DR. MANSFIELD: How are they maintained? Do you jointly sign something that is not part of the contract, that includes details like that? Are they memorialized somehow?

MS. YUAN-SOO HOO: They are in writing. They are maintained by the Laboratory. They're the basis for how they perform their self-assessments.

DR. MANSFIELD: So they can't change willy-nilly.

MS. YUAN-SOO HOO: No.

CHAIRMAN CONWAY: Okay. With that, we'll turn to you, Dr. Anastasio.

DR. ANASTASIO: Thank you, Mr. Chairman. I hope that in the interest of time, you'll accept my written document, and I'll try to do a quick summary.

CHAIRMAN CONWAY: Very good.

DR. ANASTASIO: Mr. Chairman and Members of the Board, thank you for the opportunity to discuss our systems we have to assure work is performed safely at the Lawrence Livermore National Laboratory. Of course, these systems are dynamic. We strive to continuously improve safety through self-assessments and corrective actions.

We vigorously try to identify deficiencies ourselves, and fix them. But, of course, the

Laboratory benefits greatly from the perspective of others, who provide independent review and oversight in a way to help us improve. Of course, these include the DOE, the NNSA, the University of California and, of course, this Board.

We listen carefully to the recommendations and criticisms we receive, and work diligently to rectify any issues that might have been identified there.

On a personal note, I'm committed to excellence in safety performance. Work safety has long been a part of my day-to-day responsibilities as I've grown up through the weapons program at the Laboratory. In my background, I've had day-to-day responsibilities for the operations of nuclear and high-explosive activities in our most hazardous facilities at the laboratory.

Before I became Director, I was a Deputy Director for Strategic Operations during a time when we were implementing ISM. These roles have really shaped my views about safety. I expect safety to be an integral part of programmatic objectives. I hold my managers accountable for ensuring that work is done safely, and within an approved safety envelope.

I have communicated to employees that they

should not do work unless it can be done safely. Safety is deeply rooted in our culture, because it is the heart of the job that we have in a Nuclear Weapons Laboratory. We have the cradle to grave responsibility for the nuclear weapons that we design, and this is not just the overall physics design that we have to ensure is safe inherently, but also we have to consider how the weapons are built, how they're handled in the field, and how they're inspected, how they're refurbished, how they're disassembled, and how they are disposed of. Consequently, Livermore provides support to help assure safe operation in all the NNSA manufacturing plants, as well.

A Safety Management System, self-assessment, assurance systems, and oversight are all essential. However, they alone cannot ensure safety, particularly in a research environment where work is not routine that we have at the Laboratory. And when I look at the Columbia disaster report, there are many things to note in there. And I think they have reinforced some of these points that I've made here, and I cited a few quotes in my written testimony, which I won't read here.

But I think we've heard this morning, discussions of culture. And I think culture is a very

important issue for all of us. And I think the culture of a systems approach that we have from the Weapons Program, that kind of infuses itself in the Laboratory, it's everyone's job to keep their work processes up-to-date to look for improvements, to question the processes that might seem deficient. And, in fact, I would say that several recent discoveries about safety have been uncovered, because we've had working scientists and engineers who were encouraged to think about what they're doing, not just to follow procedures. And by doing that, they've come across issues that no one had ever thought of before. And because of that, we'll have a safer system.

In my written testimony, I think I described in some detail our Integrated Safety Management System.

DR. MANSFIELD: Pardon me for breaking in.

DR. ANASTASIO: Yes.

DR. MANSFIELD: That's a keen observation, that it's only by thinking your way through the procedures, that you recognize that there's inadequacies. However, do you believe the next step would be to rectify the procedures so that they cover the inadequacies, so they can still be procedure-based, but still work with our eyes open?

DR. ANASTASIO: Yes. I think what's really important is to make sure that you spend your resources doing the things that will provide you safety, so you can get your program done. And you don't want to waste your effort doing things that are not very beneficial to you. You want to focus your efforts on the things that are important. And I think in many cases, certainly around nuclear operations, having procedures is essential.

So if you find something that's been overlooked or discovered; absolutely, you need to go correct your processes and procedures to account for this new thing. And it may mean that it will make your processes easier, or simpler. It may mean it will make it more complicated and so forth, but you have to do what you need to do to be safe.

So as I was going to say, we have an Integrated Safety Management System at the Laboratory, which I won't try to describe here. It's described somewhat in the written report. But I think since we've implemented it, I think we've markedly improved our safety management procedures and practices at the Laboratory, and our safety performance.

And given that we're going through a reorganization, re-engineering at NNSA, I just would

say that our attention to safety is not going to change, it's not going to diminish because NNSA is going through this reorganization. And we recognize that, in fact, further improvements at Livermore are needed. They're identified through our assessment and external oversight, as I said before. And many of them are already in progress.

I thought instead of going through the system, I might enumerate some of the things we've been doing recently to improve our procedures and practices. We've consolidated our nuclear materials and facility operations into just two different organizations of the Laboratory, which will help with efficiencies, but also help with expertise so that people are most used to handling these issues will be able to keep their focus on them.

We strengthened our management of these operations in these facilities through the addition of an Authorization Basis Group. This is an organization that provides independent expert single point of contact within the Laboratory, and external to the Laboratory for nuclear Authorization Basis issues.

Further, we're strengthening our management through a new system engineering program, which will ensure that systems remain consistent with

their analyzed safety requirements, so that although you put something in place, you want to make sure you maintain those things to ensure the safety envelope is still in place.

We're developing Documented Safety Analysis reports, strengthening our work planning processes, improving our attention to work-specific work area hazard analysis and controls, improving work supervision, and develop legacy material plans as part of our facility Authorization Basis, as some examples.

Of course, there must be a system in place to assure yourself that you are meeting the performance objectives you set out, and so we have a comprehensive array of self-assessment processes. They range from the activity level of the facilities, to the directorates, to the institution. They're nearly continual at the activity level. And at the other extreme, very formal self-assessments at the institutional level are done annually. And this is done through the Laboratory's Assurance Review Office, which reports directly to my Deputy for Operations. And they provide an independent internal appraisal of the Laboratory's ES&H policies and their implementation. It's this office that has the responsibility for compiling and tracking

deficiencies, for trending, and for corrective actions across the whole Laboratory.

Finally, we're also making the needed changes in our assurance systems so that we can meet NNSA's new requirements for contractor assurances. And for us, I think the most important change, and this was raised earlier, will be to develop some kind of a formal risk methodology that we don't yet have in place. And with this methodology, the Site Office, the University of California and the Laboratory will better be able to focus their assessment and oversight resources to have the most effective safety program we can have.

So let me conclude by saying, of course, all of this depends on people, of whom I have very high expectations for safety performance. But the people doing the activity cannot meet these expectations without safety professionals at the Laboratory, and at the Site Office, who provide the expertise, the on-Site presence, and the understanding of Site-specific details. They make the ES&H Assurance System work, and continually improve it.

So in closing, let me just say that I am committed to safe operations at Livermore. It's integral to meeting our mission objectives for the

Department of Energy, and for the country. Thank you, and I'll answer any questions you have.

CHAIRMAN CONWAY: Thank you. Dr. Eggenberger.

VICE CHAIRMAN EGGENBERGER: Yes. Dr. Anastasio, I'm going to ask you a question and use a word that I don't like to use. A lot has been said today about the word of "culture." And culture is a word that also pops up in the Columbia accident investigation. Could you comment on the culture at Livermore, and you haven't used the word.

DR. ANASTASIO: Actually, I thought I did, but go ahead.

VICE CHAIRMAN EGGENBERGER: Oh, okay. Well, then I missed it. But could you comment on culture a little bit, as you see it?

DR. ANASTASIO: Yeah. I think as I tried to point out, that we have a culture that derives from our nuclear weapons activities. And those nuclear weapons activities mean we have responsibility not for just what I do today within my stovepipe, but we have an integrated systems responsibility as the weapon system as a whole. But also, a system across its whole life, from the time when we design it, until it goes out and until it gets built, until it goes out in

the field, as it goes through the plants, it's in the hands of the military, it comes back, gets dismantled. We have responsibilities around all of that, and that's a system level culture that I think is an important one; that make sure that people are thinking beyond their stovepipe. They're thinking in terms of accomplishing the mission, and how safety has to be an integral part of doing that. Because safety is at the heart of a nuclear weapons mission.

VICE CHAIRMAN EGGENBERGER: Well, can I pull you back to safety culture then?

DR. ANASTASIO: Sure. Well, I think the safety -- say more what you mean.

VICE CHAIRMAN EGGENBERGER: Well, one of the items that we've been looking at since `89 across the complex is using a safety system that is more analytical and data based as opposed to expert systems based. And when we talk about safety culture, people generally tend to talk about the expert based culture system, as opposed to the more data and analytical based culture system. How are we doing at Livermore on those?

DR. ANASTASIO: My view is we need to do both. As I said at the end, I think we can use an analytical approach to do risk methodologies, and to

help focus where you should pay your most attention. You can use analytic approaches to evaluate accidents and so forth.

VICE CHAIRMAN EGGENBERGER: That isn't what I said. I said analytical and data based. What you don't want to do is just make analyses and write down numbers. You have to have data also that is truth of some sort.

DR. ANASTASIO: Well, I would just cite - and again, it's hard to talk about here since we're not in a classified room, but I'd cite the two examples I raised in my testimony, where scientists and engineers at the Laboratory have come up with two new safety issues. And as those ideas were developed, the program actually questioned the ideas, and part of it was to go demonstrate. Go build a system. Go demonstrate, collect data to see whether, in fact, things behave the way you think they do. And sure enough, we found some things that nobody knew. And so, absolutely, data is essential. Again, that's the nuclear weapons culture. The nuclear weapons culture is, you just don't theorize about something, you have to go make it happen. We develop a product. That's the role of our Laboratories, to develop a product that works. And so that means you have to have data,

and I think that permeates us whether it's safety or program, or science, or whatever it is. You can't have product without data.

CHAIRMAN CONWAY: Dr. Mansfield.

DR. MANSFIELD: Nothing.

CHAIRMAN CONWAY: Dr. Matthews.

DR. MATTHEWS: I get the sense from your testimony that you feel your self-assessment program is robust, and the question I have - have you made any changes as a result of some of the organizational changes we see coming out of Headquarters?

DR. ANASTASIO: I don't know if I'd say our self-assessment program is robust. It needs some attention. We have to do better. I think Camille pointed out a good one, which is, we have to do better, and we're looking to do that, the process of doing that is integrating across the whole Site. You know, you integrate at some level. You need integration to happen across the whole Site, to be able to see how activity is done in a consistent way, and appropriately consistent way across the Site, is an important thing that I think we're not doing well enough at yet.

And how do you follow-up on corrective actions, and make sure that the lessons you learn are

actually implemented back into your system, so if you discover something new, you change the procedures to accommodate that.

So I think there are things that, obviously, we need to improve, and I tried to enumerate a number of them. On the other hand, I think that we have adequate self-assessment. Maybe that's the way I'd say it.

As far as changing things, the thing I welcome the most about the new NNSA approach, something that Camille mentioned, was the clarity of roles and responsibilities. I think that's an important thing that's happened with NNSA. It's not clear to me as the Laboratory Director, who I need to go to about what. And that's become very clear to me, very clear to Camille, and Ambassador Brooks. And so we understand each of our roles and responsibilities. And I think we have a much more effective system because of that.

DR. MATTHEWS: Thank you.

CHAIRMAN CONWAY: You know, for quite a while the Board has been interested in ensuring that the Laboratories help and support Pantex, the work at Pantex, and from everything I can gather, it's my impression now that Livermore has been very

supportive, and I give credit to Jerry Dow. I don't think --

DR. ANASTASIO: And so do I.

CHAIRMAN CONWAY: I don't think -- whenever we go as a Board to visit there, we usually see his presence there, so I do want to compliment Livermore, and Jerry specifically for the assistance he's rendering, and we hope it continues.

DR. ANASTASIO: Yes, thank you. And again, that's one of the reasons I mentioned our weapons responsibilities, because I think we do take that seriously. Although we're not responsible for the operations at Pantex, we're responsible for giving them the technical support they need to handle some of the complicated issues of a partially assembled weapon, etcetera, that are very complicated and difficult. And that requires lots of analysis and lots of data to understand what's the right thing to do.

CHAIRMAN CONWAY: Some of us remember visiting Livermore back in the '50s and '60s, when you were sort of the Little House on the Prairie. There was nothing around you, just some vineyards that you could look out. Now when I go out to Livermore and I see these homes right up against your fence, it stresses the importance of how you handle some of the

materials that you are working with. And I guess if I were to make any comment, I would hope to see a little more attention given to things at the Superblock.

We've been kind of a little worried about some of the attention to detail at the Superblock. As the Lab Director, if you could bring some influence there, I think it would be worthwhile.

DR. ANASTASIO: Yes, sir. I think we take Superblock very seriously. It's obviously the thing that keeps me up the most at night, and I think we have a good operation there that can get better. And clearly, the consequence of any serious mistake can be very significant, and it deserves all the attention we can afford to give it.

CHAIRMAN CONWAY: Amen.

DR. ANASTASIO: So we do take that seriously. I think we have -- I am proud of how far we've come in the last five plus years there. I think we've made a lot of progress. Frankly, having work there to do has helped us make a lot of progress, and I think there's room to do better, and we're focused on trying to do that.

CHAIRMAN CONWAY: Thank you. Kent, did you have anything?

MR. FORTENBERRY: I just wanted to ask one

question. You mentioned the risk methodology and how it would focus you on the high-risk, high consequence, high probability. Does the Columbia accident assessment shed any light, or provide any insight in that regard; which is basically saying I'm going to focus my effort on the real high consequence items?

DR. ANASTASIO: Yes. I think what the Columbia accident says is that you have to be always questioning what those things are. You can't rest on your assessment of any given point in time. As you go forward, and especially in an institution like ours where you're not doing the same thing over and over again, so even though you think you might think you understand, as the processes change, as the activity on the job Site changes, which it does because that's the way we do business, you have to evolve your thinking about where the risks are, and what are the appropriate processes and procedures to compensate and to mitigate those risks.

MR. FORTENBERRY: That's an important --

DR. ANASTASIO: And so that's why I say, I think having a culture that's not just about procedure is important, but to have the worker be responsible, and feel responsible, make sure that they're always thinking about what they're doing, and why they're

doing. And always, part of that thinking would be about safety, I think is an important aspect of the culture. And to have that instilled in the worker, and if they ever feel like they're going in a place where they're uncomfortable, they know that they should stop. And they know that if anybody gives them a problem, they call me up directly and say I did this and somebody is harassing me, and I'll fix it, because they need to feel that way.

And so, yes, you need to have a risk methodology to focus your attention, because we only have 8,000 people in the Lab, so that's all the people I can -- that's the maximum number I can put on any kind of issue. So you have to --

MR. FORTENBERRY: We have a little bit less than that here. But that's an important --

DR. ANASTASIO: So you always have to make decisions.

MR. FORTENBERRY: And that's exactly what I wanted to hear.

DR. ANASTASIO: You bet, but you have to -- that's why I said in the very beginning. Our safety systems are dynamic. They have to always be changing so they reflect what it is you're doing on a particular day, or how your mission is evolving, or

how you've learned something new; and hence, you have to incorporate that. So you can't rest on your laurels, you have to always be thinking.

CHAIRMAN CONWAY: Thank you. With that, thank you both for coming here today.

DR. ANASTASIO: Thank you.

CHAIRMAN CONWAY: And as we always do, I ask if there's anybody in the audience that wishes to come forward and make any comment. All right. If not then, the record will remain open until the 16th, in case anybody present here or from the public wishes to submit a comment. The record will, as I say, be held open until the 16th. And with that, we'll now recess, subject to call of the Chair. Thank you all.

The record of this proceeding will remain open until January 16,2004. I would like to reiterate that the Board reserves its right to further schedule and otherwise regulate the course of this meeting, to recess, reconvene, postpone, or adjourn this meeting, and exercise its authority under the Atomic Energy Act of 1954, as amended.

(Whereupon, the proceedings went off the record at 11:38 a.m.)