA: Yeah. You know, I'm not -- I'm not prepared to answer that question right now, but we would certainly be willing to clarify that.

MS. TAYLOR: That would be good. I'd appreciate that.

CHAIRMAN HILL: Thank you, Larry. Certainly we appreciate you appearing today and participating in this process. It is certainly very important to us to continue a working relationship with you again through the investigators that if the same challenge that we give to all the presenters today that if you heard things or have additional information to submit that deal with some of the issues you heard today, we certainly encourage you and your staff to continue that working relationship with us as we prepare to wrap up this case and move into the final stages. I certainly appreciate the information that you have shared up to this point, and that has, of course, been very useful in getting us to where we are. So, we look forward to it, and thank you very much for your participation.

MR. ZIEMBA: Okay. And thank you for the opportunity to comment.

CHAIRMAN HILL: Thank you. Moving right along. I'd now like to call on PACE, the Paper Allied Industrial Chemical and Energy Workers International, and the Local, that will be presenting information.

Again, for the record, if you have anything to submit, please do so at this time. Introduce yourself again, your name for the record, and spell it for the Court Reporter, and your position as well.

MR. SULLIVAN: Hi. My name is Steve Sullivan, S-u-l-l-i-v-a-n. I'm an international representative with the Paper Allied Industrial Chemical and Energy Workers, or PACE. My background in industry is I hired in mid-1974 at the Standard Oil refinery in southern California. Worked process units for about 15 years. I was a division trainer for a couple of years and then was given an opportunity to work for the union.

Back in 1990 I worked with Long Beach Assemblyman Dave Elders' office in drafting the California Oil Refinery and Chemical Plant Workers Safety Act of 1990, from which we developed Section 5189, and incorporated the Process Safety Management Standards for the State of California.

CHAIRMAN HILL: Thank you for being with us, Steve.

MR. SULLIVAN: On behalf of the Paper Allied Industrial Chemical and Energy Workers International Union I extend our deepest sympathy to the workers and their families of the PACE bargaining unit at Tosco Avon. I also extend our condolences to the contract workers and their families that suffered the loss of loved ones and friends in the February 23rd, 1999 fire. The following comments are provided regarding the February 23rd fire at Tosco's Avon, California refinery.

The report generated by the A.D. Little audit and the preliminary report to the Contra Costa County Board of Supervisors, issued by the Contra Costa Health Services, following their investigation, failed to adequately address the absence of an effective management system, which should have identified and corrected the corrosion problem which occurred in the naphtha draw line.

The mechanical integrity component of the process safety management standard requires facility management to ensure that the equipment being used is maintained in proper condition for safe operation. This imposes an obligation upon management to develop and implement an effective means of monitoring equipment status and condition. The fact that the bypass valve on a naphtha stripper level control loop had been in the open position for quite some time should have triggered a thorough review of the functional operability of the line. This review should have identified the corrosion, scale and sledge build-up, and subsequently, the thinning of the line, before it resulted

in the initial leak. Such a program, in order to be truly effective, must provide for worker input regarding operational status, and must be formally recognized and reviewed by upper management. Without the review by upper management of worker entries regarding abnormal or unusual operating or equipment conditions, the workers may begin to discuss the value of the program and consider it just another meaningless program wherein they provide information which ends up being disregarded by their employer.

Second point. Another management system that either failed or didn't exist was the requirement for written special instructions, especially when doing non-routine jobs. The project to replace the naphtha line while the unit remained online was an extraordinary job. This is not to say this type of work has never been previously performed in the industry. However, extraordinary jobs require extraordinary care. In this situation, that didn't occur. The fact that the line was out of service and awaiting replacement was well known for over 10 days. During that time, every effort should have been made to develop a written procedure covering all aspects of how to perform the removal and replacement of the line safely, from both an operations and maintenance standpoint. While the process operators and mechanics may be expected to participate in writing such special procedures, the leadership and supervision necessary to compel and review those procedures must come from management.

Another point. The work involved cold cutting a line on a live process unit. This work was allowed without the requirement of a hot work permit. While cold cutting the line is not in itself hot work, the location where the work was being performed must be taken into consideration. The requirements when cold cutting a line, whether drained or not, cannot be allowed to be the same when the line is located on a live process column, the same as it would be if the line were in a remote area, such as a tank farm. When work of this nature is being performed in a live process unit, it should be considered hot work, with all the safety precautions such a hot work job requires.

Number four. Industry needs to begin the process of dialog with regulators and labor to define the criteria to be used to determine at what point will process units be shut down when work of extraordinary or critical nature is to be performed. Though no single definition may be universally appropriate, it appears to us that such decisions are made without uniformity from one refinery to another, and from one refinery to another within the same company.

Fifth, there exists a lack of consistency between refiners as to what constitutes PSM compliance. This creates situations where the potential benefits to be derived from PSM standards are diminished. Some locations are further up the curve than others, even though they may not perform management of change, review, or process hazard analyses to the extent or frequency we believe they should occur. We believe CSB should

recommend that Fed OSHA review and clearly establish what types of changes trigger MOC's and PHA's, and what operating or maintenance duties require written procedures, and to what level of detail.

Number six. Among the various regulations issued and enforced by Cal-OSHA are the petroleum safety orders. Specifically, Title 8, Division 1, Chapter 4, Subchapter 15, "Refining Transportation and Handling." Though not all encompassing, they do provide a foundation for command and control type regulations, versus a performance-based PMS standards. We are not aware of any comparable standards within the Fed OSHA regulations. The vacuum of enforceable, universal, baseline standards for OSHA program states to model must be corrected. Federal standards for facilities covered by PSM must be expanded to include specific command and control regulations, similar to but not as limited as California's Petroleum Safety orders. The lack of specificity from Fed OSHA in these industries has created an environment where the public had a tremendous concern for their safety and health, based on the track record the industry is accumulating.

When members of the public are becoming as concerned about a facility's impact on their health, due to offsite consequences, as the workers in the plant are due to onsite consequences, it should send a clear signal to the federal government that greater regulatory controls are needed.

We believe the CSB should recommend that Fed OSHA be directed to compile a full collection of any and all municipal, county and state and federal regulations over refinery safety, and begin the process to establish clear, specific command and control regulations for safe refinery operation.

We recommend a nation wide task force be created involving regulators and worker representatives, both experienced in refinery safety, to formulate these standards.

Finally, we believe that as exemplified by the Contra Costa County Industrial Safety Ordinance, municipalities can take the bull by the horns and fashion a comprehensive safety ordinance. However, refinery workers in neighboring communities cannot afford to wait for a similar catastrophe to occur in their backyards in order for the public will to rise up and demand passing similar municipal legislation. The ISO should be used as a model for the minimum level of compliance with existing risk management and prevention programs, whether federal or state based. That's it.

CHAIRMAN HILL: Any questions of the members?

MR. ROSENTHAL: Steve, why do you believe -- let me -- I presume that you believe that it's a positive thing that workers be empowered to shut down processes when they think they're unsafe; am I correct?

MR. SULLIVAN: Yeah.

MR. ROSENTHAL: Why, then, do you believe in an organization such as Tosco where there is a -- a strong union that workers did not exercise its authority to a greater extent?

MR. SULLIVAN: Well, actually, for -- for generations, organized labor and workers overall have fought for right to know, right to act, right to refuse type of legislation. And for all intents and purposes, it exists. But the fact is when you are in the control room, there's a great deal of pressure to go ahead and keep the unit running and keep it running online at whatever spec is being called for, whether it's maximum gasoline draw, diesel, or whatever it may be.

So, there's an influence of expectation. You know, you're expected to keep the thing online. There is a great deal of intimidation. A great fear factor amongst the factors about actually going up and challenging management on a decision to -- whatever it may be, whether it's started a pump up or shutting a unit down. Workers don't have the confidence that they can challenge their supervisor, and maybe go beyond that supervisor and go to the next level of management to challenge that supervisors decision, without the fear of retaliation.

Now, whether or not the retaliation is going to occur or not doesn't matter, because it's the individual's perception of what may happen that's going to control his decision making process. We can't say that, well, you know, no one's ever been disciplined, therefore, everybody should do it. Because we're all going to have that same

feeling in the back of our heart that I maybe the first one to get disciplined for doing it. You know, what are going to be the consequences. I'm going to be labeled as not a team player. I'm going to be able to advance to the next highest position within the bargaining unit, you know, a lot of things may happen. So, those things -- those things play on an individual, along with the fact that almost every company around now posts all these production goals and profit goals by department and everything else in other control rooms, and these, again, are influences on the individual. You know, he's going to go ahead and take an action which is going to shut down a unit, but maybe somebody else could have kept online or would have kept online, and it's going to have an impact on the profitability of the company and possibly even some kind of a profit sharing incentive.

MR. ROSENTHAL: May I follow just up on that and very closely -- good reporting with regard to a contest on OSHA Recordables, pressure on employees not to report. But let me ask you this question, is there a constructive role that the union might play or a more constructive role on the recommendations that might be made to the unions with regard to supporting the members in the exercise of this authority?

MR. SULLIVAN: Certainly. It fortunately doesn't happen very often, but I think any one of us who's in this position can recall situations where people in the plant have called us and said, "Hey, we have a real concern here," you know. Maybe we're running an okay cooler-

type situation with a fire hose turned on the outside in exchange because there's a hot spot, or we're using air fans to cool off a return tube on a cat crack or some of those things. And typically what we'll do is we'll call whomever we have to in the refinery and let them know that we're aware of it and, you know, we want an answer back immediately as to what they're going to do or we're going to go ahead and notify OSHA, and then that's it.

CHAIRMAN HILL: Dr. Taylor.

MS. TAYLOR: Steve, I thought I heard previously from one of the presenters that workers at Tosco at some of the other jobs had routinely stopped the line for making changes or for making repairs. Are you familiar or had -- had your members mentioned that that had happened before and that this was something they were used to doing?

MR. SULLIVAN: Yeah. It's not uncommon for it to happen, but it's becoming uncommon to find the individual drive and enough tenacity to go ahead and do it. I think that in many cases, you know, it may only be one single individual out of a department that has the necessities to go ahead and pull that off, you know, somebody that's got enough -- enough comfort and is confident that they're going to do it and not get in trouble,

MS. TAYLOR: So, it varies from department to department maybe, or --

MR. SULLIVAN: Well, it's going to vary from individual to individual, even within the same department. You may have five people on one crew, and only one of them may have enough guts to stand up and take on the supervisor or even go ahead and shut the thing down and notify the supervisor, "Hey, this is what I did and this is why." It's a -- for whatever reason, I think we have fewer and fewer of those people in the industry. There were quite a few of them in the mid-seventies, but I don't think there is as many around.

MR. ROSENTHAL: It comes back to the same -- the same issue. Could the unions play a more constructive role in strengthening their members resolve, setting a culture where it doesn't require a man with a strong as whatever it is that you don't want to refer to in public to do it.

MR. SULLIVAN: There would be ways of doing it, but I think that one of the challenges we have is that -- is that if an employee goes ahead and takes it on, and if, for whatever reason, it can be a whole -- a backlog of reasons, of problems with this employee, whatever it may be. I mean, he may have a poor attendance record. He does this and all of a sudden, you know, he's just -- he never had any operational problems before and never challenged management. But, you know, it could be just a -- a compilation of things that gets this guy terminated. And it would go through the entire arbitration process.

You know, if there's a way that the Board can work with us to get rid of no strike, no lock out language, you know, if we need to make -- we need to take action on something like this, we would pull everybody out of the plant, offer the employer a safe and orderly turn around or shutdown. You know, they're not going to get that.

But in reality, we can -- we can talk to the members a lot, but we can't control their thought process in the control room.

We have -- we have situations in a number of facilities where we have a health and safety representative. Tosco Avon happens to be one of them. It's a bargaining unit position. His phone number is well known to the people out there. He has an office. He can be reached by pager. If people have a concern, one of the reasons for that job is that -- is that this person can be someone to stand up on behalf of the workers in the event of an unsafe situation or an unsafe condition to go ahead and go to mid-level or upper management and say, "Hey, this is, you know, we've got some real concerns about this."

I would say that probably the calls on those types of situations aren't as frequent as they should be, simply because this is something new. We've only had it for a few years. I think it's going to take a long time for people to become accepting of the position and adjusted to what that person can and should be doing on a regular basis. So, you know, for a lot of people they're unfamiliar with the potential of what this person can do.

MR. ROSENTHAL: Thank you.

MS. TAYLOR: I've got one other question in that same regard.

Could -- now that you have a bargained health and safety rep in that unit, could some of that comfort come with increased bargaining language that would address those kinds of issues, like shutting down the facility, where you would have something written that workers would understand, and then there would be an agreement and they would be trained on that agreement and know that this is something that they have a right to do, written right?

MR. SULLIVAN: You could come up with some generic language, but you really -- you couldn't go ahead and try and stipulate to all of the various parameters of the events that may occur, which would -- which would allow, contractually allow the operators to shut the unit down, because there's too many factors going into the equation.

CHAIRMAN HILL: Okay. I think Dr. Poje has a question.

MR. POJE: Yeah, just a follow-up on that line. I have a few other questions as well. But I was interested in reviewing Dennis Walters' portion of his presentation, looking at some of the management systems question. Getting back again to this ability to empower an individual to take action that clearly is a momentous action. It's not a small decision, by any stretch of the imagination.

Dennis presented a slide indicating the complexity of the work that was occurring during this major maintenance operation where you had several different contractors involved in activity. Scaffolding. A claim -- a vacuum truck operations. You had several different types of facility people. Maintenance operators. Operators -- process operators. So you see that complexity as also playing a role for the good or the ill in enabling such single individual action to blow the issue and say, "This is unsafe. We couldn't isolate. We couldn't drain. We didn't wash. We had hot ignition sources surrounding us."

MR. SULLIVAN: And during the entire time they were under the direct supervision and control of the management representative, the first line maintenance foreman.

MR. POJE: And people are at various elevations and --

MR. SULLIVAN: And with, you know, with contractors, whether they're union represented or not, they still stand the risk of being disqualified from that facility for whatever reason. I mean, it can be on a whim. They were working for a Tosco supervisor, so there was no go-between, no intermediary for them, a representative for them to say, "Hey, wait a minute, this guy's doing something under here. We need to step back and collect our thoughts."

MR. POJE: In that arena, then, the CSB investigative staff are pointing toward the need for some greater degree of formalization of a process that will allow for a more rigorous analysis to attend such

work in a more formalized process for writing such analysis so that it would be more clearly starkly clear to people about the nature of the work and the nature of the hazards. Do you see that as -- as being a useful correction?

MR. SULLIVAN: I think that would probably go along with my comments about the command and control type operations versus just the flat out performance base. Under the PSM standards, there should have been a very specific procedure developed for doing this. I mean, this was -- this was an operating task when it's -- when it's in a live, you know, we're not talking about a construction project somewhere that maybe people don't need to have direct oversight and review of.

But this is something where, you know, the operators were involved, it's in a live process unit, and it most certainly should have had a very detailed job duties list with it, you know, what are we going to do. And when you get to a step that you can't perform, it should be like most anything else. You sit back and you take a look, "Okay. Do we have to change this procedure?" But it's got to trigger a review and notification process somewhere up the train. It just can't all be done on the shop floor down in the control room or on the pump row.

MR. POJE: If I could ask one more. You raise a number of recommendations, and one of the things that I'm struck with is the same evidence that I think Art was talking about.

There are certain advantages that accrue to organizations that have a broader scope than perhaps a single facility and a single line of work. You see things in a different fashion and a different picture, perhaps. One of the advantages of a Dupont safety -- corporate safety world coming into work with a Tosco is the fact that they have so many facilities, that they've grown awareness of a safety culture and safety procedures that could be applied very broadly.

PACE, as a union, has representation in a number of different types of organizations and businesses, so when you're raising a need of a much more explicit understanding of changes that would be significant enough that they would trigger a more formalized management of change, per written analysis and procedure, does PACE have in amongst its own larger array of membership examples that different workers working in different localities would say is a model? Here's the model that's used in Nashville. Here's the model that's used at Tosco. Here's the model. So that you yourselves would provide some of the data that might be difficult for a small Federal agency to accumulate?

MR. SULLIVAN: I don't know that we have a -- a modualized best practices approach, but certainly myself and many others are familiar with more than one employer. We've been inside, we've worked maybe different locations, and the responsibilities we have for different companies.

I think we all can kind of sit back and recognize that -- that refinery A maybe has a good training program that the others ought to try and copy or emulate. Company B may have a good, effective maintenance program, whether it be a good tagging procedure, notification, hazard awareness. Every facility has its deficiencies. But it's difficult for us to sit back and try to get the companies to accept someone else's program because they're typically so entrenched in their own. And I don't care what industry it is, GM is going to tell you that their engineers are smarter than Ford, and Chevron is going to tell you that their engineers are smarter than Mobil Oil's. And that's simply the way it comes down. I mean, for crying out loud, they buy the same process from Ford Corporation, and Ford comes in, it's basically an off-the-shelf kit, but the engineers at each location have to make adjustments and tweaks so that it fits in with the Mobile concept or the Chevron concept or the Tosco or whomever's concept.

So, it's difficult to get them to agree to come to the table all at the same time, because of anti-trust concerns. And getting them to agree to some of those other things are just not going to happen. Culturally it's not going to happen.

MR. POJE: One last question, similar to what I've asked before.

Did you hear anything that was inconsistent in the presentation by the Chemical Safety Board investigators, with the

understanding of the facts as perhaps understood by the Local here at the Tosco?

MR. SULLIVAN: No.

CHAIRMAN HILL: Steve, you mentioned that -- and actually made a recommendation that there be some sort of a safety summit. Do you think that would do something along the line of what Dr. Poje was talking about of pulling together representatives from around the country to -- to address this issue and air it further before any clear direction was made?

You also referenced perhaps some recommendations directly to the existing rule package. Could you elaborate on that a little bit more?

MR. SULLIVAN: Yeah. I -- my intention was not to go down the path of a safety summit in bringing a conference or convention together. It was to go ahead and try and get a collaborative effort between people who refinery chemical plant based safety background and experience so we can take a look at the rules that are out there fundamentally and find out what do we have to craft to come up with something that's going to fill the void that's left by the simple performance based standards. Because what we have in place is not enough. It's insufficient, not by design. It's insufficient by interpretation, by application. You know, the process safety management

standards, that's all encompassing. There's nothing that should be -- be overlooked by that.

But the process safety management standards don't apply to each and every process within the refinery. That's one of the comments I made about the industrial safety ordinance which took the PSM components and applied them not only to what RMPP required and also what the State required, but basically covers every process in a refinery. Now nothing is excluded, you know, it's just -- it's the threshold quantities of the material that's going to go ahead and determine whether or not the equipment in the refinery is going to be covered by those elements of process safety management. And then we get back into the -- into the ambiguities of what's required to comply with the process safety management standards.

Some people -- some refiners will go ahead and do an MOC on a piping change. Others won't. Some do it on staffing changes. Others don't. Some people have procedures on almost every routine and non-routine line-up on a tank farm. Others don't. Some have just generic procedures on how to start a general centrifugal pump, single stage. Some facilities say, "Well, we really don't need to have that. That's not one of the things covered by the normal operations or procedures requirements of PSM." And so that's really where we're really missing the boat.

MR. POJE: Steve, could you put your recommendation. Not to detail what some people do or don't. But you made a general recommendation to the Board in regard to this summit, the OSHA regulations, and other things. How did you get so smart? You knew what I was going to ask.

CHAIRMAN HILL: Yes, could you submit that for the record? Of course. Thank you, Steve. Any further questions for Steve?

MS. TAYLOR: No. Thank you.

CHAIRMAN HILL: Thank you very much, Steve. And certainly express our appreciation to the cooperation that we received from PACE and your members at the facility as well as International as well. We again appreciate your contribution to this process and certainly appreciate the ability to have your insights as we go forward with this case.

Let me ask the members if there's -- if there's any presenter. We are now at the end of our official presentations. We have finished early, miraculously, which is not often the case. People say government works slowly. Well, we're trying to speed things up a little bit and appreciate everyone submitting written information for the record today and being concise with your commentary.

But I'll ask the members if there's anything --

MS. TAYLOR: For those of us on the east coast it's 6:00 o'clock, you know.

CHAIRMAN HILL: Now that you're a Baltimorean you can do that.

MR. ROSENTHAL: No, Paul, I don't have other things to pursue. I just wonder if as a courtesy, since we are moving ahead of schedule, we need to convene again at 6:30. But if there are any members of the general public present is it possible to close the session and give them the opportunity to perhaps make their comments and go home?

CHAIRMAN HILL: Okay. We can see if that's possible.

MR. POJE: The only comment I have is that I value this process, I think it's been extraordinarily useful for me as a Board member to hear the perspectives laid out. However, I do want to reiterate what you opened up with, which is this is a step in the center of the process. I think the knowledge that's gained collectively from all of the testimony provided today, if anybody has any reinterpretation of the comments that they gave to us in light of what others have said and want to augment that, I just would share the feelings of, I know, the rest of my Board members here, that this is the time to do it. It helps us bring this government process to fruition at a quicker rate, and it also should help us make the best technical work product appear as a result of this investigative work.

CHAIRMAN HILL: Well, acting on Dr. Rosenthal's recommendation, we -- we have heard from representatives of the County, the Board of Supervisor's Office, that some citizens had called in

requesting or wondering why the public comment period had been scheduled for the evening. Our efforts to do so were to try to ensure that people who were employed at other facilities or whatever, out making a living for themselves, would have the opportunity later in the day to come by and provide their comments.

However, registering that objection, as Dr. Rosenthal recognized, we have some time right now, about an hour and a half, that we could utilize for this purpose if there are individuals who represent other views that were not expressed today who would be in a position to come forward and make their presentations at this time. If there are not, we will seek to adjourn and then reconvene at 6:30 anyway. But we wanted to try to take advantage at this time.

Do we have anyone in the audience who had planned to come back here this evening anyway and is prepared to make a comment at this time?

Well, I don't see any volunteers, so we will go back to our schedule and try to do that.

Let me just make a closing statement here that as I prepare to close this proceeding, I'd like to emphasize, as Dr. Poje pointed out, that the CSB's investigation is not completed at this point. This is very much to supplement our own investigators' case and to ensure that all the relevant facts are brought to the CSB's attention at this juncture. And that this very process will dictate a time frame for how

the rest of the investigation will go from this point forward. If very little new information becomes available, the report will be issued sooner and the process shortened. In either case, I will seek to issue the final report as soon as possible. Rest assured, however, that technical credibility and thoroughness will not suffer in the interest of timeliness. We want both, but those are a higher level priority for this Board.

The CSB's work is that of the American public. The public's work must be open to the scrutiny of everyone. As I noted this morning, these open sessions are to ensure thoroughness and accountability. We should leave no stone unturned in getting at and documenting the facts before any decisions or recommendations are made.

These mechanisms we have employed here today are the same as those of our sister agency, the National Transportation Safety Board, in response to transportation accidents. These methods are used to gain any and all insights that are held in the public interest, and are held in the public interest of good government. They will enable the CSB to embrace all the investigative work of the other agencies, the company, the consultants, and possibly for the first time compile a comprehensive record incorporating all of the talents, insights, and professional contributions of everyone.

My goal is to provide the public not just with an account of this accident, but more importantly, targeted recommendations to prevent this accident from happening again.

I ask all of you who are present today or who may otherwise become aware of our efforts to participate in the achievement of these goals. I urge you to take advantage of the three-week comment period ending on October 6th, and thank everyone for your participation. We are adjourned.

(Whereupon, the Board of Inquiry was adjourned at 3:15 o'clock p.m.)

PUBLIC COMMENT SESSION

(6:30 p.m.)

CHAIRMAN HILL: Please take your seats.

As I assume many of you know who have been involved with this investigation and/or who may have read about what we're trying to do here today through the press and the media coverage, or through communication directly with the CSB's website or other mechanisms that got you here, you're very much aware of the events that were held earlier today.

Those events are called a Board of Inquiry, which I spoke about this morning is an official pause in the process to ensure that all the information that is available regarding this situation is brought

into the public record so that the Board is ensured of considering that information before it makes any final recommendations.

Those who provided information this morning, as is standard practice at a Board of Inquiry, are individuals and organizations who had direct involvement or were directly involved in collecting information at the site as a result of the incident.

In this situation, however, we're gathered here this evening to take that one step further, to ask the public at large to also come forward if indeed they have information. Not knowing whether or not that is the case, we're holding this session particularly to invite that level of participation directly from members of the community who may have some type of information that we're completely unaware of, or may have supplementary information to something that was already presented today that strengthens the factual basis of what we have already maybe heard.

So, in that regard we are gathered here to hear from individuals who independently have decided to provide us with some level of information, and we have asked them to sign up.

Mr. Cogan has the list of individuals who have indicated their willingness to provide some commentary this evening. I would ask again that we keep these comments to a 10 minute period, but also supplement any oral testimony with written testimony. This will give the

investigators further information to follow up on and verify that information to ensure that is is considered.

Mr. Cogan, unless there are any questions of anyone, I will ask that you call the first name on the list.

MR. COGAN: Mr. Richard Berry.

CHAIRMAN HILL: Mr. Berry, would you state your name for the record and your background or association with this case in anyway that -- just for the record?

MR. BERRY: My name is Richard Berry. I'm a worker at Tosco. I've been there for three years now and know many of the people that were involved with the incident very personally. I've worked the unit that the incident took place on and I know all the operators that were involved and most of the maintenance people and some of those that were lost too.

And on their behalf -- behalf of the operators that were there that day, some of them are like brothers to me and I care for them deeply. We work together. I've learned a lot from them. I've only been there three years now.

I left an industry, construction industry, been doing it all my life. A lot of people look at the oil and chemical industry and they look at all the danger and they think that this is the only place that people die and people get hurt. And that's -- that's sad.

I've seen dead bodies on job sites in home construction. I'm not talking big commercial stuff. I looked at things out there in the hallway. I've seen farmers that have died do to things. Chemical workers. There's explosions at explosive plants. There's injuries every day, you know. And our industry, I believe, and I feel, is being targeted. And it stands out. It does stand out because of the nature of what's happened here.

But as operators out there, they're all very conscientious, particularly John Moyland, Tony Cregats, two of the operators that were on duty that day. I know them well and I've worked with them. I've entrusted my life to them with things that we've been doing out there. It's a dangerous business. I know that. And I knew that going into it, but I also know that there's risks in everything in life.

But they are all conscientious people, they're hard workers, and they take their job seriously. I've seen them hold up jobs. I've seen them stop work. I've seen them do the things that it takes to make sure that a job is going to be done safely.

I don't know all the particulars. I wasn't there that day and I wasn't working that unit at the time that the incident did take place. I now work on another unit. And I have the same confidence in the guys that work there. I've also worked a third unit, the cat cracker unit, and I felt the same about them guys.

The procedures were in place to take care of these things, to do this correctly. It's sad to say, from the things that I've heard, they weren't followed and four people died, paid with their lives. But they were there.

As the days following the incident came around we heard little details of things that came, people that were there, people who were there, part of the rescue, things we've heard, and very quickly we realized that it should have never been done. I mean, that's -- that's a no-brainer. We all know that now. But there were decisions made. There's a human factor in there. And there are people that, I don't know for what reason things were done, but they were done.

And it's sad to say it's, you know, indicative of people to be that way. We're not perfect. Sad to say, sometimes it costs people lives. And, you know, we all can do it on the way home from anywhere. You know, some people loose their families over being too tired driving down the road, too.

So, I don't know the decisions involved, but I do know the people involved, and I do know that I can vouch for them and I do know the procedures at Tosco. I've been there for three years and, I tell you, I've never received so much training. I've learned more in three years there than I did in probably 15 years of construction before that. And I'm grateful for it. It fascinates me. I enjoy it.

I feel it's a very safe place to work. I know it's a very dangerous place to work, but you also have to do things in a safe manner and do it in a controlled worker, and I think they do their best to get the word out there to this is the way we want it done. For the newcomers and for the old-timers, and I think the old-timers there do take us newcomers under their wings and help us out, too, where need be.

And we're never left on our own to just, you know, here you are, there's your unit, go out there and run it. There is a set way of training and helping and mentoring through the ranks as you gain experience out there.

And it's a tragedy, but I think it is an incident. It's not a trend or a habit or an atmosphere that's growing out there, as everybody says it is. And I just want to come here today and say my piece on that. Thank you.

CHAIRMAN HILL: Okay. Thank you very much.

MS. TAYLOR: If we have any questions can we ask him or no?

CHAIRMAN HILL: Are you amenable to any questions from the Board members?

MR. BERRY: Yes.

MS. TAYLOR: If you can answer them. I just had two.

One was since you knew the workers, and even those who were killed, you said you trusted their judgement, do you feel that the workers were pressured in trying to complete this job in, say, at a

specific time frame, or -- or would you have any knowledge and think that they would --

MR. BERRY: I wouldn't have any firsthand knowledge of it. I mean, but given what happened it seems like there -- there was a certain amount of that. But I can only -- I mean, that would be speculation. I -- my unit is about a mile away or a half mile away from there. I work at the hydro cracker and so I don't know what the actual workers were doing, what their push was or if there was a push or what it was.

I have talked to some of the operators afterwards. Like I say, I do know some of them personally. I go by their house. As a matter of fact, later that same day I found out, went by their house.

MS. TAYLOR: And the other question I wanted to ask was in your experience, the three years that you've been there, if you've needed to shutdown a line or stop work, have you felt comfortable, do you feel comfortable in doing that?

MR. BERRY: I've done it.

MS. TAYLOR: You've done it?

MR. BERRY: And I do feel comfortable doing it. And I think that's -- that's one very valuable that's been learned and been reinforced.

I mean, it's always been there and we've had the power to do it, and it's -- but it's been reinforced in people's minds that, you

know what, we own this equipment and we own this place. It's -- we take ownership in what we're doing here, and it's everybody's job. And like I said, it's not something that's new to us, but I think it's something that's been reinforced. And hopefully that will continue to stay in people's minds.

MS. TAYLOR: Thank you.

MR. POJE: If I could just ask a question as well?

MR. BERRY: Yeah.

MR. POJE: I'm sorry. Thank you for coming forward. It's not easy to step in front of an audience and talk, especially when you hadn't anticipated being first.

One of the purposes of the Board -- of the Board's activities here is ultimately to prepare a report that we hope would be read by as many interested parties so that they would understand our interpretation of the evidence, our understanding of causation, our understanding of contributing causation, but also would understand recommendations that would be coming out of this. In particular, see themselves as being party to a larger system of safety, implementing such recommendations.

So, could you give us any understanding about how such a report could be brought to the attention of you and your coworkers in a way that they would read it and would start to think about their role in this larger system of safety?

MR. BERRY: As to how it would be presented to us?

MR. POJE: Yeah.

MR. BERRY: Gosh, I've seen some of the reports you have out there in the hallway and I like some of those. I like the detail in them. And the graphics. Things like that. That's very helpful to see what it was that actually did happen in some of those. They're not real vague.

MR. POJE: Any suggestions on how to get that disseminated to your fellow workers within the facility?

MR. BERRY: Just by the printed page and word of mouth, you know. I mean, management, we have regular safety meetings. And I think if these reports can be, you know, provided to us, and I'm sure they are, I'm sure it's public record after it's been made public, but it's -- and in every report that's come out of yourselves, OSHA, and any others that have been involved with us, it's always been widely available there, and it's been very -- received with a lot of interest too. The guys sit down and they read it and we discuss it and we talk about it, and what happened, and discuss it in light of our unit and what do we do. So, it's very valuable information.

MR. POJE: Thank you.

MR. ROSENTHAL: Let me follow up, Richard. You, based on your feelings and experience, you think that safety processes at good at Tosco. Obviously, on occasion, things happen. What might you suggest,

based on what we've learned from this incident, that might lead to improvements, even if you think it's satisfactory in the safety of employees in the facility? Have any suggestions?

MR. BERRY: I haven't seen your guys' report yet. I understand it came out today, a preliminary report of some kind. But I've seen the suggestions of the A.D. Little report. And I like the things of trying to work things out as far as between management and the workers as far as trying to heal some of the wounds. I'm -- I'm new there. I see some of the stuff that's -- that seems to have been carried on from past generations.

And I think management is working towards that. The union is working towards that. And -- but we need to all be working together. Like I say, I speak from an operator's point of view when I say, you know, it's been reinforced that it's our equipment too and we're responsible for it. It's not just management says they're going to work on it. "Okay, you guys work on it. I'll sniff and make sure it's good." No. That's my equipment. I run that equipment and I'm in charge of it. And I think it's going well with that, that cohesion between the two entities, I guess, or whatever you want to call them.

MR. ROSENTHAL: Do you think there could be improvements in communication between employees and management?

MR. BERRY: Uh-huh. And I think it has since -- well, the A.D. Little was very helpful as far as they were very detailed. I'm sure

you guys have probably seen their report. And they detailed a lot of different things. And it seems they've all been -- well, most of them that I, you know, noted, have been implemented very quickly, and they're really trying to work at it, and it's --

MR. ROSENTHAL: Have you seen significant improvements over the last several months?

MR. BERRY: I mean, I hate the idea of significant improvements because I don't -- I don't see it as really bad before, but yes, I have seen improvements. Notable improvements.

MR. ROSENTHAL: Not that -- yeah. Right. Thank you.

MR. BERRY: Okay.

CHAIRMAN HILL: Thank you very much, Mr. Berry.

I would like to again remind people who have come into the room after we began that they can continue to sign up if they do want to provide comments to us by coming up and leaving information with Mr. Cogan.

Phil, please call the next person on the list.

MR. COGAN: Mr. John Berard.

CHAIRMAN HILL: John, would you state your name? I didn't get your last name.

MS. TAYLOR: And spell the last name, I think, for the Reporter.

MR. BERARD: Okay. My name is John Berard, B-e-r-a-r-d. The other two deals were I live in Pleasanton. I work for Tosco. I've worked for Tosco for over 17 years now.

I have been in five different units that I have held positions since my beginning. I work at 50 Unit as a track tube pumper, which is basically one of the two people which are there. They've changed some of the format since I was there five years ago.

I was on the day of the accident. I was training at a unit which is called 2-HDS. When we found out that there was a fire and explosion, I let it be known that if it was needed that I was available, because I was an extra man, to possibly go try and help out the people who were at that unit.

One, because I was familiar with some of the equipment and the vessels and some of the valves and things of that nature. That was not followed up on. I was not drawn and asked. You know, I could only give that information if it was needed.

I think as to what the last gentleman has said, and basically pertaining to myself, what I have seen is a change over the years and up to now is that everybody has got an opinion.

If you are a number one in our unit, there are number twos that are below you, meaning they take work direction from you, they have their own existing job, they do it to the best of their ability. If they need your assistance or help they will turn around and ask for it.

And like anything else, if you're going to tackle a problem that you have got on your unit, or even something as simple as taking down a pump which can be a safety type endeavor, because there are certain ways that are doing it. You're still dealing with something hot. You're dealing with pressures. And you're also trying to -- either to atmosphere, to a blow down or to a sewer.

So, what is always done amongst a one and a two, or even if you've got twos, because some units have more in it, more bodies, is that you have a pow-wow.

Now, you always want to try and take the guy that you think has got the most amount of knowledge, or the guy who steps forward to try and say, "This is how I would like to do this project." What I have seen from that in the past is I have had verbal arguments, are the easiest words to say, with supervisors, with contractors. They get the job and decide, okay, they know what's best, they know how to do it, it's their people.

I can't tell you the amount of training that I have received in the last 17 years. If you put it down of every time I went to a class, the number of hours, it far exceeds four years of college, which, as I understand, there's only a few places in the United States that you can actually go to an operator's college to learn how to be what we are.

Anyway, from that what I think the biggest asset has been that we all have procedures, and that the procedure came about in a couple different ways.

We had procedures in years past. Some of them were outdated. Some of them the equipment changed. Some of them the individual who was the number one on the unit did it an old way, it worked, it's the way you're being taught. We do a lot of things via monkey see, monkey do. I turn and did it, teach you. I teach you right, then you go and you try and teach somebody else right. So, we have to do a lot of our training that way. There's no other way to get it. Okay.

So, from that you can have a person who now becomes responsible or says, "Yes, I know how to do that." And they go about doing it. Sometimes they're supervised by even the number one operator or the number two who taught him. And if the person does that job satisfactorily, then you turn and you say, "Yes, the person has competence." Or if there's something that you want to try and assist them with or try and say, "Hey, look, I've seen what you did here. You weren't in jeopardy. You weren't in danger. But this is a better way."

We're always looking for a better way. We're always looking for, you know, a safe way.

What I think we've gotten now, more than anything else, is we took a lot of people who have extremely good knowledge in the way of a lot of the engineers, a lot of the unit supervisors, and then various

other people that are in our company, and they looked at the way we did business. They looked at not only how we operated the unit, they looked at the procedures that we had. They looked at when we outside, what we did and how we did it. And if they thought that there was a better way of doing that, they gave that information to us.

Now, Tosco itself has grown over the years from the standpoint when I first came there there was only two parts of Tosco, Avon and Bakersfield. So, you had a nucleus to draw from which was just the people that were in this room, you know. We used our thoughts, our ideas, and we thought we were doing it the best we could, then somebody came along with a better idea, you know. At certain times you incorporated it maybe on the unit that the person was at, but you didn't incorporate it refinery-wide.

Okay. We took those procedures and we sat down with them, and we took each procedure with all of the operators present, and they said, "Yes, that will work. No, that won't work. And this is why." And then we took the person who had the most knowledge, who actually wrote it, and you can't buffalo them. So, you start talking back and forth and say, "Yes, I run this unit every day. This is what we've got. This is what's changed. This is why this won't work."

And when you look at it and the guy says, "You're right." Because he's only one individual who's doing various, you know, things, and it's his interpretation of what it is and how it's to be done.

So, if we decided amongst ourselves, with the engineer, with the supervisor, that there was a better way to do it, we implemented that. So, now you name it. I have a time frame that I can turn around and pull up that procedure. I can try and go that procedure verbatim.

Okay. As we know our units and various things, if we have an upset or if we turn around and have a fire or if we have a tube rupture or something of that nature, there are things that we do continually to turn around and say, "Okay. If this happens, this is what we're going to do." So, that's your initial, like, Johnny on the spot.

Okay. And what you do is you take it and make it as safe as you can, turn around and bring the unit down, relieve the pressure, and then you go from there and you get back up.

Now, I personally have turned around and had a fortitude in the past to where I said, "I'm right. I'm the number one. I'm staying with it. I'm not changing." And I had to fight it, but the thing got done.

I've also been there before where I went that far and various people have come up and said, "John, you're upset. I understand. I know what you're saying. But look, this is what we're really trying to do and this is how we're trying to do it." And I've said, "Okay. It's another way of doing it." It's another people turning around and coming up and saying, "Hey, look. What's your objection?" Well, that's foolish. No, they don't go,"That's foolish."

I tell you, 17 years the proper answer for me or to anyone is, "I don't know." Because that's the right answer. If you don't know it, don't give it to me. If I ask you something or tell you to do something and you go out the door and my interpretation is that's what you're going to be doing, and you don't know what you're doing, it will come down. I will turn around and talk to you. If I don't think that it got anywhere, it will go to my supervisor. Because I'm not there as a, "Gee, he's really a swell guy."

I think that I have got respect amongst my peers. I think that when you get in the industry for 17 years as a worker that even when you go from one unit to another you try and take that knowledge with you. And you get to a unit, and even before a lot of this happened you say, "Wait a minute. This shouldn't be done that way. I know a better way."

You're a new person. You're not the new kid on the block, you know. And so what I like the best is the procedures, because everybody's on the same page: the unit supervisor, the maintenance foreman, the maintenance worker, and myself. And one of the safer things that we've done in the last few years is come up with what we call a lock out/ tag out system. And that wasn't in the past in the industry. Thank you. Any questions?

MR. ROSENTHAL: Yeah. I think what you describe as your experience in the system and testing the knowledge of the employees to follow the procedure, and you specifically mentioned the lock out/tag out

procedure; do you have any insight as to why the procedure was apparently not followed? Why the statement of -- from the Tosco plant manager indicated that he felt the problem was that the procedures were not followed.

The group of people who trained with you in similar number ones and twos.

MR. BERARD: Correct.

MR. ROSENTHAL: Several of them. Do you have an insight as to why the procedures were not followed and what might be done to reduce the likelihood that this would occur in the future?

MR. BERARD: No, sir. Pertaining to that exclusively, I do not know because I was on unit at a different place.

I do know that there are a lot of things that happen in refineries that we honestly try and classify as near misses. There are things that could have gone bad because either procedure wasn't followed properly or somebody did something and it went bad, you know. And then you recovered it, so nothing happened, you didn't hurt the equipment, you didn't hurt the personnel, you didn't loose product, you know.

But, we also know that part of the pyramid triangle of the number of near misses, turn around and finally get to, you know, a fatality, is the fact that the company is very much aware, and part of my job is if I witness, or if I'm part of a near miss, I don't just say, "We got away with that one," which is what we did in the past.

You know, you don't write it down, you don't put it in your book, you don't give it to anybody, so nobody really knows that it happened. But the thing on the pyramid and the triangle is the fact that all of those things add up, whether anybody -- you know, does a tree turn around make noise when it falls in the forest? When we get there later on, we know the tree is still on the ground. See.

So, the biggest thing on that I can say is that when you give something to your immediate supervisor, or if you're a number two operator and you try and take it to your number one, what you're doing is you're basically saying, "Look, I've gone as far as the knowledge that I've got and how I feel comfortable with it, so I need your help. I need your assistance."

So, when that person starts doing something, you can't turn around and say, "Wait. Wait. Wait. I think you're doing that wrong," because in all honesty, you're asking for their help and their expertise. You're not really sure that it's wrong. You know what I'm saying? There's two different ways of doing things. So, you go along with what's being done.

In the case of 50 Unit, they knew that they had a problem. They knew that they were in the process where they were trying to turn around and drain that line. Why that line didn't get drained or various other factors into that, I don't know.

I do know when you give stuff to a -- a unit engineer, that that person is very, very knowledgeable, of not so much of even what I've taught, by monkey see, monkey do, and just my years of looking, doing and being there, you turn around and you have that individual.

And so then you go up one higher, and you deal with what you think that person thinks is right, you know.

Why it was deviated from the procedure, I don't know. I do know that procedures are out there.

MS. TAYLOR: Can I ask just a follow-up question to just what you said?

I'm from a different industry, the auto industry, and I have witnessed like with the press operation where we had a worker killed as a result of not locking out, tag out. This worker had 23 years of experience. He perceived that he could operate or change something in the operation, which he had done before, without locking it out. It takes too much time. The operation goes down. But on the other hand, there's a supervisor there who basically turned his back and let the employee not lock out, tag out.

So, my question to you is in this particular situation, if the unit wasn't shut down -- and you mentioned the two number one, the supervisor -- could there have been possibly some level of conversation that did not take place or was ignored or was somewhere in that line of the pecking order?

MR. BERARD: Yes, there could. I don't know that there was. You know, many times you -- you try to turn around and have a meeting, you know. When you get people who are in supervisory positions, when you get people who are engineers, people are always wanting their time, you know. I mean, you're not the only piece -- you're not the only person that they try and service, in other words.

So, there are various times that they don't show up at the, you know, the existing meeting, and they turn around and, you know, come at a later date. They will, a lot of the times, not jump into the project and try to say, "Hey, look. I'm the boss. I'm here. I'm in charge now." They'll basically come and they'll ask, "Well, where are we and what are we doing?"

And a number one will turn around and -- because the number one is the person who's going to have the most amount of knowledge as to --

MS. TAYLOR: That's the person who's there and has the experience working the operation?

MR. BERARD: Correct.

MS. TAYLOR: Okay.

MR. BERARD: See, in what you-- what you also have to understand in a lot of different cases is there are some things that if you do not follow procedures, but if you try to take out more pieces of equipment when you're dealing with things that are hot, contrary to

things that are cold, such as exchangers, that when you're going to take them out for a small amount of time and then you put them back up, the expansion and the contraction of the metal itself, many times you can end up with a new fire and a new leak and a new problem from the exchanger, because you don't have any control to turn around and introduce the new hot oil that you've already got.

So, it's -- it's a common thing throughout a lot of different deals. It's one of the reasons why the unit was still on and, you know, they were still isolating the line. I mean, I have done that very many times myself, even at 50 Unit on various exchangers.

And so you take what you've got in the way of equipment and you take what you've got in the way of knowledge, and you work with that.

MS. TAYLOR: So, going back to the fact that you mentioned that we do have work procedures.

MR. BERARD: Correct.

MS. TAYLOR: And we know that sometimes work procedures are not followed. You know, it depends on the magnitude of the situation. And then sometimes you can say few because it was a near miss that didn't happen.

MR. BERARD: You know, that's going to be -- anytime you can have a supervisor that can turn around decide that he's on a time frame, he needs this, he needs that, he can come in and try to bully.

Now, if the person below, whether it be a number one or number two operator, can turn around and give into that bulliness, you know, and yes, that can be done. But when you talk to Mr. Ziemba, and Mr. Ziemba can turn around and overrule any one of the bosses that I can point a finger at or know or have, then I can automatically stop and turn around and say, "No, I'm not doing it." And my boss can't make me do it because I have the capacity to get on the telephone and call Mr. Ziemba or Mr. Kenny.

MS. TAYLOR: And the employees understand that who work on the other units, that they have the same --

MR. BERARD: Yes, Ma'am, I think they do. I think that I'm part of the old regime. I say that I'm Toscofied. I'm Toscofied from the standpoint that when I got the job, the only refinery that I've worked in has been Tosco. I haven't worked in Shell, haven't worked over at Exxon, don't know how other refineries turn around and do business. Now, that I don't know.

So, again, when you try and you've got the old guard, and many times in the past when I first started, there were a lot of stupid things that we did as normal rule of thumb. I'm talking about taking a bucket of oil, putting a rag in the oil, taking your cigarette lighter, to find one person out of five that smokes, you know, and light the rag to turn around and start a furnace to light the burner. I'm going back 17 years. It is archaic. It's not done now. There are some of them

which are done by torches. A lot of them have gotten to the point now where we all have the capacity of dealing with igniters, you know.

We have -- we have alarms that are critical. With that critical alarm, if it doesn't see that flame, t's called a -- excuse me, it's called a fire eye in various cases. If it doesn't see what it wants to see within a time frame, it shuts you down. It's got a knife valve. Even though you think that you're going to save it or you're going to go around something, you can't do it, and nor do you want to.

So, granted, when you're one or two people, you have more control as to what's going on. When you get into a turn around where you are doing the best you can to do the lock out, tag out, every time a new contractor walks in the door, they want more of your time, they want more things, they're more interested in them, they're more interested in their people. But you still have the control. You tell them wait. And they don't have any chance. They can go away mad or they can stay.

CHAIRMAN HILL: Okay. We've had 10 minutes. Okay.

MS. TAYLOR: Okay. That's fine. Thank you.

CHAIRMAN HILL: Thank you, Mr. Berard. Again, we appreciate you coming forward.

I see Bill Cogan has been replaced by Maureen Wood. Maureen, would you call the next name on the list?

MS. WOOD: Mr. Jeff Jewell.

CHAIRMAN HILL: Mr. Jewell. Thank you for coming forward. Please state your name and your --

MR. JEWELl: I'm Jeff Jewell. I've worked for Tosco for 19 years at the chemical plant. We're right across the slew form the refinery.

MS. TAYLOR: Spell your last name for the --

MR. JEWELL: J-e-w-e-l-l.

Over the last few months I've heard a lot about us not having procedures or safety rules or anything. I've never worked in the refinery. I've only worked at the chemical plant. Well, we have all those at the chemical plant and we have the same management.

I've also heard a lot about an adversarial relationship. I'm a union steward at the chem plant and I get along with all my bosses and so do all the other union stewards there.

So, I don't -- I can't say to know what happens at the refinery, but it's not Tosco wide if there is a problem at the refinery. At the chem plant, we have procedures, we have rules, we try to follow them. Everybody gets along. It's almost like a family. That's really all I have to say.

CHAIRMAN HILL: Any question? Dr. Poje.

MR. POJE: Thank you, Jeff, for coming forward. Do you have any insights as to how to explain how an Arthur D. Little report

might point in a heavy handed way towards communication problems between management and labor, and how that might come about?

MR. JEWELL: I don't have a clue. I mean, heck, I get along great with my boss. And we are -- actually, our upper management is the same management as the refinery has. I have seen Mr. Ziemba -- in the nine months that Mr. Ziemba has been our plant manager, I've seen him more than any of the others over the 19 years. And he'll come in and talk to us. And we had other managers. I'd never even seen them. Wouldn't know them if I stepped on them.

MS. TAYLOR: So, you feel comfortable at your facility with approaching management about problems, management talks to you, you have this very --

MR. JEWELL: Oh, yes, without a doubt. We've had procedures. We've had -- we used to be owned by Monsanto. We've had written permits for the 19 years I've been there.

MS. TAYLOR: And they have followed --

MR. JEWELL: Yeah. We've never had problems that I'm aware of.

MR. ROSENTHAL: Jeff, why do you draw a distinction when you talk about the current plant manager? Does he represent a departure? Just know that we're looking at the circumstances prior to the incident, and the culture and the things that existed that caused people to tend towards certain behaviors prior to the 10th of February.

Do your comments that you've made when you say that you've seen Mr. Ziemba more in the last number of months than you ever saw any of the other managers in 19 years, does that indicate something or am I mis-hearing you?

MR. JEWELL: I think it's a good thing because he's, you know, he's the guy in the top. He ultimately makes all the decisions and he'll come down and talk to the troops, the guys in the trenches, where the other guys wouldn't do that. And you never know whether the guy at the top is hearing what you think.

MR. ROSENTHAL: Okay.

MS. TAYLOR: So, the ones before, then, could you still approach them now that you felt comfortable? You're a union steward so you would approach them anyway, by the nature of the job?

MR. JEWELL: Yeah, but I get along -- yeah, I get along with them even before I was a union steward. But actually, the two plant managers before that used to be a manager of the chem plant, so, you know, I personally knew him.

MS. TAYLOR: Okay.

MR. ROSENTHAL: Thank you.

CHAIRMAN HILL: Okay. Any questions? Thank you, Jeff.

Are there any additional names on the list, Maureen?

MS. WOOD: Yes, there's three more.

CHAIRMAN HILL: Okay.

MS. WOOD: Mr. Jeff Felix.

MS. TAYLOR: You know, you're taller, you might want to pull up the microphone first and then talk a little louder. There you go.

CHAIRMAN HILL: Okay. Thank you, Jeff.

MR. FELIX: My name is Jeff Felix, as in Felix the cat, for spelling purposes. I've worked in the refinery for over 22 years. I've worked as an operator, as an instrument mechanic, as an electrician and several other positions. I'm currently in the instrument and electric department.

I was also on the emergency response that day -- I'm on the fire brigade -- and responded up there to the incident, which was very difficult. I'd worked with Tommy and Ernie for over 20 years and it was difficult to recognize them at that time.

A lot of our focus here is on procedures. My whole career there I've been involved with procedures. Especially as an electrician I've spent 15 years on the electrical side, and we handle everything from, you know, 120 volts up to 12,000 volts.

We are dependant upon procedures. The -- as the previous speakers have noted the lock, tag and try, as an electrician my life depends on that at all times. As electricians maybe because we're a little bit afraid of electricity, because we can't see it, we've already followed those implicitly. Even now, when we switch, we always have

written procedures for switching 12,000 volts and the other major electrical power.

One of your questions was, you know, why we didn't follow the procedure that day. Every day I ask myself that question. And the only analogue I've come up with is looking at it like our -- our automobiles, you know. We all drive our cars. We have millions of dollars invested in our freeways and streets. We've all been trained. We're all licensed to drive. We all have rules to follow. Yet many of us still speed, right? I think we loose up to 40,000 people each year on our highways, mostly because of speeding.

So, all I can think of to answer your question, Mr. Rosenthal, is that there's just a human factor that sometimes we don't follow the procedure. I wish I could answer that why. I ask myself every day about that regarding the incident at 50 Unit.

MR. ROSENTHAL: A question I come back to is that, you know, many times in deaths of our coworkers, friends and citizens is not something that we like to accept by saying, "Well, that's the way we did it." What suggestions might you have for reducing the likelihood that a similar incident might occur?

MR. FELIX: Mr. Rosenthal, I've asked myself that question everyday since February 23rd. I just don't have a good answer for it, because it doesn't just apply to what we do, it applies to the wide

spectrum of society, and I just don't have that answer. When you find it, please let me know.

MR. ROSENTHAL: We will do. Thank you.

MR. POJE: Jeff, if I could just ask you a question as well. We heard a fair amount of evidence presented today, you may not have been in the room when it was being presented, but some of the time lines of our discussions around this incident focussed in on what began on February 10th, when the leak was first detected. There was a major emergency response to that leak that occurred on the 10th. And then a sequence of events that occurred over the next several days, leading up to the ultimate tragedy on the 23rd.

Some of our focus in the investigative work of the Board, as reported by the investigators for the Board, indicated that one major issue was decision making around the unit shutdown, in particular recognizing perhaps across the workforce that this was a non-routine job and a high hazard job.

Non-routine in the sense that you had people staged at very high elevations, there were significant numbers of courses of ignition on the fractionator unit, you had a portion of piping that had not been isolated, a portion of piping that had not been washed or flushed of a flammable material within it. You had a portion of piping that you had indications were suffering from some degree of corrosion.

There seemed to be, from at least the evidence gathered by the investigatory board to date, a number of symptoms that would have said non-routine, high hazard, which clearly, from the investigators portion, points to the issue of decision making around shutdown, and the protocol was raised for making those decisions.

We've talked about procedures here this morning. And this afternoon we were talking about potential problems with procedures either not being written or nonexistent, procedures that may be written with a lack of clarity to them so that the people who are following them aren't quite sure whether this is applicable in this situation, or the furthest end down, the procedures are well known, well written, but just somebody forgot to do it that day.

So, do you have any perspective in the vast 22 years of experience that would lend us some insights here about this issue of are procedures written, enough of them written for high hazard work, or are they written with enough clarity that everybody on the workforce involved in this job, a complex team of people involved in this work, would understand it the same way, or whether it's merely a fact of folks just didn't implement what was clearly understood by everybody and well written as a procedural process?

MR. FELIX: Your question is excellent. There's always an argument, when writing a procedure, how detailed do you make it. You know, if we're writing a procedure how to change the tire on your car,

that can be a one-page document, it can be 27 pages long. Now, how much detail do you put into it?

The fear is that if you put too much detail into it and all of a sudden it's a stack of paper like this, that a normal employee will kind of blow off part of it or not pay attention to it or be intimidated by it. So, the level of detail where you put that, that is a difficult question to answer. And I have been involved in procedures my whole life and I don't really know what the answer is to that either.

If you make the procedure that it's so detailed that it becomes a mindless task, then the person we're paying $25.00 an hour to to perform that job turns off his brain. And you cannot write a procedure to address everything that comes up. It's just not possible.

What you try and do is ensure that your employees have the training, and a couple of prior speakers spoke to how much training they've had. You want to train their critical thinking skills. I was not involved with the task at 50 Unit, but it does appear that at some point there should have been a -- the job was changed from the original scope and time out would reconsider.

Like I said, I was not part of that job. I've read the Contra Costa Health Services Department report, and reading that gives me the same impression. Now, why that didn't occur, I ask myself that all the time. But the procedure question is excellent. When you find that answer, let me know also. It's tough. How much detail do you put in?

CHAIRMAN HILL: Thank you, Mr. Felix.

Next, Maureen?

MS. WOOD: Mr. Bill Rietzel.

MR. RIETZEL: Yeah. My name is Bill Rietzel. I've worked for Tosco for 20 years. The first 20 years --

MS. TAYLOR: Can you spell the last name again? Sorry.

MR. RIETZEL: R-i-e-t-z-e-l.

First 10 years I was a member of OCAW Local 1-5. Worked in the capacity as an operator, both number two operator at the hydra cracker, and a number one operator at the cat feed hydra feeder. My current position, I'm an area supervisor on the HGS reformer area.

In the -- in the 20 years that I've been at Avon I've been involved in multiple incidences where I've had to make a decision as to whether to shut down a piece of equipment, shut down a part of a process unit or shut down an entire process unit. And there's a lot of factors that come into play when you make that decision.

One factor that's never entered my mind over the 20 years was whether my job was going to be in jeopardy. I never had to worry about whether I was going to be second guessed the morning after or whether there was going to be any Monday morning quarterbacking going on.

There's been a lot of -- obviously a lot of training, a lot of focus on what's happened on February 23rd. There's been a lot of training, as has been stated previously by the folks that have already

spoke, and there will be -- continue to be increased training and increased communication to try and continue to get the message out that we want to make sure that we are following procedures and that we are making sure that our focus is primarily on safety.

MS. TAYLOR: I have a question. As a supervisor, if your number one person came to you and said, "I think there's a problem here on the line and we need to shut it down," and you have -- how do you determine what to do in that instance, if there's a problem that's been identified, a safety problem, then what's the scenario, in your mind?

MR. RIETZEL: Yeah. You know, like I said, I've been involved in multiple incidences. In some of those incidences, I've been the number one operator on the unit and made the decision to shut it down, got the shift supervision and the shift superintendent involved, and the decision was -- came form me, okay.

When I was a shift supervisor or, you know, currently, recently within the last two months I had a situation where I was called at home, it was late at night, and I got a call from a shift supervisor, and they were speaking of an issue we had on one of the process units that I have control over.

And they had everything under control. They were following the procedure just like we want them to do, and everything was fine. And ultimately they had said all the right things, they just wanted to get me

involved. They were making the right moves. They had already pulled the feed and circulated the unit.

I had -- I had expressed to them that, you know, that's terrific, that's exactly what we want to do, and if I need to come out, I'll be more than happy to do that, which I ended up coming out to the plant that night. We looked at what we had. I reinforced that everything that they had done was 100 percent correct. We spoke about it for another three hours or so and everything was still under control and I went home and went back to sleep and came back to work the next day.

We -- I just had a safety meeting yesterday, and the focus of it was, you know, take the time that is required in order to do the job properly, you know. The focus is getting the work done and getting it done safely.

MS. TAYLOR: Most of you have mentioned you that hold safety meetings. Was this done routinely prior to February 23rd? How often, or is this something that's always been done in the plant to have safety meetings to discuss issues regarding --

MR. RIETZEL: Yes, the safety meetings have been a regular part of the plant in the 20 years that I've been there. Now, the emphasis on safety meetings or the frequency of the safety meetings have definitely increased, I'd say, within the last 10 years, I'd say. Typically, we have safety meetings throughout the plant on a particular

day -- it's Wednesday -- at different times during the day within the process units.

There's also a lot of things that take place during the day on an every day basis where we may be doing something that's a little bit out of the ordinary or a little bit non-routine, and we do want to make sure that everybody is in complete understanding of what we're looking to do, and we'll -- and this -- an example of that may be a unit start up. We don't start the units up every day. We had someone come out to the plant. We were giving a tour. And one of the questions was, "Well, what do you do at 6:00 o'clock at night? Do you just flip the switch and turn it off and go home?" You know, and obviously we don't do that.

This week, you know, alone myself I've given -- given or been involved in four safety meetings.

MR. ROSENTHAL: Do you have any -- excuse me --

MR. POJE: Go ahead.

MR. ROSENTHAL: Do you have any insight as to the, well, let me put it this way. Obviously, the type of incident that we are looking at doesn't occur very frequently, can't be allowed to occur very frequently. Do you have any insight as to whether this was an unusual circumstance? And if it was in unusual circumstances, what we might do to reduce the likelihood that it would occur again?

MR. RIETZEL: I don't have any direct insight on this particular job. What I can say is that jobs of this sort take place

every day in every refinery across the country. Obviously something went wrong on this particular job.

I, you know, we -- I was just involved in a job that was a very complex job in that it involved seven different units, so you have multi-units involved in making a repair on a process line. We had no problems with doing that. We had procedures in place. We had everybody on board and everything was followed and everything was fine.

This type of work is not unusual. Lines are taken out of service, you know, all the time, routinely, and repaired.

MR. ROSENTHAL: In the instance that you've described, you were obviously involved in it.

MR. RIETZEL: Yes, I was.

MR. ROSENTHAL: You -- were there any technical people involved, engineers or staff engineers involved?

MR. RIETZEL: On this particular unit there were folks involved at a level from the operations manager on down in that it had an effect on the entire plant, this particular line. Now, the actual work that took place primarily rested upon the shoulders of a few folks, myself being one and then all the operators that were involved in it. So, there were multiple people that were involved in the job, but a lot of folks were aware of it.

MR. ROSENTHAL: Okay. So that you think that this would be one -- and that if you had an unusual hazards job you would have technical and other involvements?

MR. RIETZEL: Yes, the job -- the job that I'm speaking of, it wasn't that it was such a -- to actually do the maintenance work itself was nothing unusual. There was no need to have a tech service engineer. There was no need to have any -- any real outside resources to come in in order for this job to be completed safely. It was really just a basic job that, like I said, gets involved every day.

MR. ROSENTHAL: You mean the incident that we're talking about is just a basic job that's done every day? Or the job that you're --

MS. TAYLOR: No, his -- his job.

MR. RIETZEL: What I'm trying to say is I don't have any direct insight on the incident that took place at 50 Unit, but what I do want to say is that jobs where lines are taken out of service in order to be repaired, similar to that, are done every day throughout the industry and are done very safely --

MR. ROSENTHAL: I know that.

MR. RIETZEL: -- and very successfully, without incident, throughout the industry.

MR. ROSENTHAL: With just about that level of review, no further review than the number one and operator entering into the procedure?

MS. TAYLOR: Number one and the supervisor, I think.

MR. RIETZEL: Well, yeah, it -- you know, in some cases it really depends on the job. In some cases it can be as simple as the number one operator on the unit. In other cases it may be a little bit more complex and then additional folks will need to get involved in it. In some cases, like the one that I just spoke to where we completed, it involved several different units, so obviously you have to have increased communication and you have increased involvement.

MR. ROSENTHAL: Thank you.

MR. RIETZEL: You're welcome.

CHAIRMAN HILL: Thank you. Dr. Poje.

MR. POJE: Yeah. Bill, one other issue that was raised this morning and this afternoon in some of the presentation of the Board of Inquiry have to deal with another aspect of work that maybe operates at a different level of knowledge and experience, and this has to deal with the issue of management of change, and in particular looking at this instance in which corrosion control issues were also some major issues as part of the investigation.

There was some analysis that was indicating some changes in the crude mix were part of the process involved in the unit here, and

that that crude change had some impact upon the desalting operations which would proceed the fractionator column.

Now, the desalter was operating, it was estimated, at 150 percent of capacity, and what that translated into was higher levels of corrosion that was then manifest in the line that had to -- first has a leak identified within it. Erosion of a line enough to have a leak, initiating the event on the 10th, was one aspect of the corrosion concern.

The second, though, was the fact that the unit was operated with a significant blockage in the control valve system, leading into the naphtha stripper column, and that for what may be as long as two years a bypass valve was actually the controlling valve. The attempts to isolate this particular column failed because of additional corrosion problems.

So, one of the other issues that I would welcome your insights, if you have any, is how does this other issue of knowledge of the plants larger operations here influence the thinking about the safety and the safety performance of equipment and maintenance schedules in such a way that you wouldn't wind up having multiple failures associated with the failure of effective corrosion control that leads to such an event.

MR. RIETZEL: Yeah, I don't have any -- have any insight, a specific insight on that particular issue. I mean, you mentioned MOC, and whenever there's anything that's a little bit out of the ordinary it

does go through an MOC, a management of change process. And there's a determination that's made as to whether this is something that we can do.

As part of that process -- and I've been involved in a number of these -- as a part of that process it takes you down a road to where you say that we cannot run this way and we need to go ahead and shut the unit down and make repairs to it. And as part of that process there's also times where you can make some changes in a safe manner, and you can continue to run. But that's a group that gets involved. It's a higher level of folks that get involved to make that decision. I don't have any specific insight on this particular incident.

MS. TAYLOR: As a follow-up to Jerry's question, in your years of experience, how often are bypass valves used before maybe such a problem with the blockage in the control valve before the problem is corrected with the control valve?

MR. RIETZEL: You know, I'm trying to think if when the last time I had a bypass valve opened up on one of the units that I'm on, I can't think of when it was.

MS. TAYLOR: So, it's not that often that bypass valves --

MR. RIETZEL: Not in the units that I'm --

MS. TAYLOR: That you work with.

MR. RIETZEL: -- involved in. Correct.

MS. TAYLOR: Thank you.

MS. WOOD: Denny Larson.

CHAIRMAN HILL: Is Denny there?

MS. TAYLOR: Denny Larson?

CHAIRMAN HILL: Denny doesn't seem to be with us at the moment.

MS. WOOD: He's the last person.

CHAIRMAN HILL: He's the last person on the list. Well, I believe he -- he had indicated earlier today that he was going to submit some information for the record, so certainly that will allow him to provide whatever information he has.

Are there any further comments that anyone from the audience wishes to offer at this time?

MR. ROSENTHAL: A comment here, that I would reiterate what the Chairman said earlier this morning. Not everybody wants to get up in a public forum and speak in a way that they feel comfortable with. The Board has opened up a period of open commentary where we want all of your comments, or if you have anything in addition to what you may have stated or anything that you haven't stated, please feel free to submit it.

CHAIRMAN HILL: I would certainly ask that everyone, again, speak to the issue of the 23rd. That's where the Board's direct jurisdiction and investigation is focussed right now, on the actual event.

We heard a lot of testimony here this evening that dealt more in general with the culture issue and how things were handled in the

facility. I've allowed that testimony because I think it speaks to issues that have been raised by the other investigations. While that was not necessarily pointed out by our investigators, it is an issue, certainly, in the A.D. Little report, and it is something that I think is useful for the record.

And I want to thank all the individuals who came forward and spoke on the record this evening.

Again, we will be taking any additional information over the next three weeks, up through the close of business on October 6th, 1999. If anyone wants to know how to submit that information, Mr. Cogan, over here on the right, is available and can provide you with information.

But again, the mailing address for the Safety Board is 2175 K Street North West, Suite 400, Washington, D.C. 20037. If anyone has information, again, we can remove names from the record if you provide us with information that we can follow up on to verify that.

So, I encourage everyone to take advantage of this opportunity and know that in so doing you are assisting the Board in doing its job, and we express our sincere appreciation for you doing that.

So, on behalf of the Board, if there are no further witnesses or information coming forward I will call us adjourned for this public comment session.

Again, this information will be available on the CSB's website. A full transcript of all the testimony will be available in approximately three weeks.

We will proceed. Thank you very much, and good evening.

(Whereupon, the Public Comment Session was adjourned at 7:40 o'clock p.m.)