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PEER REVIEW

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This session will consider the goals of peer review programs, types of peer view, and practical issues such as the level of detail in peer review, what to peer review, types of documentation, and legal issues. It will look at how nonactuaries handle peer review. The discussion will also include the problems of setting up and maintaining a peer review program.

MR. WILLIAM DAVID SMITH: For our purposes here, I would like to define peer review with the following characteristics:

1. It's performed by someone independent; that is, someone not involved in the decisions or the actual work that's being reviewed and preferably someone not affected by any financial or other pressures of the project.

2. It's performed by a peer; that is, someone of equal ability who could have managed the project being reviewed.

3. Since it's a review, it avoids detail and concentrates on general questions, procedures, evidence of checking, evidence of proper consideration of the environment, and all the elements that could affect the results and the conclusions, and it especially reviews documentation. If there's any argument about whether the work was done properly, the person who actually did the work may not even be around, and documentation may be the only defense available.

A peer review might range from informal, such as walking into the next office and asking your friend to think over the project, to very formal with predetermined written procedures and forms to follow and sign. The review might occur before the project is released for use, or it might be done at some later time as part of a general test for quality of work and documentation.

A major question we will address here is why a peer review is considered worthwhile. In order to consider that, it may be instructive to think through the process of a major actuarial project. In this regard, it might be surprising, if you haven't thought about it, how much alike actuarial jobs are, whatever the field in which they originate. The steps or characteristics I have attempted to list apply equally to tasks in the life, casualty, health, and pension fields:

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1. Define the project, perhaps with an engagement letter. If the task is actuarial, it will involve a comparison of flows of contingent income against contingent benefits, expenses, and sometimes profits.

2. Define the conditions under which these flows occur; that is, the plan or the policy. What is it that determines who pays what, who receives what, and when?

3. Investigate the environment, both natural and manmade, in which the program operates. The rules or conclusions may need to differ between political jurisdictions and physical locations, and there may need to be caveats about this in the report.

4. Collect data or make assumptions about data points for which the calculations are made. For instance, if the task is reserves or a pension plan, the actual people and their characteristics are needed. On the other hand, if you're determining the premiums for a life insurance or health insurance policy, you need to decide the ages to test.

5. Determine the calculations and assumptions needed. In doing that you have to cut off at some practical level of detail and use simplifying assumptions or data or calculations for everything beyond that. Most of the time we are dealing with a preprogrammed system that asks for required input as part of the design of the program.

6. Consider, discuss, if necessary, and adopt assumptions with perhaps alternates for sensitivity analysis.

7. Process the calculation. That's usually done on a large system, rarely designed by the actual user. For instance, even the simplest of the actuarial calculations is usually performed on something like Lotus 1-2-3. None of us has had anything to do with designing Lotus, and for most of us there are many surprises in the program and we continue to learn things about it.

8. Analyze the results of the calculation, making corrections, rerunning where necessary.

9. Reach conclusions that are relevant, prepare the report, and document the task fully.

10. Present the report. It's presented to a client who might be your boss, a regulator, the public, or a paying client. Often the person to whom you're presenting the report is not the person paying your salary or fee, and you need to keep that in mind.

In all this process, the possibility of misunderstanding information, of incorrect data, slips of judgment, lack of attention, and downright error abounds. That is especially true when so many other persons are involved in the task that we don't know and never meet. Actuarial tasks are generally a process of successive approximation aimed at a constantly shifting target. We are making estimates about future economic conditions; it is impossible to be accurate, and every actuary understands that.

Anyone who thinks that he or she will go through a whole actuarial career always being right really doesn't understand what's going on. Since there's no normally right answer to anything, a major defense against all the myriad of possible problems is peer review; and that's what we're here to discuss.

Our first speaker is a CPA. His name is Tom Parry. He's with Benson and Neff, a local San Francisco firm. We were delighted to have him agree to speak to us because he is on the California CPA Society's Quality Review Committee. He spends a good deal of his working life dealing with peer review problems for CPAs. He's a native of California and a graduate of the University of Santa Clara, with an MBA from Cal State/Hayward.

MR. THOMAS J. PARRY: First, I'd like to give you an overview of the review process in the context of the CPA profession.

A peer review or quality review is part of a practice-monitoring process required for members of the AICPA. There are currently three practice-monitoring programs that meet the AICPA requirements. The first of these is referred to as the SEC Practice Section Program. This is a voluntary program, unless a firm has SEC clients, in which case it is mandatory for the firm to belong to that section.

Second, there is the Private Companies Practice Section, primarily designed for smaller firms. Membership in this is voluntary. Third, there is the Quality Review Program. If firms are not members of either of the other two programs, they are required to participate in the Quality Review Program as a requirement of membership in the AICPA. Quality reviews are also required of firms that perform audits under government auditing standards, and some state societies require quality review as a condition of licensing in that state. California does not have that requirement.

Since I am here more or less representing the Quality Review Division of the state society, I will focus my comments primarily on that program. However, as I go along, I'll try to point out differences where they exist with the other programs.

So, what is a quality review? A quality review is a confidential monitoring process performed by an outside CPA. It provides a firm with education and comments with regard to design and compliance with its own quality control system for conducting accounting and auditing engagements. This point is important. Currently, the Quality Review Program only encompasses accounting and auditing engagements. It doesn't go into tax engagements, for example, or management advisory services that a CPA firm may offer.

The design of a firm's system relates to the policies and procedures that the firm feels are necessary to conduct a practice in accordance with professional standards. Compliance with those policies and procedures relates to how the policies and procedures are applied, the consistency with which they're applied, and by whom they're applied.

Reviews are conducted every three years under the AICPA standards. In intervening years, a firm is required by the standards to perform in-house inspections to assure continued compliance with its policies and procedures. Most firms tend to use standard forms and questionnaires that are used on the quality review engagements.

Reviews are paid for by the firm. The firm's total cost consists of its own costs, the reviewer's fee, which is the greatest portion of the fee, and an annual registration fee paid to the administrating body. In California, that would be the Quality Review Division. Finally, a processing fee is paid to the administrating body in the year of the review.

Once a firm is assigned a due date for a review by the AICPA, it's free to select a qualified reviewer or request appointment of one. To be qualified, a reviewer must be registered with the AICPA, must be a member of a firm that itself has received an unqualified report on its review in the last three years, and must possess experience in the specific areas in which the reviewed firm practices.

As I stated before, a review evaluates the design of and compliance with the firm's quality control system. Prior to beginning a review, a firm is asked to answer some questions regarding its policies and procedures for providing accounting and auditing services. The questions relate to nine quality control elements. Independence, for instance, would be the firm's independence with a particular client or with its clients in general. Assigning personnel to engagements deals with the process by which people in the firm are chosen, taking into account their experience and qualifications, and also the time requirements of a particular engagement.

Consultation deals with the firm's policies with regard to consulting sources within the firm or outside of the firm when complex or unusual matters arise. Supervision is probably the broadest category because it deals with all of the procedures related to the planning, review, and documentation of engagements. Hiring policies and procedures investigate what firms do in selecting people to work for them. Professional development concerns how personnel are trained and which courses they are required to take. Advancement is concerned with the fact that the firm should only assign those who are competent.

Acceptance and continuance of clients deals with the initial selection or acceptance of a client, looking into the client's integrity, and also the firm's ability to serve that client. Finally inspection, which I spoke to you about, is an in-house review in the intervening years between the quality reviews.

Many firms, although not required by professional standards, have documented the policies and procedures under these categories in what is referred to as a quality control document. The reviewer will refer to that if it is available. To assist in the review of these various areas, the reviewer interviews staff members regarding their understanding of the policies and procedures and how they're applied in the firm. Also, the reviewer reviews engagement work paper files and financial statements for individually selected engagements. This portion of the review, the review of the work papers and such, entails the majority of the review time. The reviewer will also ask questions of the firm members who are in charge of these various areas of quality control.

Once the reviewer has gone through this process and based on the information gathered by applying the various procedures, the reviewer reaches conclusions on the quality control system and then conducts what is referred to as an exit conference with the firm. At that he discusses the findings and recommendations based on the review. Following this, the reviewer will issue a report, along with a letter of comments of the more significant findings of the review, as well as recommendations for improvement.

The reviewer also sends a copy of the report and letter, along with review work papers, to the administering entity. The firm then is also required to send a response to the letter of comments to that body as well. Once this information is all received, there is a technical review of the work papers, the report and the letter, as well as the firm's response, for the appropriateness of the conclusions reached. Following that, the Quality Review Committee approves the review and, depending upon the findings, may request follow-up action. Once the review is approved, the firm is sent an acceptance letter.

FROM THE FLOOR: Regarding the reviewers, do they tend to do reviews as a major part of their practice?

MR. PARRY: Generally not. In fact, you can't be a reviewer unless you have your own practice and are conducting audits and accounting engagements yourself. There are reviewers that obviously do more of these than others, but that is not normally the major or even a significant portion of their practice.

FROM THE FLOOR: A second question is on major firms that have home offices in many states, is this something that's done office by office?

MR. PARRY: In the larger firms, yes, they will generally select a sample of offices to review every three years.

FROM THE FLOOR: They don't review each office as an individual entity then.

MR. PARRY: Not in larger firms. With regard to the larger firms, there is much more reliance placed on the system, so to speak. If that system is operating as it should in each office, then you can depend upon or rely upon that to reduce you hope the number of problems that come up.

FROM THE FLOOR: So this review is required of all?

MR. PARRY: It's required for AICPA membership. It's not required by the state society. As I said, it's not, at this point at least, required for licensing in California. For example, a firm that decides that it doesn't want to belong to the AICPA would be relieved of the requirement.

FROM THE FLOOR: Should firms make a big deal of their AICPA membership by the fact that they undergo this review?

MR. PARRY: There has been some movement to try to promote this, and I'd say that's ongoing at this point. To be honest, it probably hasn't been too successful as far as promoting it to third-party users of financial statements and such at this point, but it's something that everybody recognizes needs to be done.

One thing I'd like to clarify is that a firm does not pass or fail a quality review. The program is really meant to be positive and educational. If a firm does receive a qualified or adverse report, it may be asked to submit to monitoring action; but the monitoring action is designed to help the firm implement the reviewer's recommendations. Second, since the Quality Review Program is confidential, the review results are not released to anyone other than the firm.

At this point, I'd like to point out one significant difference between the Quality Review Program and the other programs I spoke to you about, the SEC and private companies reviews. In those programs, the report, letter of comments, and letter of having said all of this, you might ask what results the program has had on the general quality of work.

Unfortunately, except for some governmental agencies, no one really keeps track of the quality of work, so that good statistics are not really available. However, in 1993 firms in general started undergoing their second round of quality reviews. Once these are completed, we should have some better statistics regarding the effectiveness that this program has had. I can tell you from personal experience, from doing a review of a firm three years ago and then doing a review of that same firm, that work has improved in general.

If nothing else, the review process has caused firms to improve their documentation of work. You might say that doesn't necessarily mean that the firm is doing better work, but I tend to disagree with that. I believe that by better documenting your work you are forced to be more thorough and logical in your work process, and therefore produce a better work product.

I would like to just briefly touch upon the future of quality review, at least in California. There is a plan to offer quality review of both tax and practice management of firms, and some firms have already undergone such reviews on a test basis. Also, programs are being adopted to increase the public awareness of quality review and to increase the authority of quality review by having it required for licensing in California. Finally, the Quality Review Division is reviewing how the cost of quality review administration can be reduced and how the quality of the reviews can be improved.

FROM THE FLOOR: Do you think that the primary motivator here is to protect the firm against litigation basically because a lot of firms are getting sued, or perhaps is the motivator for companies to try to clean up their act so they won't get into these problems?

MR. PARRY: I think the real impetus for it came about 15 years ago when these voluntary programs were established because Congress was looking into having the accounting profession regulated. This was the profession's answer—to stop that from happening by self-regulation.

FROM THE FLOOR: Self-regulation would require discipline. How do you make sure all firms go through the review process?

MR. PARRY: At this point, it is only tied to the AICPA membership for firms other than those in the regulated industries. There you have more of a disciplinary thrust to the program.

FROM THE FLOOR: You said there's no pass or fail, so it doesn't even affect the AICPA membership.

MR. PARRY: Not with quality review. That's right.

FROM THE FLOOR: Can you expand a little bit on consistency between the reviews. Is it normal for the same person to do a follow-up or to then have a different person come in?

MR. PARRY: There is a limitation that a firm can only be reviewed by the same reviewer two times in a row, so there definitely is a concern there that the same reviewer may continue to miss a problem.

FROM THE FLOOR: I was wondering if you heard of problems where someone comes in and does a review and then later another person comes in and says, this is the area you really need to concentrate on, where the first reviewer didn't raise that issue.

MR. PARRY: To some degree, as I said, we're just starting the second round of reviews in the Quality Review Program. It's probable that a firm is doing the same thing it was doing at the time of the first review, and there was no mention of that, and then a second reviewer comes in and finds the problem. That will happen. But I think if you look at this program and the main idea behind it as being educational, like any other educational process, you continue to learn.

MR. SMITH: Two actuaries will now discuss these problems. Our first is Jim Hausmann, an FSA and an Enrolled Actuary. Jim is a native Californian and grew up in the Menlo Park area, and is a graduate of the University of California in Davis. He's a pension consultant in corporate plans with Coopers & Lybrand in the local San Francisco office.

MR. JAMES C. HAUSMANN: Coopers & Lybrand is probably more well-known to Tom than to most of you. It is one of the big six accounting firms. It has the largest actuarial consulting group of any of the accounting firms, so my perspective on this may be closer to Tom's than to most actuaries. I want to start with an overview of what I think peer review is. For us at Coopers & Lybrand it is a matter of setting standards. If you want to review quality, you have to review it against something. What standards do we have? How do we set them? How do we implement them? What kind of reviews do we have? I've broken them into prerelease, which is before you send the product out or you deem the product to be final, and postrelease, which is after you've done everything and you can come back and review it.

Let me describe what my history at Coopers & Lybrand has been. I've been on all sides of this quality control issue. I've spent most of my career in the San Francisco office as a pension consultant. I spent a year and a half in New York in a group we called the National Actuarial Unit, which was kind of a research and development group that did a lot of writing of work papers, setting the standards, and that sort of thing. I'm also on what we call the Actuarial Practice Committee, which is the oversight committee defining what the standards are.

I've seen the setting of standards. I've seen implementing standards both from a national level, as well as being on the consulting side using those tools and being subject to peer review. I've also gone on one peer review to another office.

Why do we have peer review? This gets to one of the last questions that was asked of Tom. The question was, "Is it because you want to stay away from lawsuits?" That is my number two reason, but I think much more important is the number one reason, and that is that we have a professional responsibility as actuaries to provide quality service and do quality work. We want to do the best job we can, and to the extent that having somebody review our work is going to help us do that, that is very important. I think that is by far the number one reason why peer review is important. From a practical point of view, there are a lot of lawsuits and that can't be forgotten in all of this, but I really think it is secondary.

It's also important to realize that errors can occur in a number of ways. People can make arithmetic mistakes. In the days of computers, that becomes less likely. Now I guess what you can have is programming mistakes rather than arithmetic mistakes, but there's also a process. Bill, when he started with his remarks, described kind of the whole process of what's going on. You have data. You have assumptions. You have calculations. You have reports. That's a whole process, and errors can occur in that process. You need to set up that process in a way that the possibility of errors are reduced, but you need to make sure that process is followed.

Who should be subject to peer review? I think any of us. We are exercising judgment in our jobs. We're selecting assumptions. We have incomplete data. We have a variety of things where we're making judgments. We need to be in the position of knowing that somebody can come in and review those judgments. Tom talked about who was going to be assigned to do peer review from the CPA point of view. Bill also mentioned something about how it should be somebody who is a peer of the person doing the work.

I think typically you're going to have somebody who's knowledgeable in the area that is being reviewed. But in fact with certain levels of standards and documentation, you can have someone who's not necessarily knowledgeable in that specific area come in and be able to review the process, and to make sure the process was followed. If you have a set of standards that defines the process and you have a work product that documents the final result, someone can review that this defined process was in fact followed.

I don't think we'd want a CPA reviewing actuarial work papers, nor would it make a lot of sense to have an actuary review a CPA's work papers, but you don't necessarily need somebody who's absolutely expert in the area, if the standards are defined well enough.

What we review at Coopers & Lybrand is not so much, are the numbers accurate, it's whether the process has been followed, and have the standards established for how we do our work been followed? Part of the standard is, are enough people involved, who's supposed to check, who's supposed to review, and so on? If the process has been followed correctly, we have reasonable confidence that the numbers are right.

As I said, there are a lot of judgments involved. We want to make sure that those are documented. It's not so much as to whether they're the right judgments. That's not our goal here. Again, we're going to rely on the professional judgment of the actuary to make appropriate decisions. We want to make sure that the judgments are documented so that the review of the basis of the judgment is there; so somebody can come in and say, yes, he made a reasonable judgment. He may have made a mistake when he made that judgment. It may prove to be the wrong judgment, but at least he was working with a full set of facts and made an intelligent, well-informed decision and judgment.

As a final note, peer review is not a witch hunt. We shouldn't be afraid that someone is going to come in and find out that I did something wrong. That's not the idea. As Tom said, the goal is to ensure that quality work is being done, and if something is being done improperly, the appropriate people can be informed so that they can change their behavior to do it correctly. The focus should be, let's help people do it correctly in the future, not so much, somebody messed up now and he's in trouble.

The setting of standards is important. I work for a CPA firm, so we're big on standards and procedures, and that's an important aspect of this whole area, I think. If you're going to do peer review, you have to judge the work against something. I think what you judge the work against is the standards that are established for the people doing the work.

Whose responsibility is it to set the standards? I think depending on the organization, it can be a variety of people. You could have a chief actuary. You could have a department head. At Coopers & Lybrand, we have what we call the Actuarial Practice Committee, and its members are the ones who set those standards. What basis do you have to set these standards? Where do they come from? I think the first place you look is the professional standards put out by the Actuarial Standards Board (ASB).

The ASB standards talk about qualifications, how you define your assumptions, where you obtained the data, and that sort of thing. Those are just generic requirements. Then there are some very specific ones related to each area of practice. Within any firm you may have certain other restrictions. Working for a CPA firm, the level of review and the level of documentation that's required is probably more than at other actuarial consulting firms, which is one of the things handed down to us from the CPAs.

I think more than that, your experience or common sense says what kind of standards to set up and what rules best ensure that, at the end of the day when this product is done, it's going to be accurate and "high quality."

How many people need to be involved in a particular job? What are their duties and what type of experience should they have to do an evaluation for a pension client?

We're supposed to have three people involved. One should be at a relatively low staff level, an actuarial student who's going to do the bulk of the work, to sit at the computer and punch stuff in, grind out numbers, and do the preliminary calculations.

Next, somebody should be mid-level with a few years of experience, who might be an ASA, to do an initial review. That person is supposed to check that all the math is done correctly, that all the data have been manipulated appropriately. Then you have a final reviewer who's going to be the actuary who signs off on it. That's a well-defined standard. We have a practice guideline that says you have to have those three people. That third person, that final reviewer, has to be a member of the Academy, has to be at least an ASA, and has to be an Enrolled Actuary. Any actuarial report that goes out of Coopers & Lybrand has to be signed by a person with those credentials. That is an absolute standard.

There are requirements on documentation. What needs to be included in the work file at the end. What does the final report look like? Here we go largely from the ASB, but have been a little more specific down to, what does the signature block look like on the report? That's probably a leftover from the CPAs, too.

Once you set the standards, it doesn't do a whole lot of good if you don't implement them. It's nice to have them, but you somehow have to make sure they're going to be followed. First, you have to communicate this to the employees doing the work. If they don't know what the standards are, they won't be followed.

You may have some sort of formal documentation manual. We have a binder that all employees get called the *Practice Guideline Manual*. It will have not only very specific standards dealing with, for instance, the pension valuation, but also more general things. Working for an accounting firm, we have independence issues. How do we go about dealing with the acceptance of projects? So generic questions are covered, as well as specifics of how you do a pension valuation.

Being members of the Academy, we're supposed to read ASB pronouncements and everything else sent to us. Being a member, we're required to know and use this material. Not all actuarial students are yet members of the Academy and so they don't know. One thing you could do is make sure the actuarial students read the pronouncements and other pertinent material. Just tell them, "Here's a new pronouncement, read it. Make sure that you apply these rules in the work environment."

We have training courses for a second- or third-year-type person, which I've taught, that very specifically go over the practice guidelines for an actuarial valuation. It was a two- or three-hour session devoted just to that. Finally, we have on-the-job training and meandering. Presumably, "this is the way to do it" includes reviewing the standards.

We all have certain computer systems, and those are really tools to implement standards. Whoever has programmed that computer to do whatever it does is in effect defining the standards. Those may be very large systems, or they may be templates in a spreadsheet, like 1-2-3, Excel, or whatever.

We have defined work papers. For a pension valuation, there is a thick set of work papers. Many don't like them, but they define very accurately and with detail what you're supposed to do. Work papers go through the different steps. In the pension area, we have a lot of calculations for funding and expense purposes, and these work papers have all those calculations. You go in, you fill them out, and they're now on spreadsheets; so that makes it easier. Again, work papers are tools that on a national basis we've created and given to our practice offices, so that they can follow these standards.

The final implementation of standards is the project management. Whoever is managing the project takes responsibility for making sure that the standards are being followed. Obviously project management has a very important role in the work product.

Let me go quickly through our prerelease peer review, which I'm not really sure even counts as peer review. As Bill said, typically it's an independent review. I think anything you do before the product is released uses someone who is, in effect, part of the project team, so I'm not quite sure it needs that independence. I think there the focus is going to be not only on whether all the procedures were followed and whether the process is right, but also on whether the results are accurate. If someone is reviewing the product before it goes out, presumably that person has an opportunity to say, no, that number is wrong, change it. I think the goal is more toward whether the results are accurate.

For a postrelease review, the results have been accepted, and delivered. Now you're going to have somebody look at that work product. When we do it at Coopers & Lybrand, the people involved in doing this are from other offices. When I was involved in one of these reviews, there were three of us from different offices who reviewed a number of projects from one office.

The focus of our review was very much on the process. It was not on the results at all. I did not check that numbers were added correctly. I didn't check that everybody was included in the data. I didn't get into that level of detail. The goal is to ensure that the standards that have been set up by our company are being followed by that particular office. The review process, I think, is very similar to what Tom was describing for CPAs in that you have, in their case, an independent firm coming in and looking at the work.

We sit down with the whole work project, all the files for that project. We tell the people what projects they should give us. There were about seven projects. We sat for two to three days and looked and made notes. Accounting firms are big on committees. We have a quality control review committee who sets out a checklist of all the things we're supposed to do. We go through and we check off boxes, make notes, and make comments.

Just as Tom was describing, we write a report. That gets submitted to the people in the office for their comments and eventually it goes to the quality control review committee, who then will send a letter to the office head that says, these are the areas you need to improve, or you did a great job, or whatever. Again, the goal here is to focus on the process. Did the company follow the rules that we've set up? The rules are there to ensure that a quality product is delivered.

MR. SMITH: Our third speaker is John Murray. He's a Southern Californian. He graduated from Harvey Mudd College in Southern California, a school with an excellent math program. He's worked almost all his working life at Pacific Mutual Life in Newport Beach. He is now that company's chief financial officer. His business is primarily pension through the life insurance company. He's the company's appointed actuary, and in that capacity he is interested in peer review and will speak to us on the subject.

MR. JOHN D. MURRAY: First of all, Bill gave me a little bit of a promotion. I'm not the company's financial officer. I'm the financial officer for Pacific Mutual's pension operation, which leads to one of the reasons I was interested in the topic when Bill called. From my view within an insurance company, we are radically different in operation than a consulting firm in a number of ways. I've had a lot of exposure to consulting firms because I used to head Pacific Mutual's Enrolled Actuary practice 15 or 20 years ago.

I've seen the evolution of insurance companies. I'm going to use a model, which is what I'll call a mid-size mutual company in Southern California, but it's a decentralized organization, which raises some interesting questions of peer review, professional standards, and this type of thing. These questions occurred to me as I thought about the topic. I thought, "Well, let me think about it a little bit. It would be interesting to talk about."

The place I think I ought to start, though, is the difference between an insurance company and a consulting firm, particularly from the standpoint of this kind of review. First of all, the insurance company has far fewer actuaries, and we deal more and more with other professionals as equals. I have on my staff, for example, an actuary, a CPA, and an investment professional. I think that's more and more typical.

Second, an insurance company actuary has less personal liability, except maybe in California. Now, I would subscribe to the fact that what an insurance company produces is an insurance product, which is the end result of a lot of people, a lot of different involvement, a lot of process. It's not a report signed by a person, so the actuary's work, if you will, be it a report or some other type of input, becomes part of a whole. If the company is to get sued, it's because the insurance product didn't work and more than likely because a professional didn't do the job right.

Notwithstanding the lower personal liability exposure, there are reasons for peer review or quality review within an insurance company; and probably these are becoming more important in the age of specialization. I think it's more incumbent than ever that members of management and the other professions feel confident that an actuary's work is complete and that it's accurate, because it's going to be relied upon for a lot of key decisions.

The actuary's professional stature and relationship with the nonactuary is increasingly important. As we interact more with other professions, I think the stature helps a great deal in making your point, and it's important that we maintain our reputation.

Another area that does receive a lot of attention from nonactuarial company management is the fact that our work may be reviewed by external bodies—regulators at least triennially, and whatever correspondence you might have on the actuarial opinion, rating agencies, due diligence, and so on. Believe me, there is bad news for the actuary; so that's an area of increased concern.

Within an insurance company, I want to suggest that peer review, which is probably more akin to quality review, is a little bit different. In this sense, I think there are three main questions that have to be asked whether you're conforming to standards, whether you're reviewing the work product, or whatever, to make sure that the work of the actuary is done right.

The first question is the obvious one. Was the work done correctly? Is it accurate? Is it complete? Is it not subject to misuse? I think that's probably the slam dunk. The converse of that is the second question that interests me more, and that is, was the right work done? Were the right alternatives considered? Does the end work product not only conform to the need, but also is the actuary aware of other ramifications of what was asked? A big trap for young actuaries is to be asked to do something that seems well-defined, but to not be aware of ramifications in other parts of the business.

The third question that we overlook quite a bit in day-to-day work is whether there is adherence to professional standards. I think the code of professional conduct requires that professional services be performed with integrity, skill, and care. Service is only to be provided when the actuary is qualified to do so. That's an interesting precept to think about sometimes when you're the sole actuary, and I would suspect even more so for the lone actuary in a small company.

As we have more standards of practice and more specialization, I think that becomes a more challenging precept to follow. For a review to exist, these questions have to be considered by a peer. Bill suggested that the reviewer should be independent and of equal ability. For a number of reasons—time, cost, specialized staff—this often does not occur at an insurance company. Rather, the actuary's work is reviewed by supervisory or management personnel who review work from a general standpoint. It's reviewed by actuaries or other professionals working on the same project or the same company committee, and many companies have interdisciplinary committees that can either work at a detail level or, in our case, a high level that sets policy.

Also, an insurance company has more formal external reviewers than apparently the accountants or the consulting actuaries, and these are our friends, the regulators. We have a very formal, structured review every three years. A lot of attention there is paid to process and methodology. Also, in this era of financial questioning, we get in-depth reviews from the rating agencies. Also, in our case, we get a lot of due-diligence investigations, if you will, from key clients and consultants.

These reviews are sort of after-the-fact reviews and in many ways can expose weaknesses in a lot of our processes. Now, they don't necessarily get in to the process or looking at spreadsheets, but they certainly can get into final results and some of these people are very good at probing.

Let me talk a little bit about an insurance company organization. As I mentioned before, I want to use the Pacific Mutual as a model. It is a model that is used by a number of other larger companies now. The reason I use it, other than I'm familiar with it, is that I think it raises some interesting questions.

Today's insurance company is a much different, flatter organization than it was 15 or 20 years ago. When I started in the business 30 years ago, we had a strong actuarial department and a strong chief actuary. You knew where to go if you had problems or if you had questions. Work products were reviewed by a committee of senior actuaries, and sometimes these actuaries would get into a quite detailed review.

Today, an insurance company may have several business units in a corporate organization that operates somewhat like a holding company. The business units tend to operate on a semiautonomous basis within guidelines and policies set at the corporate level, but the emphasis on the business unit is growth and profitability, reflecting what goes on in industry in general.

With a lean corporate structure, there may be no corporate actuary, which happens to be our case. The fact is we have no actuary in the entire corporate organization except for the CEO, who happens to be an actuary. That means that the direct involvement of actuaries is very much at the business unit level, and at that level you probably don't have an actuary who is interested in overall standards or overall processes unless he or she happens to be a financial officer.

Within this structure, the actuary is typically the member of a business unit who might well be reporting and probably typically would report to the business unit head, who is not an actuary. The actuary could be part of a product development unit or a financial reporting unit. He or she could do valuation work or could be in an investment operation performing cash-flow testing. The key point to me is that, increaseingly, senior actuaries and junior actuaries are reporting to nonactuaries.

This organizational structure and the increased complexity of the business has led to more specialization by actuaries, often earlier in their careers. This can literally lead to the situation where, from a peer review process, there are no peers. There just aren't people who know as much as the actuary, or the people most qualified to review an actuary's work may reside in another business unit and have no obligation to perform such a review within the organization. So you need some kind of incentive or working relationship to make sure it's done.

I think as a result it's much more important for an actuary to realize when he or she has questions or may not have all the answers and to know when to go ask for help. This is a situation that I would suggest happens frequently in smaller companies and probably in consulting firms.

To illustrate how peer reviews occur in practice, I'd like to outline two typical work assignments an actuary might have. One is product development and the other would be the annual valuation opinion. For the sake of discussion and because I don't think anybody has the answers, I'm going to suggest a couple of questions that are along the professional standards line that might be interesting to talk about later.

Here is a typical product development assignment. The business unit will develop products that meet its niche and comply with corporate policy for profitability, availability of capital, and so on. Generally, the business unit head will have final approval with respect to how it's designed, priced, marketed, and so on, and might or might not rely on various department heads, a body of professionals, or whatever.

If the actuary is the product officer, he or she will most likely be responsible for the ultimate design, pricing, salability, and profitability of the product. The product officer might well be head of a team that develops the product and in any a case would probably be the author of the final recommendation or report. Again, this person may or may not be an actuary.

The typical assignment for an actuary in product development still remains analyzing risk, producing financial models, and asset/liability modeling (ALM) testing, which is big in the investment-type products that Pacific Mutual emphasizes. The work product is probably not a formal actuarial report, but probably a spreadsheet, a memo, or verbal input. It might not be well-documented or backed up.

The actuary might also be in the investment department or might be responsible for an investment function within the user department, but in any case might participate in the development of investment strategies and perhaps perform cash-flow testing or other ALM work. There would likely be an actuary in the financial department who, among other things, would set and approve reserve standards. Typically, in my model at least, there would be a separate valuation actuary within each business unit that would get involved from this standpoint.

In product development situations, the actuary's work is normally communicated by memorandum, spreadsheet, and so on, but rarely in a complete, formalized report. Because of time pressure to get new products to market, management will naturally place a higher value on usable results that are quickly implemented than it will on complete actuarial reports that follow process; and that's just a fact of life. We're in a very rapidly changing business. It's important to management to get the products on the street quickly. It's also important that they be done right.

As a result, there's a great reliance on actuaries and other professionals to make sure that the work is complete and accurate. Within this process, I would suggest that peer review is fairly straightforward, but it's generally by other professionals in the business unit who work on part of the project. The peer reviewer should be asking general questions. Does the actuary's work make sense in the light of day? Does it hold water with respect to other work the reviewer has seen?

This can be both a strength and a weakness. The strength is that you're bringing a lot of different viewpoints and a lot of different perspectives to bear on the workability and reasonableness of a result. Working with investment professionals, with accountants, and finance people is really good at bringing out different points of view. On the other hand, they're not necessarily looking at all of your assumptions or all of the calculations.

To me, this raises interesting professional questions. What does the actuary do if he or she is the only one in the business unit and feels that he or she is not qualified?

Where do you go? What do you do? How do you deal with management? An actuary is obligated to consider alternatives. For actuarial work to be complete, I think it's incumbent upon us to think of all the ramifications. Who should review the work to see that this is done? Should the actuary feel comfortable in rocking the boat just to comply with this professional requirement? Should the actuary be held to different standards than other professions, by management, or by the profession itself?

The other task I want to talk about is the annual actuarial opinion or statement of opinion. This is a little different. This is a formal actuarial report of the type, I'd say, contemplated by the code of professional conduct, more similar to the reports by consulting actuaries in that it has a specific form. It has completeness. It has prescribed backup. I would suggest that this is healthy. I also suggest that it's due to the necessity of reacting to what's in the law. If the law prescribes an opinion, the regulations and the law describes supporting memorandums and other information. As an aside, I'm curious why we talk about a memorandum, when it consists of a full file drawer.

This work we should expect to be reviewed by regulators, and this is certainly a form of peer review. The regulators do look at the submissions. It varies a great deal by state. I would expect, and I have some indication of this, that there are very thorough reviews now of the opinion on the triennial examinations. This is a form of peer review that does get into great depth.

Within my corporate structure, you have a valuation actuary within each business unit who will normally be responsible for determining the reserves and performing the asset adequacy testing. Presumably the assumptions, methodology, extent of testing, and so on are coordinated with valuation actuaries for other business units and meet requirements established by the company's single appointed actuary.

In this era of flat, decentralized organizations, I would suggest that this is the best opportunity for true peer review within an insurance company, because here the actuaries do have incentives to work with each other and to make sure that the work is consistent. Further, corporate management should expect them to do so.

Peer review of the actuarial opinion is done by company actuaries as they prepare input for the opinion and, as I said, by regulators in a more formal sense. The work is also subject to review by actuarial auditors that the company might engage and to some extent, again, by due diligence reviews done by the company's customers. I think particularly we're seeing more questions relative to the opinion in cash-flow testing than we used to see. A report is also made by the company's board of directors or senior management. I know in our case that the audit committee of the board to whom I report does ask questions and is interested in this.

Questions of professional standards might include, to what extent should an appointed actuary who's not in the corporate area exercise peer review on work done by unit valuation actuaries? Presumably they have to sign something. How involved should you be in it, particularly if there's no reporting relationship between the valuation actuaries and the appointed actuary?

A related question that we have found helpful is whether an insurance company should use an actuarial auditor. As it turns out, we do and have for many years and have found this very useful, not only in making sure our standards are consistent, but also in getting peer review from the outside, and in some cases maybe because it's more pressure on the board or senior management to make sure that the actuaries work together. That is another topic, but an interesting question.

After thinking about this topic for a few weeks, I believe that in today's insurance company peer review still exists for work products. But consistent with the change in organization and the rapid speed with which the business environment changes, peer review takes on a much different form than it used to. It's often done by professionals other than actuaries, and there's less attention to detail and form, but much more attention to the impact on the company.

I think we're in a real world, and I'll call it substance over form. I think one of the challenges is balancing those two. You can do so much work so much faster. We have so many people who are really specialized in given areas, and they have a lot of power with personal computers (PCs) so that we need to have a real balance there.

The increased attention to insurance company finances and risk profiles from outside the company is also involved in the form of peer review. Regulators have stepped up their review of the actuary's work through the revised standard valuation law, asset adequacy testing, risk-based capital (RBC), stronger actuarial input in triennial exams, and so on. Also, the rating agencies, as I've mentioned, can ask very tough questions.

I still want to suggest that the picture is somewhat different with respect to peer review for conformance with professional standards. Actuaries in larger companies are more frequently facing the pressures lone actuaries in smaller companies have always faced. The challenge is for thorough, professional work in an environment where there's pressure to react to the market quickly and produce relatively short-term profit and growth.

On the other hand, we all have a stake in maintaining high professional standards, because it is these standards that are the basis for the profession's reputation for integrity and value. I think this is a very important challenge for the profession in the years ahead.

MR. SMITH: I took this assignment to be moderator of this session because I'm on a committee of the AAA called the Committee on Professional Responsibility. This committee was formed some years ago to function as sort of an oversight committee on professional matters, and to make suggestions about problems. The committee never had any power. It is a think tank and was formed to give ideas so that others might get something done.

About a year ago the committee wondered what sort of internal controls insurance and consulting organizations exerted on its actuarial members. We decided to try to find out and prepared a questionnaire with five questions. This questionnaire was sent to those who called themselves chief actuaries of 137 insurance companies and consulting firms listed in the actuarial directory with 20 or more actuaries. We received about a two-thirds response.

The last two questions dealt specifically with the question of whether the companies did peer reviews. We learned a couple of things that were not surprising. The tendency to do a peer review increased with the size of the organization in terms of number of actuaries, and consulting firms did more than insurance companies. The first thing that I found surprising was that something like three-fourths of insurance companies did not do anything that they would call a peer review. John's comments, I believe, just indicated why. There's plenty of checking that goes on in life insurance companies. They just don't call it a peer review. There's triennial examinations from the department and other things from the outside, and they just do it a different way.

Another surprise was that almost half of organizations that have consulting actuaries answered no to both of the questions concerning peer review. There's nothing from the outside forcing any checking on them, so apparently a lot of companies are not doing this.

My guess is that, if this same questionnaire were sent out ten years from now, it would show a marked increase in the number doing peer reviews.

We're now open for questions or comments or discussion, or anything else you want to talk about on this subject. I think you've been given a fairly complete review of what the others are doing about it. My firm, Milliman & Robertson, has been doing serious internal peer reviews for two decades and we even requested someone from outside the firm to do some peer review for us. So we've always considered it a very important means of maintaining quality and consistency among the various offices in the firm.

MR. HARRY D. GARBER: I have been very active for many years in professional activities and the profession itself. In fact, I was Chairman of the Discipline Committee of the Academy when Bill was one of my most active and useful members. Let me lead into a question. The actuarial profession deals with its members as individuals and really does not, in the way in which it does things, look to firms.

When we see whether members are following the standards of practice or codes of conduct, it's always as individuals, and we don't even entertain complaints against firms. As we look at the issue, we further have no legal recognition or not the same degree of legal recognition that the accountants have. We are legally recognized to do certain kinds of reports, such as the valuation reports for pension plans and for insurance companies, but otherwise we are not recognized generally by government or by regulation.

The committee that Bill referred to was set in motion to look at a lot of things, but one of the fundamental issues is whether we have a code of conduct in place that applies to all members of all organizations. We have a mechanism in place to set standards of practice and to carry out disciplinary processes if those aren't followed. The issue becomes, when you put all that in place, are members in fact following those standards? Bill's committee, among other things, has to look at the issue of how do we as a profession address that kind of issue.

Clearly, if we could begin to rely on the firms as carrying that out, we could look to the question of whether actuaries are following that by auditing the firm's activities. When we come to insurance companies, it's going to be very clear that most companies really are not doing that and have no intention or no interest, by and large, of seeing whether the standards of practice of professionals are being followed.

All this leads to a question. I found this an excellent panel, Bill, and I think you exposed all of the issues, but I'm really thinking as a professional left with a quandary of how do we as a profession begin to get at the issue of whether standards are being followed. Because as we work with government and try to sell the ability of the profession to police itself, which is what we do when we're trying to get greater recognition both at the state or federal level, we have to, I think, be sure or be comfortable that, in fact, this mechanism and this structure that we put in place is actually working and assuring that quality work is being done by our professionals and our members.

I'm not quite sure how we do that, and I think I was left with the same discomfort I've always had. It probably increased a little bit by the discussion, so let me just throw that out as a general issue.

MR. MURRAY: That's exactly the type of question, and I think you stated it better, that interests me. I agree that we have a good set of standards and good process in place. I think that you made a very good point—that we are a profession of individuals and not auditing firms. I put myself in the position of a transitional actuary in a generation that grew up in the profession with a lot of very strong chief actuaries who were very interested in this. If I look at the next generation of actuaries, it's becoming increasingly difficult to pass the torch, if you will. I don't have an answer, but I do agree, Harry, that it's something that the profession needs to spend some time on.

MR. SMITH: I'd like to comment on a couple of things too, Harry. It's certainly true that all a peer review could ever do is to review the actions of individuals that were involved in the work.

MR. GARBER: I'm not sure, Bill. You have a structure in which individuals work that will support that. You don't need to review specific individuals. You feel much more comfortable about the processes because the process itself will begin to identify and improve work practices and so on. A structure such as described for Coopers & Lybrand, I think, begins to give you as a professional a lot more comfort that professional work is likely to be done in that environment than where you have no structure.

MR. SMITH: Yes, but the fact remains, even if you're reviewing that, all you're reviewing is whether the individuals involved actually followed the procedures that you've set out. Ultimately, all of this comes down to actions of a single individual. It's certainly true not only of the actuarial profession, but also I think any profession.

It's looking to the individuals who are trained in this profession to act in a professional manner. Ultimately, everything comes down to what some individual did.

I'd also like to comment for just a moment about our standards. Everyone seems to accept that the standards are fine. I'm not sure I agree. I think we're going overboard in words. I don't think we have too many standards, but I think there are far too many words in those standards. I think it's come about the following way. Any time there is a subject on which a standard seems to be needed, somebody points it out and there's a committee appointed. That committee attacks that problem as if it were a brand new problem. It may look at the other standards as a guideline on how to write the standard, but the committee members all seem to start from scratch. They write the whole book about this one little problem.

We have two binders full of little booklets on a large variety of subjects. I'm concerned that within that work the same subjects are handled many times and in a slightly different manner. Slightly different words are used, and therefore they don't mean exactly the same thing. To some extent, that has been improved. I noticed there is now a guide on data quality. Of course, data quality pervades all of these problems, but I don't think anybody went through all the previous standards and took out the stuff about data quality. It's still in there, and it's inconsistent.

I would feel more comfortable if we could find some way to revise the actuarial standards so there's a general standard that covers all common subjects. Then, the specific standards would deal only with the problems that were different for that particular job. It's probably an overwhelming concept, and it may never be done. I'm not against what the ASB is doing. I think we need all of these things, but I'm not thrilled with the volume of words that's coming out as a result of the work. If I had a lot more time, maybe I would do more about it.

MR. GARBER: You may be asked to, Bill.

MR. WALTER S. RUGLAND: I have several observations. I would just comment on what you said, Bill, but I agree with you and it's interesting. We finally got our arms around qualification standards, I think, by essentially having a general standard with specifics for add-on responsibilities. I made some notes during the discussion that I want to refer to. One of the things that I'm most concerned with about peer review is the fact that it is a misunderstood concept. I think, to a large extent, most people have their own definition they seem to float around.

The thing that I believe is most dangerous about peer review is a lot of people think it's a mechanism for risk transfer. I think that it was pointed out well by the panel that we can't think of it that way, especially as actuaries. The actuarial professional who's doing the work must take responsibility for the judgment and must not be able to pass that responsibility on to a peer reviewer unless the actuary is willing to pass on the judgment responsibility at the same time, which means that the peer reviewer then needs to get peer reviewed.

At times I use as an example, and it's not a complete fit, but the important part in the actuarial profession of the actuary retaining the judgment responsibility is the provision of the guidance in the U.K. with the Institute of Actuaries where, in life insurance companies, many times the appointed actuary is a member of the board and oftentimes there are many other actuaries who are also members of the board. Those actuaries who are not the appointed actuary are obligated by professional standards to support the position of the appointed actuary whenever the appointed actuary is dealing with duties with respect to the board. In my mind, that establishes very clearly the point that the actuary who is doing the work must be responsible for the professional judgment involved.

On another topic, the AICPA example of quality review of firms, because it is limited to the audit and accounting function, would have difficulty finding a parallel application with actuarial firms or with actuarial practices. This difficulty arises because the parallelism, in my mind, between the firms is not in the auditing and accounting, but in the other parts which, Tom, as you point out, you haven't figured out how to deal with yet. Tax consulting may be the first step there, but beyond that I just don't see that model fitting very well in the actuarial profession yet.

Let's consider the question, can anybody be disciplined or why do you only have pass/fail? My observation on that is that in the AICPA model where different firms are auditing each other, you can't position one firm as passing or failing another firm. It doesn't work that way. Competitively, you can't put people into that mode, so you can only have it be positive counseling as opposed to passing and failing. Is that a reasonable observation? Because otherwise you line up to see who can review your number one competitor first.

MR. SMITH: Right. I think that is a reasonable observation—that basically the other firm has to take the position of being there to educate and help the firm improve where it may need to improve.

MR. RUGLAND: Yes. I think self-regulation almost requires that. If you want to have punishment or licensing or something else, then you have to have third parties who are not essentially peers do that work, such as regulators. I have one other comment, Bill. The Chief Actuary Seminar sponsored by the Society was held earlier this month, and there were about 50 actuaries who were at a level of chief actuary of sorts, many of them appointed actuaries. One of the topics was actuarial management or management of the actuarial function.

There was discussion there about how do you, in life insurance companies, deal with this question that we've been talking about in terms of compliance with standards and qualification issues, and things like that. There was a broad spectrum at that seminar where a few of the companies really did a very tight monitoring in terms of continuing education, qualification, established standards, both as were described for Coopers & Lybrand, while others had done nothing. So I think the spectrum is broad, but there are examples out there of some companies being quite responsible in terms of their professionalism for actuaries.

It brings up the question of, should actuaries have different standards than other professions? My answer to that always is actuaries should have standards that seem to be appropriate to actuaries, and we should not compromise or burden ourselves trying to keep up or otherwise compare ourselves that way.

I have one other comment. I don't know if this touches on what Harry was getting at or not. It's my feeling that when an actuary does public work, the requirement of the profession is to the public that the work can be relied on. When the actuary does private work, the question is open as to whether the profession has a responsibility to the private employer of actuaries or retainer of actuaries to assure that private person that the actuary's work can be relied on. I don't think we've totally resolved that. On the one hand in that second question, you can say, "Well, it's a private enterprise and buyer beware." On the other hand, you can say, "Well, there is value that goes along with the professional actuary, and therefore the profession needs to maintain that value even if it is involved in a private enterprise or a private application of the actuary's skills." I think that's the issue we really have to deal with as we move outside of the public arena in terms of how standards should be developed and applied.

MR. DAVID H. DUBOIS: I'm an actuary with the Public Employees Retirement System (PERS) in California. I maybe have a little bit different perspective, but I am interested in your reactions and if you have any advice. We have consulting actuaries come in and review our work about every three years. The most recent one who came in was very critical and found lots of mistakes, including mistakes that had not been found by any of the previous consultants. We were publicly castigated for it. We don't have a chief actuary. A lot of the decisions are made by a nonactuary, and peer review is fairly weak, I would say.

I'm thinking I'm going to apply to try to be chief actuary, because they're opening the position up right now, and I'm wondering personally about implementing some sort of peer review to correct the situation. That's my situation. Any comments?

MR. SMITH: Let's say your work before has been at somebody else's direction, and you were not signing documents for the public attesting to the accuracy or whether the concepts used were correct or anything like that, I take it. The PERS organization itself was taking responsibility for what it did, not you personally.

MR. DUBOIS: Right. We have a board that makes the final decisions.

MR. SMITH: Right. Now, if you become chief actuary, it seems to me something is changing. It sounds like you're to be signing something as chief actuary, and therefore you will be attesting to the public or to the PERS members and to the board about certain things. Your status will certainly have changed. It's my reaction that I wouldn't take the job unless my employers gave me the authority to do the things necessary so that I could be assured that what I was signing was correct. Is that kind of the question you were getting at?

MR. DUBOIS: That's part of it, yes. It's really loose and open-ended. I wanted to make one other comment. There's this issue about form over substance that was brought up.

We're under a lot of pressure to get things out quickly. We're also under a lot of pressure to have things done accurately. We get criticized if they're not.

MR. SMITH: You're not alone in that regard.

MR. DUBOIS: No, I'm sure. I have a personal penchant for having a lot of forms and procedures that work, but I'm not sure if that's going to be practical in the situation. For one thing, we're not used to them, and I don't have a lot of experience, except for what I've done personally for my own work.

MR. SMITH: PERS has operated without a chief actuary for almost ten years.

MR. DUBOIS: Yes.

MR. SMITH: During that period, the world has changed a lot. Whatever the chief actuary did 20 years ago at PERS should not be what's going on. The world has just changed too much. What you've described is an open-ended situation. I'm not sure that I can add any more to it. Jim, you look like you might want to comment.

MR. HAUSMANN: I think that it's certainly a tough issue. One who works in our group got involved in putting together the Fellowship admissions course. He spoke at one of the local actuarial meetings and posed one or two of the issues that the faculty was presenting at the Fellowship admissions course.

You reminded me about one of the issues with your comment about tight deadlines and all this, and being concerned about being able to get it done right. The question was something like your boss comes in and says, "We're closing a deal in 24 hours, and we need to have these numbers run and the results by then." The actuary is in a position where no way can it be done in that time. What position ethically and according to standards is the actuary in?

We all have to deal with that in one way or another and there's no definitive answer, but at some point you have to say, I'm a professional and I can't in good conscience say this is accurate. You don't want to be in that position with your employer no matter who it is, or a client, but at some point you have to say that. To take on the role, I would think, of chief actuary of PERS, whomever that is, needs to be comfortable that the support that's necessary is going to be available.

Certainly having worked there, you know more about what the demands are and what the support requirements would be. You need to have the professionals there who can assist you. You need to have standards and procedures developed. I know working for the state of California, it's not like it's flush with money. We certainly don't like to read that everybody wants to raise our taxes. There are a lot of consulting firms out there that have a lot of procedures set up.

I would think that being in PERS you're reasonably well insulated from some of that. Certainly there are people outside who can help you. Getting the state of California to give you funds for that is another question, but there are certainly firms who have worked in an area, maybe not exactly like yours, that deal with demands in this type of area and they have procedures. I described a whole bunch of the things we do. Maybe that's what needs to happen. Someone needs to make the demand. If we're going to work under these conditions, we need to have this set up, and we need to get outside help to do that. Maybe the peer review or the review that was done recently is the impetus for saying, "If you want us to do this stuff, we've got to have the tools in order to do it."