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TOTAL QUALITY MANAGEMENT

HEARING

BEFORE THE

SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY

OF THE

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT HOUSE OF REPRESENTATIVES

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TOTAL QUALITY MANAGEMENT

MONDAY, JUNE 9, 1997

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON GOVERNMENT MANAGEMENT,
INFORMATION, AND TECHNOLOGY,
COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room 2154, Rayburn House Office Building, Hon. Stephen Horn (chairman of the subcommittee) presiding.

Present: Representative Horn.

Staff present: J. Russell George, staff director and chief counsel; Andrea Miller, clerk; Matt Ryan, professional staff member; and Mark Stephenson, minority professional staff member.

Mr. HORN. The Subcommittee on Government Management, Information, and Technology will come to order.

In our relentlessly competitive global economy, the only constant is rapid change. In this environment, organizations must adapt or perish. Effective competitiveness depends on effective management. The private sector has proven remarkably adept at organizational flexibility. The public sector has been distinctly less successful at changing with the times.

Today, we will learn about one of the management philosophies that has helped many organizations become more efficient and effective in a very competitive environment. Government has many concerns, other than the bottom line, but public and private sector services are inevitably compared in the consumer's mind, and in certain cases, Government must compete directly with private companies. It is no surprise that in recent years voters have made abundantly clear their desire for a more efficient and affordable Government.

Total quality management, TQM, is a management approach that strives to achieve continuous improvement of quality through organization-wide efforts based on facts and data. Organizations use quality management principles to determine the expectations of all their customers, both external and internal, and to establish systems to meet those expectations.

In recent years, both Federal and State governments have found that they could not attain high quality by using traditional approaches to managing service and product quality. The customer of the Federal Government is the American taxpayer. To satisfy its customer, the Government must design its programs, goods, and services for quality. I will be the first to admit, however, that this is a vague prescription. How can we talk about total quality man-

agement in simple concrete terms? Is this a management philosophy about good human relations? Would it be accurate to say total quality management boils down to paying attention to the customer? If so, how can that principle systematically be applied in an organization?

I hope our witnesses today will help us bring management theory down to the level of plain English and concrete examples. Furthermore, application of quality management principles to the government, an organization whose customers are also its owners, presents a unique set of challenges. We, therefore, hope to hear suggestions from each witness today on how quality management principles might be applied to the special case of the government.

Our purpose here is to work toward a more efficient and effective Federal Government. We ask that you help us to benefit from your expertise as we go about this. The formal definition of a total quality management company exists in the criteria for the Malcolm Baldrige National Quality Award. This annual award, given since 1988 by the Department of Commerce, recognizes companies that excel in managing for and achieving quality.

We will hear from the American Society for Quality Control and the National Institute of Standards and Technology, which administer the Malcolm Baldrige program, and we will also hear from two past recipients of the Baldrige award. The hearing begins with an overview of total quality management from two management experts, Steven Bailey, president of the American Society for Quality Control and Dr. Harry Hertz, Director of National Quality Programs in the National Institute of Standards and Technology of the Department of Commerce.

Following this overview, we will hear from several individuals who have experience with total quality management in the private sector. Joe Conchelos is vice president for quality at Trident Precision Manufacturing Inc.; Rosetta Riley, president and chief executive officer of Sirius 21, Rear Admiral Retired Schriefer is senior vice president and executive director of the Business Executives for National Security, BENS; Lawrence Wheeler is vice president of Programs Systems Management Co., a division of Arthur D. Little, Inc.

After the view from the private sector, the third panel will focus on total quality management experiences in State governments. Witnesses, Steve Wall, director, Office of Quality Services for the State of Ohio; and Greg Frampton, executive administrator, South Carolina Department of Revenue.

Finally, the fourth panel will focus on the Federal Government. The witnesses are Thomas Carroll, National Director for Quality at the Internal Revenue Service; and David Cooke, Director of Administration and Management at the Department of Defense. Mr. Cooke will be accompanied by several Department of Defense colleagues, Anne O'Connor, Director of Quality Management, Department of Defense; Dr. Gerald Kauvar, U.S. Air Force; General James Boddie, Jr., U.S. Army; Captain Scott T. Cantfil, U.S. Navy; and Lieutenant Tom Sawner, Air National Guard.

We welcome all the witnesses and look forward to the testimony. I see Mr. Bailey and Dr. Hertz are here.

Gentlemen, on this committee, we have the tradition of swearing in witnesses, so if you don't mind standing and raising your right hands.

[Witnesses sworn.]

Mr. HORN. Both witnesses affirmed.

Why don't we just go in the order in which they are on the agenda. Steven Bailey, president, American Society for Quality Control. Welcome.

STATEMENTS OF STEVEN BAILEY, PRESIDENT, AMERICAN SOCIETY FOR QUALITY CONTROL; AND HARRY HERTZ, DIRECTOR, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY [NIST], NATIONAL QUALITY PROGRAMS, DEPARTMENT OF COMMERCE

Mr. BAILEY. Thank you and good morning, Congressman Horn. I would like to thank you for inviting the American Society for Quality Control, or ASQC for short, to share our insights on quality improvement.

ASQC is one of the world's principal sources of information on quality methodologies, with over 130,000 individual members, include nearly 3,000 quality practitioners who work in Government at the Federal, State, and local levels.

The message for you from the ASQC is simple and involves these four points. First off, there is a great deal of quality activity occurring today in the public sector and we are learning a lot from it. Second, Government experience with quality, in many ways, parallels the private sector's experience. Reasons for success and failure aren't so much different between these two sectors. Third, you need a solid framework for improvement, and the good news is you have one—I will talk about that—that can mean the difference between success and failure. Fourth, public sector quality efforts are at a critical turning point right now. So let me elaborate on each of these points.

First off, the public sector started its quality journey later than the private sector. It is still not as far along as one would like but we now have several years of accumulated experience in Government and many examples of successes. We also have many opportunities to learn from the failures. Lots of good things have been accomplished, many of which have gone unrecognized. You will hear about some of these later on today, I believe.

Some of these are even examples for the private sector to emulate. For example, the Social Security system's telephone operation was recently deemed to be the best in the country, better even than organizations like L.L. Bean, whose fortunes are tied to their phone responsiveness. And I think it is also significant ASQC has just bestowed on a public servant one of the highest honors we can give to any quality professional, our Ishikowa Award for leadership in improving the human aspects of quality went to Joseph Dickey, chief operating officer of the Tennessee Valley Authority [TVA]. He introduced a three part model to help improve the relations between management and employees.

In the packet of materials, there is a bibliography that documents experience of numerous Government quality efforts at the Federal, State, and local levels. Many of these examples come from

sources that are not widely circulated, so I think you will find them new and instructive.

Based on these and many other experiences, I can tell you that there are more similarities than differences between the public and private sectors. Reasons for the success and failure are remarkably similar. So how does one in retrospect judge success or failure? Well, in the same way an organization guides its progress as it is designing and implementing a quality system. You have got to have a framework for improvement, a guide to tell you how to start out and how you are doing. You need this framework just as in the private sector.

Now such a framework exists in the criteria of the Baldrige Award and there is a Federal counterpart to the Baldrige Award called the President's Award for Quality. The award categories and underlying core values define what it takes to have a successful quality system.

We are very fortunate to have Harry Hertz from NIST and he can explain better than I how this works. We know that in some private businesses, quality efforts start out with a bang and then stall dead in their tracks. Others keep forging ahead. Motorola, Ford, DuPont, and Texas Instruments are just a few of the well-known examples of companies that have continuously renewed their quality efforts.

In the public sector, early successes in the IRS regional centers seem to have stalled, perhaps distracted by massive problems in upgrading the agency's technology. IRS faces major hurdles in establishing the public's confidence. It, unfortunately, ranks dead last among 200 companies and Government agencies rated in the American Customer Satisfaction Index, the ACSI.

By contrast, consider the Patents and Trademark Office. In 1992, its public services and administration division won a quality improvement prototype award, which is part of the President's Quality Award program that I mentioned earlier. Recently, the office made a commitment to the Secretary of Commerce to do a Baldrige-style assessment of the entire organization to build on its previous successes. So which shall it be for the Federal Government, continued progress and more success, or backsliding?

I am personally very optimistic, and here are some reasons why. First, there is a core of believers out there in Federal agencies who have demonstrated what is possible. I can tell you they are fired up about quality and making things happen. Second, they now have some structure to support their efforts. For example, the National Performance Review is a catalyst for some stunning changes in Government's adoption of quality methods. Third, we are seeing stronger links to quality experts and private sector quality practitioners being formed. And fourth, there is a lot more sharing back and forth among all these groups. These networks are growing rapidly. A prime example is the Public Sector Network, which is an interest group within ASQC. It is having a real impact among people dedicated to advancing public sector quality. Recently, the Public Sector Network launched its 21st Century Governance Initiative to bring citizens' focus and to bring citizen focus and involvement back into the Government processes.

So in conclusion, this is really a critical time for public sector quality. The challenge for the Federal Government will be to capitalize on these good examples which exist. Some of which you will hear later today, other ones are in the bibliography that we provided. To make sure that the best work spreads, momentum needs to be sustained and encouraged, and this committee has a role to play. I encourage you to use your influence to make sure it happens. After all, oversight is one of the key steps in the quality improvement cycle.

Your efforts are to be commended. Let me suggest that the best way for you to learn about quality in Federal Government is directly from the people who are living it every day. And you have a great opportunity to do that. The 10th Annual Conference on Federal Quality takes place here in Washington next month. I encourage you to attend. You will learn more about the reality of quality in a day there than you could get in a week of sitting and listening to people like me. You can hear about the best of the Federal quality activities. And I am sure people will speak frankly about their problems and setbacks as well as their triumphs. I hope I have conveyed the quality profession realistic assessment of the state of public sector quality, and I thank you for listening.

Mr. HORN. Thank you very much for that summary and as you all know, your full statement goes automatically in the record when we introduce you. I particularly appreciated the bibliography with your attachment, and I am going to have to ask you to translate a few of the various euphemisms, initials, and others on some of that bibliography.

[The prepared statement of Mr. Bailey follows:]

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To the essential question, "Can TQM work in the public sector--specifically, the federal government?", ASQC would answer with a definite and enthusiastic "Yes." But based on our experience over the years we would respond with a qualified "Yes" to the related question, "*Does* TQM work in the public sector?"

Experience has been accumulating over a number of years to reinforce the belief that it can work. We have assembled a selected, annotated bibliography of some of the best published material to support this belief. The bibliography is attached as part of this document. It contains many fine examples of the application of TQM principles and practices and many good results at all levels of government.

Nevertheless, quality improvement efforts have not been an unqualified success: deployment throughout federal agencies is still spotty; as in the private sector, there have been a number of failures in the public sector; and many opportunities remain to more fully extend the benefits of well-thought-out and carefully executed quality programs to the federal government.

Making the Leap from Manufacturing to Public Services

Quality management methods grew out of a need to improve manufacturing processes and products, but it was not long before successful applications were being made in service organizations of all kinds. The rise of the importance of the service sector accelerated this development; and growing demands for better performance from government entities then gave impetus to the application of quality improvement methodologies in government agencies. A large body of evidence now confirms what quality management theorists have long insisted: that TQM can, indeed, be successfully adapted to a government environment.

In fact, the first organization of any kind to institute widespread use of the term "total quality management" was the Department of Defense. DoD was one of several early leaders in quality management within the federal government. Others include the Internal Revenue Service and the Tennessee Valley Authority.

The Department of Defense has made a serious, ongoing commitment to training that seems to be paying off. Military installations are among the first federal facilities to be mentioned as examples of effective quality implementation. Some military systems serve as models for the private sector. Recently, for example, the Army's lessons-learned system was cited as superior to any system used by industry for correcting mistakes and sustaining successes *[Ricks]*.

The TVA's internal quality assessment methodology was based on the Baldrige criteria *[Vansuch 1994]*.

Within the IRS, the visible quality improvement activity that led early on to significant accomplishments, especially in the regional service centers, appears to have peaked. It is not clear that the laudable efforts within various IRS units--efforts aimed at making a shift toward the encouragement of voluntary compliance, improving customer satisfaction, reducing burdens on taxpayers, maintaining a quality workforce, upgrading equipment, and improving financial performance--have been deployed throughout the organization. If there is a pattern of improvement efforts, it seems to be one of isolated pockets of excellence rather than a seamlessly integrated system in which organizational learning and diffusion of success are the norms. The low ratings of the IRS in the American Customer Satisfaction Index are therefore not surprising *[West]*.

The U.S. Customs Service has made great strides in the areas of collecting moneys and ensuring compliance with complex regulations. They have acquired and effectively used superb technology; they have moved to a process way of thinking, and they have moved people out into much closer front-line contact with their customers.

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The attached bibliography contains many more examples such as these. It shows how all levels of government have successfully adopted quality management practices--from township departments, schools and libraries to entire city governments, from motor vehicle departments to state revenue and parks departments, from military and civilian installations, from federal agencies that have extensive public contact to those whose mission is primarily administrative in nature.

Benefits to Organizations

Successful quality implementations in either public or private sector have revealed benefits that usually fall into two principal categories: 1.) better performance for customers/constituents and in the marketplace, and 2.) better business performance.

Better performance for customers/constituents and in the marketplace may be reflected in or measured by customer satisfaction levels; customer retention; customer satisfaction relative to competitors; market share; and competitiveness. *[Examples from the bibliography include: Bemowski 1993; "California State Parks Department Wins Eureka Award;" "Driving Home the Point of TQM;" Fontaine; NPR Staff; "Quality Comes to Criminal Justice;" Stratton 1997; "Total Quality Service in Gwinnett County;" Vansuch 1994 & 1995; Yates.]*

Better business performance may be reflected in or measured by product and service quality levels; asset productivity; supplier performance; public responsibility, and financial performance. *[For examples, refer to the bibliography for the following: "California's Department of Motor Vehicles: A Commitment to Quality Service;" DeLaney; "DMV Looks to Customers, Employees for Answers;" "Driving Home the Point of TQM;" "Even Uncle Sam is Starting to See the Light;" Keehley; Lewis; Lowerre; Muffolett and Rogers; "Quality Comes to Criminal Justice;" Stratton 1997; "The Union/Management Partnership: Everyone Wins;" Wilson; Yates.]*

Characteristics of Successful Implementations

Organizations that have successfully implemented TQM, whether in the private sector or the public sector, frequently share some common characteristics. These may be summarized briefly in the following list, along with selected bibliograpic references illustrating the principles:

- Customer-driven quality *[Centonze, DeLaney, National Performance Review Staff, "Total Quality Service in Gwinnett County," Vansuch 1995]*
- Leadership *[Muffolett, Nichols, Sainfort]*
- Continuous improvement/continuous learning *[Centonze, Lowerre, Muffolett, Ricks, Sainfort]*
- Employee participation and development *[Bemowski 1993]*
- Fast response *["DMV Looks to Customers, Employees for Answers," Fontaine, "Quality Comes to Criminal Justice," "Total Quality Service in Gwinnett County"]*
- Design quality and prevention
- Long-range view of the future *[Bemowski 1993, DeLaney, "Oregon Benchmarks," Stratton 1997]*
- Management by fact *["Driving Home the Point of TQM," Fontaine, Keehley, Vansuch 1995]*
- Partnership development *[California's DMV: A Commitment to Quality Service," "NTEU and IRS Set Total Quality Organization Goals," Stratton 1997 and 1994, "The Union/Management Partnership," Wilson]*
- Corporate responsibility and citizenship
- Results orientation *["California's DMV: A Commitment to Quality Service"]*

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These characteristics are embodied in the organization's approach and deployment in the areas of leadership, information and analysis, strategic planning, human resource development and management, process management, business results, and customer focus and satisfaction.

These characteristics have been distilled through many years of experience by quality experts and practicing professionals. They have come to be adopted as the core values of the Malcolm Baldrige National Quality Award.

The Baldrige Award has a sister award in the public sector, known as the Presidential Award for Quality. The Presidential Award was patterned after Baldrige and has very similar criteria. In recent years there has been an effort to more explicitly align the presidential award criteria with the Baldrige criteria.

One of the primary objectives of the Baldrige Award is to provide organizations with a vehicle for self-assessment. It is now widely recognized as the benchmark used by many organizations as a self-assessment and improvement tool.

Baldrige calls for a three-pronged focus: an integrated, systematic approach; deployment throughout the organization; and measurable results. It is grounded in the core values and concepts of quality; it demands a systems perspective and a process focus; and it calls for continuous refinement through cycles of learning about organization-wide improvement. The criteria themselves have been tested and refined and are broadly applicable to any organization. The value of this tool for public sector organizations cannot be overstated.

When Practice Falls Short of Expectations

Successful organizations do most if not all of these things very well. In contrast, organizations that experience failure frequently lack an integrated approach or sustained commitment to developing all of these elements into a working system.

Abject failure and total abandonment of organized quality improvement activities are not such common experiences. More typically, small pockets of excellence may exist within an organization, surrounded by other units in which quality programs were never introduced or never really caught on. These good efforts too often do not diffuse throughout the organization, thus limiting the effectiveness of the high-performing quality units, contributing to low morale and lack of generalized enthusiasm for quality, and making continued efforts all the more difficult. A quality culture, in which success breeds success, is never established. Viewed in this way, the overarching cause of the problems is a failure of leadership compounded by inadequate communication.

Role of Legislation

Yes, legislation can encourage a focus on quality. But it is insufficient by itself, and it cannot be done simply by edict. It must be reinforced by training of the right people at the right time, by leadership and commitment, and by effective communication. Leadership is key; it will be evident in the way an agency responds to legislative requirements.

Currently, federal agencies find themselves facing mandates such as those spelled out in the Government Performance and Results Act and the President's Executive Order on Customer Service, both of which aim to promote a new focus on results, service quality, and customer satisfaction. Will the agencies provide a meaningful response to mandates such as these, or will they simply find ways to put empty words on paper? A rigorously implemented quality plan, coupled with ongoing assessment of the quality system according to Baldrige equivalent criteria, will put an agency in a good position to respond to these requirements. Quality systems help focus an organization on accountability.

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Legislation ought to remove barriers to implementation, especially those barriers related to the special circumstances that government agencies deal with--such as peculiarities of the federal budgeting, personnel management, and procurement systems.

Concluding remarks

The public sector is at a critical turning point now, poised for major advances in quality. Momentum for quality is building at all jurisdictional levels, and there is reason for optimism that the future will be marked by progress rather than backsliding. The will to do it exists among a core of dedicated individuals and groups who now have some significant successes under their belts. Structures are in place to aid and encourage their efforts--chief among them being the National Performance Review and the support for quality efforts provided through the Office of Personnel Management. Links have been established to quality experts and private sector quality practitioners.

The network of people dedicated to advancing public sector quality is growing, not only in numbers, but also in strength and sophistication. The Public Sector Network is an excellent example. PSN, a technical committee of ASQC, grew from an informal network of government employees to become a primary source of information on best practices in government and a strong advocate for the use of TQM at all levels of government.

Recently PSN launched the 21st Century Governance Initiative, in order to accelerate the adoption of new practices that enhance the relationship between people and their governments so that government works better and citizens are better served. The aim is to bring citizen focus and involvement back into government processes, leading to greater public confidence in government and greater satisfaction with governmental operations and results. That is the ultimate rationale for TQM in government and the reason why continuing quality improvement efforts in the public sector must be encouraged in every way possible.

About ASQC

ASQC is a professional society of individuals and organizational members dedicated to the ongoing development, advancement, and promotion of quality concepts, principles, and techniques. The Society serves over 130,000 individual and 1,100 corporate members. ASQC is a contractor to the National Institute of Standards and Technology for the Malcolm Baldrige National Quality Award program.

As the world's largest association of quality professionals, we appreciate the opportunity to provide input to the very important ongoing task of government oversight.

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Quality Improvement in the Public Sector
A Selected Bibliography
Compiled by ASQC

Bemowski, Karen. "The Air Force Quality Flight Plan." *Quality Progress*, June 1994, pp. 25-29.

To implement TQM, the US Air Force has developed vision and mission statements; established an Air Force Quality Council; and committed itself to education, training, and recognition. The vision and mission statements describe its product (defense) and its customers (America). Core values for all personnel include integrity, courage, and patriotism. The mission, vision, and values exist in an environment of trust and empowerment. Overseeing the quality effort, known as Quality Air Force, is a quality council that sets quality policies, reviews action plans, and encourages training. Quality training is integrated into the curricula of Air Force education. In addition, an Air Force Quality Institute provides educational resources such as: courses, workshops, consultant services, and information dissemination. Teamwork is important in all these activities. It is recognized by the Air Force Quality Award and the Air Force Unit Quality Award.

Bemowski, Karen. "Trailblazers in Reinventing Government." *Quality Progress*, December 1993.

Despite skepticism, organizations in the federal government have been able to participate in the quality revolution. Evidence is the winning of the Presidential Award for Quality by several organizations: the Naval Air Systems Command (1989), the Air Force Logistics Command (1991), and the Internal Revenue Service Ogden Service Center (1992). The article uses examples from the award winners to rebut seven common pieces of skepticism. For example, the skeptic may say the government has no competition, but the award winners for a long time have known that they compete with the private sector. The skeptic may worry about high turnover rates in government leadership, but employees accept leadership turnover as a way of life. The skeptic may ask how an organization can ensure that the vast number of federal employees participate in quality initiatives. The answer from the award winners is strategic planning and empowerment of employees. Other surprises for the skeptic include: the use of quality as a criterion in bidding; measurement of the effect of quality on agency budgets; helping employees become comfortable with change; and using the same tools as the private sector to identify customers and their needs.

Blackburn, Thomas Doyle. "An Assessment of One Department of Defense Organization's Implementation of Total Quality Management." *Quality Management Journal*, July 1994.

This study is a qualitative assessment of a DoD organization's implementation of TQM. People randomly selected for survey interviews were stratified into one of three groups: senior managers, mid-level managers, and workers. The last group included first-line supervisors and action officers. Progress in achieving cultural change, senior management commitment, productivity improvements, and changes in attitude of employees at each of the three levels in the organization was assessed. Some progress toward achieving a change in corporate culture and increasing productivity had been achieved. Results concerning the commitment of senior leaders and improvements in employee attitudes were, however, inconclusive. Differences in perceptions of how well the organization was progressing were noted. The mid-level managers were less optimistic about the progress achieved. Recommendations centered on the issue of empowerment. It was recommended that a concerted effort be made to convince mid-level managers of the benefits of TQM and that senior noncommissioned officers be encouraged to actively support, rather than oppose, the implementation of TQM.

Borkin, Rusty. "Milwaukee's Total Quality Improvement." *Public Sector Network News*, Summer 1994. Milwaukee: ASQC, 1994.

A brief overview of one city's efforts to become a total quality organization.

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Brecka, John. "ASQC Testifies Before Worker-Management Relations Committee." *Quality Progress*, November 1994, pp. 51-54.

US labor relations policy should foster participative working environments and cooperative labor-management quality initiatives. ASQC chairman Jack West highlighted those principles while testifying before the Commission on the Future of Worker-Management Relations, which is also known as the Dunlop Commission. Support for the principles should come from widespread use of teamwork, problem solving, and employee participation. American workers are eager to take on decision-making responsibilities. Implementation of quality improvements works best when ideas come from everyone in the organization. An important aspect of quality initiatives is the plan-do-check-act (PDCA) cycle that allows an organization to review and modify the initiatives. Government can encourage quality initiatives through funding, recognition, and reconsideration of Section 8(a)(2) of the National Labor Relations Act. The prohibitions of this section may be a barrier to some quality activities. A sidebar article describes the Dunlop Commission.

Bruno, Gerard. *The Process Analysis Workbook for Government: How To Achieve More With Less.* Milwaukee: ASQC Quality Press, 1995.

"California State Parks Department Wins Eureka Award." *Public Sector Network News*, Winter/Spring 1996. Milwaukee: ASQC, 1996.

This agency's firm belief that it should be and could be competitive when measured against criteria familiar to private enterprise led to its winning of the state's official quality award for 1995 in the government category. The Eureka Award is administered by the California Council for Quality and Service and is based on the Malcolm Baldrige National Quality Award criteria.

"California's Department of Motor Vehicles: A Commitment to Quality Service." *Public Sector Network News*, Summer 1994. Milwaukee: ASQC, 1994.

California's most visible public service agency enhanced its pioneering TQM strategy with two other strategies–encouraging public entrepreneurship and promoting the use of advanced technology–to improve customer service and operational performance. Results have included a reduction in processing time for vehicle ownership certificates by 43% (from 9.4 days to 5.3 days); reduction in processing time for registration certificates and stickers by 35%; and a 66% reduction in the time required to process a customer refund. In a model for public-private partnerships, the department reengineered the process for registering new vehicles for rental car agencies. Providing the agencies with direct electronic access to its data base resulted in immediate turnaround on these transactions, compared to what had been 3-5 days processing time. The agencies were able to maximize rental revenues by reducing vehicle downtime. Similar partnerships with other public-sector agencies have also benefited the public with enhanced service.

Centonze, Philip, Robert Ramsey, and Dan McIntyre. "US Coast Guard Quality: Life on the Cutter Edge." *Transactions, 50th Annual Quality Congress*, pp. 281-288. Milwaukee: ASQC, 1996.

In 1990, the Commandant of the Coast Guard announced that TQM would be implemented throughout the service. Although progress was made, it was apparent by the end of 1993 that TQM application was not pervasive in the service. This paper describes the approach, deployment, and results of a quality-oriented, internal consulting initiative in the Seventh US Coast Guard District. In August 1994 the Commandant established the Quality Performance Consultant (QPC) initiative. Its three components are assessment, consultation, and training, known together as ACT. The basic premise of ACT is to tailor and deliver services meeting each unit's particular needs. The QPC initiative has resulted in renewed interest in improving work processes, communications, and unit member satisfaction. In 1995, two 7th District units received the US Coast Guard Commandant's Quality Award.

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Curda, Elizabeth H. "Reinventing Government: Moving Beyond the Buzzwords." *The Public Manager*, Fall 1993.

It is not difficult to understand why the reinventing government concept, popularized by David Osborne and Ted Gaebler, has reached fad status among federal employees. The principal hypothesis guiding Gaebler and Osborne's work is that the bureaucratic, hierarchical government systems adopted during the early part of this century and guided by the scientific management principles that reigned at that time are no longer best suited to deal with the complex, information-rich, and ever-changing environment of today. There are currently movements within the Clinton administration, the Congress, and individual federal agencies to reinvent the federal government as it is no known. The National Performance Review (NPR), led by Vice President Gore, took on the task of nothing less than the reinvention of government. Yet despite all the fanfare, most federal workers are either unaware or openly skeptical of TQM and reinventing government principles. Key to changing the current system in the US will be changing the risk-intolerant culture of the bureaucracy.

DeLaney, Bill. "Total Quality Management in the Public Sector." *Quality Engineering*, April 1993, pp. 583-588.

TQM has been employed in many areas of government to improve team building and customer service in the workplace and to focus the workforce on building better quality. But at the other end of the organizational spectrum, a question exists as to whether TQM is applicable to policy setting and decision making at the top-management level of government. The author suggests that it is indeed applicable and provides a current example of how the Forest Service (US Department of Agriculture) has employed key principles of quality management to the process of setting new direction and strategy for the agency. By listening to customers, being truly open to change, and learning to cope with competing customer demands, Forest Service leaders have set a dramatic new course for the management of the National Forests and Grasslands. The application of the quality principles represents an ongoing management philosophy of new thinking, open dialogue with customers, and a continuous balancing of customer needs.

"DMV Looks to Customers, Employees for Answers." *Public Sector Network News*, Summer 1994. Milwaukee: ASQC, 1994.

The use of quality improvement techniques allowed the California Department of Motor Vehicles to realize savings in excess of $3 million over the prior five years while significantly improving mail processing and delivery times by two or more days. The two-pronged quality improvement approach was based on commitment to quality customer service and empowering employees to provide quality service. Article appeared originally in the September 1993 issue of *The Journal of Communication Distribution*.

Doyle, Kevin. "Who Cares About Quality in Government?" *Incentive*, February 1992.

Dozens of federal agencies have adopted a quality management approach, but there has been little mention of this in the major media. Journalists cite unfamiliarity with government quality, cynicism toward its aims, and indifference to the issue as reasons for the lack of press attention. However, the most-cited justification is that the subject does not make good news. Roger Smith of the Los Angeles Times says that the issue lacks excitement. Meanwhile, Fred Barnes of The New Republic says that quality in government is not attracting media mention because it is not an issue that the media care about. Joe Klein, a political columnist for New York magazine, says that his colleagues in the media do not understand TQM in government. However, some journalists see quality in government as a viable campaign issue in the upcoming presidential election.

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"Driving Home the Point of TQM: South Carolina's DMV Experience." *Public Sector Network News*, Summer 1994. Milwaukee: ASQC, 1994.

Faced with pressure from the public and the state legislature, and in the midst of major organizational structure change, the Department of Motor Vehicles was forced to deal with a short quality learning curve to make changes in its quality service delivery. Using a team-based approach, DMV employees and managers, along with state Human Resources and Department of Revenue personnel, evaluated nearly 100 improvement ideas to attain three major service objectives: reducing the number of transactions that require a visit to a DMV office; simplifying transactions to reduce errors and rework; and reducing wait times for customers. The Department's work was well received in the legislature. By demonstrating what can be accomplished by well-trained teams, the DMV has set the stage for increased legislative and executive support for quality management in the state of South Carolina.

Emmons, Barbara. "Service Quality Network--A Statewide Effort." *Public Sector Network News*, Summer 1994. Milwaukee: ASQC, 1994.

Describes the work of the Service Quality Network, a grass-roots, self-help networking group of people from city, state, county, and federal agencies in the State of Washington.

"Even Uncle Sam is Starting to See the Light." *Business Week*, October 25, 1991.

In the face of rising deficits, the federal government is placing renewed emphasis on quality in its equipment. Ways in which the USN has cut costs and implemented quality control measures are discussed, as well as quality efforts in the municipal government in Portland, OR.

Fontaine, Daniel J. and Diane B. Robinette. "Quality Government Service--A Story of Success." *Transactions, 48th Annual Quality Congress*, pp. 485-490. Milwaukee: ASQC, 1994.

The Federal Communications Commission (FCC) formed quality improvement teams that involved both internal and external customers. The teams' goal was to reduce the cost of government and, at the same time, improve service. The Federal Quality Institute provided training on problem-solving processes, and a private quality consulting firm helped the FCC develop a seven-step problem-solving process. The seven steps included: 1.) identifying improvement opportunities; 2.) prioritizing and selecting improvement opportunities, estimating the cost of poor quality, constructing an opportunity selection matrix, and developing an opportunity statement; 3.) analyzing root causes using the basic tools of quality; 4.) selecting the solution using a solution selection matrix and the consensus decision method; 5.) testing the solution using a four-part plan; 6.) implementing the solution; and 7.) tracking effectiveness. The implemented solution resulted in fewer errors in license applications, reduced backlog without increasing staff, an improvement of 47% in the speed of service, and a reduction of 67% in the cost of poor quality.

"For the Public Good." *Public Sector Network News*, Winter/Spring 1996. Milwaukee: ASQC, 1996.

Describes the development of a unique and successful quality assurance program at New York City's Metropolitan Transportation Authority (MTA) Bridges and Tunnels. Its engineering and construction department is the first US public agency in the transportation field to achieve ISO 9001 registration.

Hamson, Ned. "The FQI Story: Today and Tomorrow." *The Journal for Quality and Participation*, July/August 1990.

The Federal Quality Institute (FQI) was created to help federal agencies implement TQM by: 1. Introducing senior officials to TQM concepts, 2. Establishing a vehicle to help agencies contract for TQM implementation services in a timely manner, and 3. Providing information on quality management through a resource center. One of the strategies used by the FQI to accomplish its mission was to participate in a variety of quality conferences in which the expected attendance by federal employees would be significant. The FQI's quality improvement prototype awards and the Presidential Award for Quality also help make the FQI the focal point

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for federal quality and participation efforts and the leading edge for continuous improvement in the federal government.

Holzer, Bonnie. "Quality Auditing in a Public-Sector Service Environment." *Quality Progress*, June 1994, pp. 61-62.

Finding out how managers feel about TQM has helped the Internal Revenue Service improve its implementation of TQM. This assessment was an audit of about 200 managers at the Manhattan District Office. The first step in the audit was to develop generic and specific questions. The generic questions were inquiries about the managers' familiarity with and use of quality techniques. The specific questions derived from business plans and functional objectives. The second step was to hold focus group meetings at which the generic questions were discussed by the managers and the quality coordinator. In the third step, the managers met individually with the quality coordinator. They used the specific questions to talk about their progress toward quality and productivity goals. In the final step of the audit, the quality coordinator reported the results of the assessment to the administrators. The audit showed generally positive response to quality initiatives. It also demonstrated that some managers needed better understanding of TQM concepts.

Hunt, Michele. "Freeing the Spirit of Public Service in All of Us." *Public Productivity and Management Review*, Summer 1995.

It is argued that the public's expectations require federal agencies to initiate fundamental changes in the way they do business. Whether or not to initiate TQM or other change programs that are customer-driven and improve responsiveness through increased flexibility and empowerment is no longer the question. The most common reasons why TQM has not succeeded are discussed.

Hunt, V. Daniel. *Quality Management for Government: A Guide to Federal, State, and Local Implementation*. Milwaukee: ASQC Quality Press, 1993.

Johnson, Gary L. "Quality Management Tools in the EPA Quality System." *Transactions, 49th Annual Quality Congress*. Milwaukee: ASQC, 1995.

The Environmental Protection Agency has used recognized quality management principles to develop and implement an agency-wide quality system for environmental programs. Several quality management tools developed by EPA embody accepted principles that have been used widely in the industry. The EPA's two-tiered process for quality management addresses the organization level and the project level. The management functions common to all activities of the organization are: human resources development and training, quality management plans, and management systems reviews. The technical and management functions unique to a specific project or activity include: data quality objectives process, quality assurance project plans, standard operating procedures, technical assessments, and data quality assessment process. EPA has developed a process that can determine customer requirements for a particular data operation and articulate those requirements in a way that can be used as a basis for planning and designing the data collection program. EPA's Quality System is evolving and will continue to evolve as the quality of EPA decisions reflects the quality of the data used to make them. As a government agency and a steward of the public's trust and funds, EPA makes a continued commitment to quality as an integral part of how it operates.

Keehley, Pat and Steve Medlin. "Productivity Enhancements Through Quality Innovations." *Public Productivity and Management Review*, Winter 1991.

The Internal Revenue Service's tax returns processing center in Ogden, Utah, has made great strides in instilling quality as a core value and establishing quality measures as key operational indicators. An evolution over a period of five years moved the Ogden Service Center from an environment stressing production and efficiency to one oriented toward cooperative total quality management in processing returns. Beginning without Joseph Juran's guidance, but later

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following most of the Juran philosophies, this operation of approximately 6,000 executives, managers, and staff established seven key elements in a quality program: 1. Individual review, 2. Notice analysis, 3. Quality analysis, 4. The Program Analysis System, 5. Process review, 6. Management quality initiatives, and 7. Joint quality improvement teams. These elements worked in concert to produce documented savings of $3.3 million from team initiatives and $8 million from management initiatives.

Leitch, John A. "Study Indicates TQM is Working in the Federal Government." *Tapping the Network Journal*, Winter 1992-93.

In 1992, the US General Accounting Office (GAO) was asked by Congressman Don Ritter to examine TQM in the federal government. GAO sent questionnaires to the heads of more than 2,800 civilian and Department of Defense installations. There appears to be a very active interest in TQM throughout the federal government. About 2/3 of the federal installations surveyed reported that they were involved in some way, and another 15% are planning TQM implementation. Although there is wide interest, TQM efforts are generally new, the average reported age being less than two years. This newness is reflected in employee participation levels that are generally low compared to potential levels reported by mature organizations. Most importantly, analysis indicates that as the organizations mature in TQM, they invest more time and effort in the activities needed to carry on TQM, they find barriers become less difficult, and they reap greater benefits.

Lewis, Andrea. "Quality in Government." *Public Sector Network News*, Winter/Spring 1996. Milwaukee: ASQC, 1996.

Local and statewide fiscal pressures, a no-tax-increase policy, and challenges from the private sector to reduce government red tape and become more competitive compelled a major restructuring effort in Charlotte, NC. Consequently, Charlotte has prioritized city services, reduced layers of management, eliminated 272 positions without layoffs, established a customer service center, and implemented new employee classification and compensation systems. Additionally, more than $2.8 million in savings has been realized through innovations proposed by city employees.

Lowerre, Jim. "If at First You Don't Succeed...." *Quality Progress*, December 1994, pp. 51-54.

Implementation of TQM began slowly at the Army Staff College School of Corresponding Studies (SOCS), but eventually quality improvements did occur. The first two training efforts died out, one based on Deming's 14 points and another on TQM process action teams. The third attempt was successful, but only after a SOCS executive steering committee spent four months defining the school's mission, goals, and objectives. Then, a pilot improvement project succeeded in improving a supply process. Next, quality management boards identified SOCS' processes and their owners, who attended a 15-hour training program in process action. Other successes followed. A sidebar article lists TQM implementation guidelines.

Malec, William F. "A Funny Thing Happened on the Way to Quality." *Public Utilities Fortnightly*, April 1, 1992.

The Tennessee Valley Authority (TVA) initiated a quality program in 1990. In order to rebuild the competitive strength of the country's largest public power producer and regional development agency, TVA was forced to cut the workforce from more than 36,000 in 1988 to 21,000 by the end of 1991. As part of its effort to change an overly bureaucratic corporate culture, TVA made an effort to add humor to the organization An essential element for total quality in any organization is employee empowerment; humor was used as a walking stick to make the journey to total quality a little easier.

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Mani, Bonnie G. "Measuring Productivity in Federal Agencies: Does Total Quality Management Make a Difference?" *American Review of Public Administration*, March 1996.

A case study of total quality management (TQM) implementation in the Internal Revenue Service analyzed the effects of TQM in an agency that is continuing that emphasis as reported in a 1995 article by the same author. The IRS case study is expanded by adding an analysis of data from other federal agencies. The Federal Productivity Management System (FPMS), administered through the US Department of Labor Bureau of Labor Statistics, reports the results of approximately 2,500 output indicators. These data are analyzed to identify relationships between TQM implementation and federal productivity.

McKenna, Joseph F. "Good Government as Good Business." *Managing Office Technology*, October 1996.

This editorial discusses the US government's efforts to implement the TQM principles of the private sector.

Muffolett, Joseph, and Craig Rogers. "Implementing Total Quality Management in the Government." *Transactions, 45th Annual Quality Congress*, pp. 310-315. Milwaukee: ASQC, 1991.

This is a case study on how the Office of Disability and International Operations (ODIO) a major operating component within the Social Security Administration, implemented TQM. The ODIO used the framework of Deming's 14 points as a model for changing business. The authors discuss their step-by-step approach to TQM over a period of three years in three- to six-month cycles. The cycles cover the challenges that ODIO faced from leadership fluctuations, fuzzy support, fear of change and risk, to the cultural coldness and immense resistance they encountered. ODIO learned a great deal about the need for a solid infrastructure and for stable, consistent leadership. In addition, they learned how to assist local managers in changing the way they conduct business. ODIO experienced success with quality action teams, numerous intact family groups, recognition/suggestion initiatives, and training initiatives. Other benefits included high employee morale and improved communications.

Murrin, Thomas J. and Thomas J. Collamore. "The Federal Government Discovers Quality Management." *The Journal for Quality and Participation*, March 1991.

The Malcolm Baldrige National Quality Award process has helped to motivate thousands of US manufacturing and service organizations to make continuous quality improvement a top priority. Other kinds of organizations, such as education and health care, also have become actively involved in quality improvement. Such programs contribute to an enhanced standard of living and national security in the US. While the federal government, like private industry, was slow to recognize quality improvement as a central management strategy, individual agencies have been experimenting with aspects of quality improvement for many years. The Department of Defense has been a quality leader, and its Naval Air Systems Command earned widespread praise in aircraft maintenance. Government-wide attention began in 1985 when President Ronald Reagan launched a major initiative to increase productivity. Although cost reduction was the goal, the initiative evolved into a quality effort.

National Performance Review staff. "Making the Big U-Turn." *Quality Progress*, March 1996, pp. 59-62.

Listening to customers is part of the revolution in how the US government does business. This reinventing of government has been overseen by the National Performance Review, which in 1995 published the customer service standards of 214 federal agencies. The standards ought to increase the confidence that people have in government. They demonstrate that agencies are changing from being manager oriented to customer oriented. Pioneers of reinvention have been the Internal Revenue Service, Social Security Administration (SSA), and Postal Service. They were the first agencies to distribute customer service standards. For example, the SSA publicized in 1993 that it would improve its telephone service, and by 1995 Business Week magazine reported SSA's phone service as best in the country--better even than such recognized leaders as L.L. Bean. Change at the Postal Service started slowly, but on-time

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delivery in 1995 was improved by 84% to 87% over 1993. Keys to these successes include a customer service attitude, the willingness to seek out and listen to customers, and the measurement of performance.

Nichols, Kenneth Landis. "Why Public Organizations Adopt Total Quality Management: Factors Influencing Decisions to Invest in TQM." *Quality Management Journal*, July 1994.

The purpose of this research was to determine the fundamental reasons public organizations choose to implement TQM. The research did not attempt to explore the consequences of TQM implementation. Rather, the study tested two hypotheses concerning why TQM is initially chosen by public organizations. The first hypothesis concerned what triggers, such as an external threat to the organization's viability, drive the need for organizational change. The second concerned what lures, such as the enticement of a solution package, encouraged organizations to specifically adopt TQM. Research was drawn, in part, from case studies of two federal agencies: the Internal Revenue Service and the Defense Logistics Agency. Also used in the research were survey results of TQM activity in more than 2,000 federal installations. Six major conclusions were drawn from the study. First, the triggers and lures have merit as causative factors toward a federal-level organization's commitment to adopt TQM. Second, the order of precedence among the hypothesized triggers and lures was ambiguous. Third, internal leadership was crucial in whether an organization was influenced by pressure for change, inducements toward TQM, or both. Fourth, TQM was disseminated to federal-sector recipients through a variety of mechanisms. Some were typical transfer and diffusion processes. Others, such as the Federal Quality Institute, were less typical. Fifth, agencies were unlikely to adopt TQM in its pure form. Sixth, barriers that organizations perceived as inhibitors to TQM adoption tended to shift in importance once adoption was underway.

"NTEU and IRS Set Total Quality Organization Goals." *The Practical Accountant*, February 1993.

The National Treasury Employees Union (NTEU) and the Internal Revenue Service (IRS) have agreed to strive for a higher level of employee involvement and a more sophisticated labor-management relationship by working jointly to make the IRS a total quality organization.

Ohio Office of Quality Services. *Process Improvement Team Results Book*, 3rd edition (April 1997).

A digest of reports on 136 Ohio state government process-improvement teams whose ideas are saving money, reducing process time, untangling red tape, boosting customer satisfaction, and creating a better work environment. All of the teams profiled in this collection have generated positive, measurable results, such as dollars saved, customer satisfaction increased, process time reduced, errors reduced, and so forth. Every team used the same set of processes and tools to analyze current methods and develop improvements. All collected data and used it to make team decisions, and all teams were empowered to implement their recommended changes.

"Oregon Benchmarks." *Public Sector Network News*, Summer 1994. Milwaukee: ASQC, 1994.

Describes the rationale behind the 272 benchmarks that will serve as critical measures of the state of Oregon's human, environmental, and economic well-being in the next 20 years.

Peterson, Shirley D. "IRS Vision: Changing with America." *Virginia Tax Review*, Summer 1993.

The Internal Revenue Service is in the process of making fundamental changes in the way it administers the tax system. The new IRS vision is one that derives from examining the traditional IRS mission critically in the light of a changing world. The mission remains the same: to collect the proper amount of tax revenue a the least, to serve the public by improving quality, and to perform in a manner that will promote the highest degree of public confidence in the integrity, efficiency, and fairness of the IRS. The IRS has a solid framework in place to guide the changes that are demanded. That framework is formed by three major objectives: 1. To improve voluntary compliance, 2. To reduce taxpayer burden, and 3. To improve quality-driven

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productivity and customer satisfaction. Realizing its mission will require fundamental changes in IRS philosophy, programs, and organizational structure.

"Presidential Quality Awards Presented by Vice President Gore." *Public Sector Network News*, Fall 1995. Milwaukee: ASQC, 1995.

A review of the August 2, 1995 presentation of the Presidential Award for Quality and the Quality Improvement Prototype (QIP) Awards, with synopses of the award winners' achievements. The Presidential Award for Quality was given to the US Army Tank-Automotive Research, Development, and Engineering Center (TARDEC). Recipients of the QIP awards were: the US Army Red River Depot, US Army Armament Research, Development, and Engineering Center (ARDEC), NASA's Kennedy Space Center, and the General Service Administration's Federal Supply Service, Region 2. Also recognized were five other finalists for the QIP award.

Public Sector Network. *PSN Information Packets*. Milwaukee: ASQC, 1995.

ASQC's Public Sector Network Technical Committee has assembled three collections of timely articles on quality in the public sector--one each for the federal, state, and local government levels.

"Quality Comes to Criminal Justice." *Public Sector Network News*, Winter/Spring 1996. Milwaukee: ASQC, 1996.

Changes implemented as a result of team-based quality improvement efforts within the criminal justice system in Benton County, OR, have dramatically reduced the time, effort, and materials required for court cases and the overall time it takes to try a case. Average courtroom time per case has been reduced from 18 hours to four hours; the number of nonproductive hearings has been reduced; and attorney satisfaction with the system has risen.

Ricks, Thomas E. "Lessons Learned: Army Devises System to Decide What Does, and Does Not, Work." *The Wall Street Journal*, May 23, 1997, p.1.

Sainfort, Francois and Guy Van Rensselaer. "Quality Management in the Public Sector: The Next Paradigm." *Proceedings of the 1997 NSF Design and Manufacturing Grantees Conference*. Arlington, VA: National Science Foundation, 1997.

Preliminary findings from this groundbreaking research identified several factors that are key to initial success of implementation of quality initiatives in local government. These factors are: active involvement in quality improvement projects; training in quality improvement; supportive leadership; and positive labor-management relations. This is one of 25 leading-edge quality research projects in the Transformations to Quality Organizations program sponsored by NSF, the Leadership Steering Committee, and ASQC.

"Service Excellence Los Angeles County." *Public Sector Network News*, Summer 1994. Milwaukee: ASQC, 1994.

Public pressure to maintain services in the face of budget cuts led to creation of the county-wide initiative called Service Excellence. A task force of county managers and commissioners, under the direction of the county's Quality and Productivity Commission, sponsored hands-on projects to help county departments move from interest to action. These included piloting Baldrige-type service quality assessments in four county departments; conducting hands-on skill development workshops on customer-focused process improvement and on conducting successful meetings; and downlinking satellite broadcast of the national Quality Forum during National Quality Month.

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"Shaping Mobile's Government for the 21st Century." *Public Sector Network News*, Winter/Spring 1996. Milwaukee: ASQC, 1996.

Steps taken in Mobile, AL, to transform the city government into an efficient, business-oriented organization that is employee-centered and customer-driven are documented in this article. Several early achievements are documented.

Stone, Bob. "A New Way of Governing." Washington: National Performance Review, 1997.

Remarks by the director of the National Performance Review before The Conference Board, New York, March 18, 1997.

Stratton, Brad. "Four More Years of Reinventing Government." *Quality Progress*, March 1997, pp. 45-8.

The National Performance Review (NPR) introduced by President Bill Clinton and Vice President Al Gore in March 1993 will continue to reinvent government. An interview with Director Bob Stone indicated that NPR has helped transform the Federal Emergency Management Agency and US Customs Service. Other organizations, like the Food & Drug Administration, have become less confrontational and more collaborative. In the future, operations like the Patent & Trademark Office and the Federal Bureau of Investigation's fingerprint matching activity could become performance-based organizations. Also in the next four years, administrators will be expected to replicate and spread their earlier successes. Success is most likely to occur where there is a coherent vision, as has been the case at the Social Security Administration. Also needed is personal leadership from administrators as well as legislative reinvention for regulatory simplification. This article includes a sidebar of governmental reinvention success stories in communication, learning, organizational design, partnering, and five other areas.

Stratton, Brad. "Reinventing Government Through Labor-Management Partnerships." *Quality Progress*, June 1994, pp. 31-33.

The American Federation of Government Employees (AFGE) 1994 Training Conference was an opportunity to explore how change affects the government workplace. As part of the National Performance Review (known informally as "Reinventing Government"), the Clinton administration established the National Partnership Council. The Council has recommended that managers, employees, and union representatives be partners in seeking innovative dispute-resolution methods, in improving the federal government's hiring system, and in reforming the General Schedule Classification System. Speakers at the conference emphasized partnership. Vice President Gore urged labor-management partnerships and improved service. Labor Secretary Reich and AFGE Local 12 President Linda Copening demonstrated how partnerships work in the Labor Department. Other speakers recommended that: union leaders participate in making business decisions; union members join in planning for total quality management; and everyone recognize that partnerships affect corporate culture, strategy, structure, skills, and leadership.

Stratton, Brad. "How the Government is Reinventing Itself." *Quality Progress*, December 1993, pp. 21-34

This is a chapter-by-chapter analysis of the National Performance Review's 1993 report known as "reinventing government." Vice President Al Gore chaired the Review, which has produced the most important quality document of the year. The introduction of the report describes waste and ineffectiveness in government. Each of the remaining chapters provides action items to improve government. To cut red tape, action items include: streamlining the budget process; decentralizing federal personnel rules; simplifying federal procurement procedures; and eliminating unneeded regulations. To make the government responsive, actions include: improving service to citizen customers and making government monopolies like the Government Printing Office compete with the private sector. To empower federal employees, the action items are: decentralizing decision making; implementing accountability and reward systems; providing employees with training, technology, and other tools; and infusing the government with vision and leadership. To be productive, recommended actions are: eliminating

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unneeded programs; encouraging innovation; and reducing cycle times of programs. The article includes sidebars on reactions to the National Performance Review report by Philip B. Crosby, Armand V. Feigenbaum, Brian L. Joiner, and Joseph M. Juran.

Stratton, Brad. "The Continuing Expedition of Federal Quality Missionaries." *Quality Progress*, July 1993, pp. 35-37.

The Federal Quality Institute helps federal agencies initiate and develop quality programs. The five teams at the Institute have the following responsibilities: consulting (a ten-member team), new-product research (eight members), internal administration (six members), transition and conference arrangements (6 members), and Federal Supply Schedule (five members). The Institute holds an annual conference and eight to ten regional conferences. Other more specialized services include one- to ten-day sessions on quality building blocks, action plan development, or supplier-distributor relationships. The Institute does not compete with quality consultants from the private sector. Instead, it acts as a bridge between private consultants and federal agencies via the Federal Supply Schedule. This Schedule is a list of approved private contractors that can supply quality consulting services. The US Office of Personnel Management handles procurement procedures for the Schedule.

Stratton, Brad. "Federal Quality Missionaries." *Quality Progress*, May 1991, pp. 67-69.

The Federal Quality Institute (FQI) provides support services for quality initiatives in the federal government. Although it is a government agency, the FQI does not receive direct funding. Therefore, its 34 employees are on loan from agencies such as the Department of Agriculture and Environmental Protection Agency. FQI services include: a one-day overview seminar on TQM; matching of agencies with outside TQM training organizations through its Federal Supply Schedule for Total Quality Management Implementation; start-up seminars for top management involved in quality implementation; and a model projects program that provides expertise for agencies that have gone beyond the first steps of implementation. Success of quality initiatives in government is recognized by the Presidential Award for Quality and Productivity. The Naval Air Systems Command has been the first and only winner of this award. Agencies noted as Quality Improvement Prototypes include the Internal Revenue Service Cincinnati Service Center (for pioneering electronic tax returns), the Defense Logistics Agency Defense Industrial Supply Center, and the National Aeronautics and Space Administration Johnson Space Center.

"The 1996 Presidential Award for Quality." *The Journal for Quality and Participation*, July/August 1996.

An account of the US Army Armament Research, Development & Engineering Center's (ARDEC) experiences and practices which led to its winning of the 1996 Presidential Award for Quality. An understanding of statistical theory and the impact of variation combined in ARDEC's efforts with a rediscovered respect for: 1. Individual talent, 2. Experience, 3. Creativity, and 4. Customer requirements and expectations. ARDEC's drive for total quality shifted to a focus on cultural change that addresses process improvements in all technical areas and includes business and support processes, employee development, and customer satisfaction.

"The Union/Management Partnership: Everyone Wins." *Public Sector Network News*, Winter/Spring 1996. Milwaukee: ASQC, 1996.

Union and management join forces to focus on improving processes and rid workflows of non-value-added steps, resulting in elimination of waste and inefficiencies and improved labor relations. Featured are cases from three Massachusetts municipalities: the Town of Natick Department of Public Works, the Town of Needham Department of Public Works, and the Milford Town Library.

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"Total Quality Service in Gwinnett County." *Public Sector Network News*, Fall 1995. Milwaukee: ASQC, 1995.

Details the multi-faceted approach used by the Gwinnett County (GA) Tax Commissioner's Office to introduce quality concepts into daily operations. As a result, citizens are seeing dramatic reductions in waiting times for vehicle registrations and license plates, more senior citizens are receiving the tax exemptions for which they qualify, and the rate of tax delinquencies has been reduced.

"TQM in Government: Has Its Big Moment Come?" *Training*, January 1995.

With the Republican Congress determined to cut the federal budget, and with new House Speaker Newt Gingrich being a fan of the late W. Edwards Deming, could this be a watershed moment for total quality management in government?

Vansuch, Gary M. "Achieving Alignment and Improvement Through Integrated Business Planning." *Transactions, 49th Annual Quality Congress*. Milwaukee: ASQC, 1995.

Tennessee Valley Authority revamped its business planning process to be more responsive to customers and potential customer needs. It was implemented in four stages: gathering customer needs and expectations, developing goals and objectives to meet those needs, planning improved processes and operations to guide the organization, and periodic review and modification of the plans. After meeting with customers, three goals were developed: employees first, competitive rates, and environmental leadership. Seven steps of business planning were developed to achieve these goals within an organized, prioritized framework. Periodic reviews are a vital part of keeping focused and maintaining progress. The process helped TVA to align itself to critical success factors and institute TQM in every aspect of its operations. This has in turn aligned TVA with the needs of its customers and allowed it to be more responsive to those needs.

Vansuch, Gary M. "The Application of Statistical Thinking and Systems Theory to Management." *Transactions, 48th Annual Quality Congress*. Milwaukee: ASQC, 1994.

The US Tennessee Valley Authority (TVA) used principles of statistical thinking and systems theory to transform its organizational management processes and become more competitive. TVA's internal quality assessment methodology was based on the criteria for the Malcolm Baldrige National Quality Award. Internal quality assessment teams, who were trained in the basics of TQM, performed primary assessments which were rolled up into higher-level assessments. Through a series of customer focus workshops, TVA identified stakeholders and their needs. They also defined optimization, the accomplishment of the aim of the system. Optimization requires systems thinking to see interrelationships rather than cause-effect chains and to see processes of change rather than snapshots of change. Statistical thinking also is required; it included a basic understanding of variation and an understanding of common causes and special causes. Leadership skills required for stable systems are different than the leadership skills required for unstable systems. Confusion concerning the state an organization is in leads to misguided decisions and disaster. Two costly errors are: 1. Treating something as a special cause when it is actually a common cause, and 2. Attributing something to common cause when it is actually from a special cause.

Warner, David. "Bureaucracy, Heal Thyself." *Nation's Business*, October 1993.

The Federal Quality Institute, part of the US Office of Personnel Management, was formed in 1988 to help implement TQM throughout the federal government. Although there have been TQM successes within the federal government, many federal agencies are experiencing the same problems that some businesses have faced in implementing TQM. The Clinton administration says it will go beyond the classic TQM approach of improving what is already there and will restructure, streamline, and, if necessary, eliminate programs. In the administration's words, it wants to reinvent government. Reengineering and TQM have been implemented with varying degrees of success in state and local governments. Even if the Clinton

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administration's proposed reengineering efforts are successful, however, the White House must also be restructured if all other changes are to succeed, says Itzhak Adizes, a management consultant.

West, Jack. "Testimony of ASQC Before the National Commission on Restructuring the IRS." Milwaukee: ASQC, September 1996.

Declining ratings of the Internal Revenue Service in the American Customer Satisfaction Index (ACSI) are presented. A recommended framework for improvement is discussed, based on a regimen of organizational self-assessment according to the criteria of the Malcolm Baldrige National Quality Award.

"What Do You Mean It Doesn't Work?" *Public Sector Network News*, Winter/Spring 1996. Milwaukee: ASQC, 1996.

Documents successes achieved by using quality tools and teams in four California state agencies: State Parks, Department of Economic Opportunity, Department of Motor Vehicles, and Atascadero State Hospital.

Wilson, Lawrence A. "Government/Industry Update on Commercialization and Standards." *Transactions, 50th Annual Quality Congress.* Milwaukee, ASQC, 1996.

A panel discussion by leaders of the Government/Industry Quality Liaison Panel (GIQLP) provided an overview of the goals, activities, and results of GIQLP activities. GIQLP has been addressing quality changes in DoD policies, procedures, and performance as related to initiatives on streamlining/procurement/commercialization. The panel discussed how cancellation of quality specifications and changes in procurement have caused government and industry to approach their responsibilities in revolutionary ways. Subjects included: a single system of quality for government procurement, acceptable/alternate industry baseline quality systems, definitions and use of advanced quality concepts for contract awards, and changes in government oversight.

Wood, Patricia B. "How Quality Government is Being Achieved." *National Productivity Review*, Spring 1992.

The Aeronautical Systems Division (ASD) of the US Air Force Systems Command at Wright-Patterson Air Force Base in Dayton, OH, is one of five federal organizations selected as Quality Improvement Prototype Award winners for 1992. ASD provided the superior technology that US servicemen and women used in the Persian Gulf war. The federal government, the largest employer in the country, is turning to quality because the concept is too important to be championed only by private sector leaders. A federal organization must take four basic steps to put quality principles to work: 1. Acquire the necessary knowledge, 2. Develop a vision, 3. Provide training for all employees, and 4. Seek continuous improvement.

Yates, Richard A. "Establishing a TQM Culture Within a Military Medical Environment." *Transactions, 47th Annual Quality Congress.* Milwaukee: ASQC, 1993.

TQM in a military air logistics center hospital overcame several burdens, including the conflict between rank and empowerment as well as unsuccessful experiences with traditional quality assurance programs. QA programs had been implemented by regulation in the 1980s. But today TQM embraces the idea that military leaders are benevolent dictators who provide direction to allow their staff to accomplish their missions. TQM at this site used the QP4 program to emphasize people, process, product, and performance. TQM training occurred in teams, each consisting of all members of a section, from supervisors to the newest workers. Section teams initially were slow to offer suggestions until a recommendation to create a single labor and delivery room eliminated unnecessary movement of patients. Then other team recommendations led, for example, to an increase of 221% in patients seen at the dental clinic. Confidence in TQM and continuous quality improvement has replaced fear of the old QA programs. A recognition system has helped this attitude change. A quality council gives a

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quarterly award for teamwork and initiative, and there is a Quality Team of the Year award. Future improvement will come from comparing the hospital to other hospitals, both civilian and military, and by employing new TQM tools as they are developed.

Zentmyer, Robert K. and James A. Zimble. "The Journey from Bureaucracy to TQM." *Quality Progress*, September 1991, pp. 61-66.

At the US Navy Medical Department, the transition to continuous quality improvement has involved six areas. First, this move to TQM began with awareness training for department leaders. Second, the department developed a quality management infrastructure. It includes cross-functional executive steering councils and quality management boards (QMBs). The QMBs authorize process action teams to investigate processes and recommend corrective action. Third, networking allows the department to learn about TQM from other organizations. Good sources of information have been the Federal Quality Institute, the Hospital Corporation of America, The Healthcare Forum, and the National Demonstration Project on Quality Improvement in Healthcare. Fourth, the department has established a mission, vision statement, and guiding principles. Fifth, a strategic planning process moves the organization toward its vision. Sixth, an implementation road map helps managers spread the TQM philosophy to all members of the organization. The road has many places for training and mid-course assessments.

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Mr. HORN. Dr. Harry Hertz is Director of the National Quality Program for the National Institute of Standards and Technology, U.S. Department of Commerce. Thank you for coming over.

Mr. HERTZ. Thank you, Mr. Chairman. I am pleased to appear before you in the 10th year of the Malcolm Baldrige National Quality Award program, to give you an update and 10-year perspective on quality and performance improvement in the United States. I would like also to outline some of our thinking on future challenges.

On August 20, 1987, President Ronald Reagan signed Public Law 100–107, the Malcolm Baldrige National Quality Improvement Act of 1987 with the purpose of providing a national program to recognize U.S. companies and other organizations that practice effective quality management, and as a result, make significant improvements in the quality of their goods and services, and also to disseminate information about their successful strategies.

From the start, our definition of "quality management" has focused both on the customer and on operational performance. We view quality as delivering ever-improving value to customers while at the same time maximizing the overall effectiveness and productivity of the delivering organization.

The Baldrige Award Criteria, now called the Criteria for Performance Excellence, to emphasize their applicability to all types of organizations, have been developed through extensive interaction with the private sector. The criteria are based on 11 core values. They are: customer-driven quality; leadership; continuous improvement and learning; employee participation and development; fast response; design quality and prevention; long-range view of the future; management by fact; partnership development; company responsibility and citizenship; and a results focus.

The criteria provide a systems perspective to performance management, focusing on assessment of leadership, strategic planning, customer and market focus, information and analysis, human resource development and management, process management, and business results.

The criteria have evolved over the 10-year period since 1987, as our understanding of quality has evolved and matured. This evolution has led to the fundamental reconsideration of even the term "quality," to a concept better characterized as "performance excellence" that embodies every aspect of an organization's performance management system. Embodied in this shift is a maturation in many aspects of our thinking on performance management.

We have evolved through stages of quality, from quality assurance to process quality, to quality management, and now to overall performance management. This mirrors the U.S.' evolution from a singular need to improve the quality of products and services to a recognition that competitiveness and performance excellence require a focus on the system.

As the U.S. focus on quality, competitiveness, and performance excellence has grown, the Baldrige approach has spread across the United States, and around the world. There are currently more than 40 State and 25 international Baldrige-based programs. The Office of Personnel Management, as Steve Bailey already mentioned, administers the President's Quality Award, a Baldrige-

based award for Federal Government agencies. Many of the State award programs include State agencies in their eligibility categories. While the National Quality Program shares Baldrige materials with all these programs, and is gratified by the widespread adoption of Baldrige principles, we do not monitor progress of the many State and Federal agencies that use the Baldrige criteria.

With the evolution and maturation of our focus, from a focus on quality management to a focus on performance management and performance excellence, we have learned a number of important lessons. They include: Quality management is organizational management; the two cannot be viewed as separate activities with independent leadership. Management of process quality is process management of all key product, service and support processes. When you manage, align and coordinate key processes, you manage and improve their quality. Quality results are an organization's business results. If the quality results are not focused on operational, product service, and bottom line financial performance, they are not addressing what is important to the organization. Numbers are plentiful; few organizations go the extra step of transforming numbers into vital data for monitoring progress, even fewer organizations align, correlate, and analyze data to permit fact-based strategic decisions. Mission, vision, values, strategies, key processes, and key measures are related. Many organizations still do not relate key measures to their key processes, much less to their forward-looking strategies. Performance excellence is a journey; it is not a destination that is ever reached in a globally competitive economy and marketplace.

In pilot studies in 1995, we learned with some translation to make the criteria understandable and more relevant to specific settings, the education and health care sectors can also use and benefit from the Baldrige approach to quality performance and excellence. Encouraged by the results of these pilot studies and by the support we have received from the education, health care, and business communities, we are looking forward to the creation of Baldrige Award categories for education and health care in 1998, using the proven public-private partnership approach that already exists for the business award program.

We have also learned that quality pays. In a study conducted by the U.S. General Accounting Office in 1991, of 20 companies that were among the highest scoring Baldrige applicants in 1988 and 1989, the GAO observed, companies that adopted quality management practices experience an overall improvement in corporate performance. In nearly all cases, companies that used quality management practices achieved better employee relations, higher productivity, greater customer satisfaction, increased market share, and improved profitability.

In a study we conducted in 1994, for the 10 Baldrige Award winners analyzing productivity enhancement as annual revenue increase per employee, a median average annual compounded growth rate of 9.4 percent and a mean of 9.25 percent was achieved, far outstripping the economy as a whole.

In our annual stock performance study, conducted in December 1996, the group of 16 publicly traded winners outperformed the S&P 500 by about 3 to 1, that is 300 percent. The 48 publicly trad-

ed companies receiving site visits as part of the Baldrige award application process outperformed the S&P 500 by 2 to 1 or 200 percent.

Looking to the future, I believe the most significant challenge facing U.S. organizations today is the development of a fully implemented systems approach to performance management, to understand and guide systemic actions, to create value, and to learn as an organization. The challenge is to use customer and market knowledge in setting strategy, to use strategic directions in helping to create economic and customer value, to define key processes and human resource needs in a globally diverse work force, to understand the requisite information needs and appropriate analyses that clarify business results, and from those results, drive continuous organizational learning and improvement.

Thank you, Mr. Chairman. I would be pleased to answer any questions you may have.

Mr. HORN. Well, I thank you for that very thorough statement.

[The prepared statement of Mr. Hertz follows:]

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Thank you Mr. Chairman and Members of the Subcommittee.

On August 20, 1987 President Ronald Reagan signed Public Law 100-107, the Malcolm Baldrige National Quality Improvement Act of 1987 with the purpose of providing a national program to recognize U.S. companies and other organizations that "practice effective quality management and as a result make significant improvements in the quality of their goods and services" and to disseminate information about successful strategies.

Background

In the 1980's, the United States was facing a crisis in quality that was threatening our economic well-being. This was recognized in the Congressional findings stated in the Malcolm Baldrige National Quality Improvement Act of 1987:

> "(1) the leadership of the United States in product and process quality has been challenged strongly (and sometimes successfully) by foreign competition, and our Nation's productivity growth has improved less than our competitors over the last two decades;
>
> (2) American business and industry are beginning to understand that poor quality costs companies as much as 20 percent of sales revenues nationally, and that improved quality of goods and services goes hand in hand with improved productivity, lower costs, and increased profitability;
>
> (3) strategic planning for quality and quality improvement programs, through a commitment to excellence in manufacturing and services, are becoming more and more essential to the well-being of our Nation's economy and our ability to compete effectively in the global marketplace;
>
> (4) improved management understanding of the factory floor, worker involvement in quality, and greater emphasis on statistical process control can lead to dramatic improvements in the cost and quality of manufactured products;
>
> (5) the concept of quality improvement is directly applicable to small companies as well as large, to service industries as well as manufacturing, and to the public sector as well as private enterprise;
>
> (6) in order to be successful, quality improvement programs must be management-led and customer-oriented and this may require fundamental changes in the way companies and agencies do business,"

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The Malcolm Baldrige National Quality Award Program is now in its tenth year of a successful public-private partnership with the purpose of improving U.S. quality and competitiveness.

Definition of Quality

From the start our definition of quality management has focused both on the customer and on operational performance. We view quality as *delivering ever-improving value to customers while at the same time maximizing the overall effectiveness and productivity of the delivering organization.*

The Baldrige Award Criteria, now called the Criteria for Performance Excellence to emphasize their applicability to all types of organizations, are based on eleven core values:

- Customer-Driven Quality
- Leadership
- Continuous Improvement and Learning
- Employee Participation and Development
- Fast Response
- Design Quality and Prevention
- Long-Range View of the Future
- Management by Fact
- Partnership Development
- Company Responsibility and Citizenship
- Results Focus

The Criteria provide a systems perspective to performance management, focusing on assessments of: leadership, strategic planning, customer and market focus, information and analysis, human resource development and management, process management, and business results.

Evolution of Quality

The Criteria have evolved over the ten-year period since 1987, as our understanding of quality has evolved and matured. This evolution has led to the fundamental reconsideration of even the term "quality", to a concept better characterized as "performance excellence" that embodies every aspect of an organization's performance management system. Embodied in this shift is a maturation in many aspects of our thinking on performance management:

- We have evolved through stages of quality assurance to process quality to quality management, and now to overall performance management. This mirrors the United States' evolution from a singular need to improve the quality of products and services to a recognition that competitiveness and performance excellence require a focus on the system. This system yields a composite of business results, including customer satisfaction; financial performance; product, service, and strategic performance; and all

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aspects of operational performance.

- A focus on strategic quality planning has given way to overall strategic planning. An important reason behind this change is the recognition that quality planning is only one component in overall strategic planning.

- An early focus on customers has matured to a focus on customers and markets, with a need to understand not only today's customers, but also tomorrow's customers and tomorrow's markets in a changing competitive and technological environment.

- Human resource utilization, with a component of employee training, has evolved into human resource development and management. This evolution is largely due to U.S. companies recognizing the importance of developing human resources and viewing human resources as internal customers.

- A focus on supplier quality has given way to a focus on supplier and partnering arrangements and how these opportunities can improve the performance and capabilities of both parties.

- An emphasis on individual quality improvement activities evolved into a focus on cycles of evaluation and improvement in all key areas of an organization's operations. This has matured into an emphasis on improvement as a basis for overall organizational learning: U.S. organizations are learning how to learn. With growing maturity has come a fuller understanding of the meaning of improvement.

As the U.S. focus on quality, competitiveness, and performance excellence has grown, the Baldrige approach has spread across the United States (and around the world). There are currently more than 40 state and 25 international Baldrige-based programs. The Office of Personnel Management administers the President's Quality Award, a Baldrige-based award for federal government agencies. Many of the state award programs include state agencies in their eligibility categories. While the National Quality Program (NQP) at the National Institute of Standards and Technology (NIST) shares Baldrige materials with all these programs and is gratified by the widespread adoption of Baldrige principles, we do not monitor the progress of the many state and federal agencies that use the Baldrige criteria.

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Lessons Learned

With the evolution and maturation of our focus, from a single-minded focus on quality to a focus on performance management and performance excellence, we have learned a number of important lessons:

- Quality management is organizational management. The two cannot be viewed as separate activities with independent leadership.

- Management of process quality is process management of all key product, service and support processes. When you manage, align and coordinate key processes, you manage and improve their quality.

- Quality results are an organization's business results. If the quality results are not focused on operational, product, service and bottom-line financial performance, they are not addressing what is important to the organization.

- Numbers are plentiful; few organizations reduce numbers to vital data for monitoring progress. Even fewer organizations align, correlate and analyze data to permit fact-based strategic decisions.

- Mission, vision, values, strategies, key processes, and key measures are related. Many organizations still do not relate key measures to their key processes, much less to their forward-looking strategies. Frequently, strategies are not tied to organizational vision and values.

- Performance excellence is a journey! It is not a destination that is ever reached in a globally competitive economy and marketplace.

In pilot studies in 1995, we learned that, with some translation to make the Criteria understandable and more relevant to specific settings, the education and health care sectors can also use and benefit from the Baldrige approach to quality and performance excellence. Encouraged by the results of these pilot studies and by the support we have received from the education, health care, and business communities, we are looking forward to the creation of Baldrige Award categories for education and health care in 1998, using the proven public/private partnership approach that already exists for the business award program.

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Quality Pays

We have also learned that quality pays. In a study (GAO/NSIAD-91-190) conducted by the U.S. General Accounting Office (GAO) in 1991 of 20 companies that were among the highest scoring Baldrige applicants in 1988 and 1989, the GAO observed:

- Companies that adopted quality management practices experienced an overall improvement in corporate performance. In nearly all cases, companies that used total quality management practices achieved better employee relations, higher productivity, greater customer satisfaction, increased market share, and improved profitability.

In a study conducted in 1994 by the NQP, for the ten Baldrige Award winners that analyzed productivity enhancement as annual increase in revenue/employee, a median average annual compounded growth rate of 9.4% and a mean of 9.25% was achieved.

In the NQP's annual stock performance study conducted in December 1996, the five whole company Baldrige Award winners outperformed the S&P 500 by 3.5 to 1, achieving a 380 percent return on investment compared to a 110 percent return for the S&P 500. The group of 16 publicly traded winners -- which includes the five whole company winners and the parent companies of winning subsidiaries -- outperformed the S&P 500 by about 3 to 1, a 325 percent return on investment compared to a 112 percent return for the S&P 500. NQP studies in 1994 and 1995 also found that Baldrige Award winning companies outperformed the S&P 500. A similar investment study for the 48 publicly traded companies receiving site visits as part of the Baldrige Award application process revealed that this group outperformed the S&P 500 by 2 to 1, achieving a 167 percent return on investment compared to an 83 percent return for the S&P 500.

Future Evolution of Quality

As quality concepts continue to evolve, I believe quality will eventually disappear as a separate discipline as it increasingly becomes part of the normal business infrastructure. Some consequences of this change will include the following:

- The existence of separate quality departments will be rare, as quality becomes a line function.
- Quality professionals will be replaced by performance specialists focused on all aspects of performance assessment and improvement.
- There will no longer be a separate quality language or jargon.
- The "quality tools" will become part of the normal performance management arsenal.
- Organizations will evolve from being quality-driven to being strategy-driven.

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Future Challenges

From a Baldrige perspective, the most significant challenge facing US organizations today is the development of a fully implemented systems approach to performance management. To meet this challenge, companies must become not only customer driven but also market driven. They must understand the needs of their current and future customers, and their current and future markets in a globally competitive economy. Companies must learn how to focus on and optimize their supply chains with attention to strategic alliances and strategic partnering.

All successful performance systems rely heavily on performance measurement and most organizations are not yet adept at analyzing organizational level performance -- that is the ability to select key measures that will yield needed information, the ability to integrate those key measures, draw correlations, and use the resultant information to analyze organizational-level performance in a way that permits action. Implicit in this analysis of performance and selection of key measures is determining the composite of results that reflect overall performance. This composite, which should be viewed as an organization's business results, must include customer, financial, marketplace and operational results. Simple measures of product and service quality are not sufficient to address customer satisfaction without incorporating customer value into the determination. The greatest challenge is to define those operational results used to monitor key process performance and monitor accomplishments relative to strategic goals and directions.

Finally, the challenge for all organizations is to understand and guide systemic actions, to create value, and to learn as an organization. The challenge is to use customer and market knowledge in setting strategy, to use strategic directions in helping to create economic and customer value, to define key processes and human resource needs in a globally diverse workforce, to understand the requisite information needs and appropriate analyses that clarify business results, and from those results drive continuous organizational learning and improvement.

The key challenges as we face the 21st century thus include:

- Developing a fully implemented systems approach to performance management
- Becoming market driven, as well as customer driven
- Optimizing supply chains, including strategic alliances and strategic partnering
- Developing the capability to analyze company level performance
- Determining a full composite of business results
- Incorporating value creation and assessment into economic and customer considerations
- Performing in a global economy with a globally diverse workforce and cultures
- Defining operational results used to monitor accomplishments relative to strategic goals
- Understanding and guiding organizational learning.

Thank you, Mr. Chairman, and I would be pleased to answer any questions that you may have.

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Gaithersburg, MD 20899

Born: February 25, 1947
New York, NY

Dr. Hertz has made presentations to a wide variety of audiences on the Malcolm Baldrige National Quality Award and its criteria for measuring performance excellence, on quality management, and on health care quality improvement. He is the author or co-author of over 50 publications and holds I patent.

Experience:

Joined the National Bureau of Standards (now the National Institute of Standards and Technology) in 1973.

Became Director of the Office of Quality Programs, the NIST Office responsible for administering the Malcolm Baldrige National Quality Award in 1996. Served as the Program's Deputy Director from 1992-1996.

Director of the Chemical Science and Technology Laboratory, 1991 - 1992. In September 1991, assigned collateral duties in the Office of Quality Programs.

Director of the Center for Analytical Chemistry, 1983 - 1991.

Served in several management and chemical research positions from 1973 to 1983.

Education:

B. S. - Polytechnic Institute of Brooklyn (1967)

Ph.D. - Massachusetts Institute of Technology (1971).

Alexander von Humboldt Fellowship at the University of Munich, Federal Republic of Germany (1971-73).

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Committees, Awards, Honors:

Advisory Committees of the United Way and the American Customer Satisfaction Index, 1996 -

Steering Committee of the Conference Board Total Quality Management Center, 1995 -

National Committee for Clinical Laboratory Standards: Board of Directors 1979-1983; President 1986-1988.

American Society for Mass Spectrometry: Secretary 1983-1985.

Elected Fellow of the American Association for the Advancement of Science (AAAS) in 1992.

Received the 1986 Arthur S. Flemming Award as one of ten outstanding civil servants under age 40.

Received the Department of Commerce Bronze Medal for Superior Federal Service in 1981; Department of Commerce Silver Medal for Meritorious Federal Service in 1986; Senior Executive Service Meritorious Executive Rank Award in 1987.

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Mr. HORN. I am sort of motivated to ask you one question to start with, and don't take it as a hostile question; I am just curious. Does the National Institute of Standards and Technology have any total quality management programs?

Mr. HERTZ. We have done a Baldrige assessment of our own office at NIST, as have several other units within NIST begun to do the same. And we have undertaken a significant strategic planning exercise as part of an overall activity for NIST.

Mr. HORN. You have a very scientific high quality organization. What have you discovered there that might be different from a more typical governmental process oriented, let's get the job done, let's serve the public directly organization?

Mr. HERTZ. I think what we have learned is a focus on customer is equally applicable, that the scientific discovery process is not one that lends itself fully to the exact same process management protocols that some other processes do.

Mr. HORN. Well, what could we learn from the science groups that perhaps we need to learn and apply in the nonscience groups?

Mr. HERTZ. I think what we can learn from the science groups is the importance of strategic planning, certainly that is important in a technological environment. I think we can also learn that as we are doing routinely at NIST these days, we focus each year on activities that need startup and activities that have also reached their useful life and to use that as an internal renewal process, and I think other organizations could benefit from that.

Mr. HORN. Mr. Bailey, I was most interested in your testimony. On the first page you note there are three agencies you feel were early leaders within quality management within the Federal Government. One is the Department of Defense, another is the IRS, and the third is the Tennessee Valley Authority.

Well, I am fascinated on the IRS and the Department of Defense in this sense, that we have on the books the Chief Financial Officers Act and a requirement that all Federal agencies give us a balance sheet by the fall, essentially, of this year, and the two agencies that we have known for 5 years will not be able to give us a balance sheet are two of your three; namely, the Department of Defense and the IRS.

Can you explain how they can be conducting quality management work and not get at the basic problem, that they can't produce a balance sheet and there is no hope they will produce a balance sheet this year?

Mr. BAILEY. I can't answer that directly. I guess part of the comment was that they were early leaders, and I think you can learn from some of their less than successful implementations, perhaps, and that is certainly one of them.

One of the key concerns or criticisms of total quality management, or TQM, has been the fact it never delivered, in many instances, the bottom line results, and there are key reasons for that, and if you learn from those, you are better off in correcting your mistakes and going forward.

Again, the IRS was an early leader; however, we noted that they are last in the American Customer Satisfaction Index. Of course, that is a little bit unfair in one sense because that is measuring the customers of public sector companies as well, so maybe it is

hard to envision yourself in the mix with all the other folks who are looked at in that index, but then again maybe not.

But I think there is really an opportunity in those areas that you mentioned to really improve upon what they have started. At least they have an appreciation for what it is they need to be doing, but there are a lot of opportunities, especially in those agencies, that need to be worked on.

Mr. HORN. Obviously, it leads me, and some of the testimony leads me even further in the direction that are we taking the easy tasks for total quality management and avoiding the tough tasks? I mean, I am not against incrementalism, this is maybe the best way to go, and I am not knocking that, I am just saying, are we just doing the easy stuff?

Mr. BAILEY. I think that is a fair statement. There is always a tendency in the private and public sector to go after the so-called easy "low hanging fruit" and I think that is appropriate to do if it is hanging there. However, I think this avoids actually bellying up to some of the hard but important breakthrough changes you need to do, some of which Harry talked about. The actual focus on a strategic management of the overall quality and performance effort, is, I think, one of the failings of many of the applications of quality management techniques, both in the public and private sector.

Mr. HORN. The rest of the questions are to both of you, now that I have gotten away with those two. I am curious, what are the key factors that really make total quality management work? We have a lot of experience; now we have had it on the small and the large problems. If you do nothing else with the total quality management effort, what is the absolute essence of doing something with that effort?

Mr. HERTZ. Well, several things. First, I think leadership commitment is an absolute necessity. Without the commitment of top leadership of an organization, what we find is that there are fragmented efforts, frequently not tied to the overall strategy of the organization, and that generally leads to failure.

The second is a lack——

Mr. HORN. Why don't we take them one at a time? Give me an example of where you think leadership is an absolute key and where you have seen it failing and where you have seen it succeed with leadership commitment.

Mr. HERTZ. I think where it certainly succeeds is with the Baldrige Award winners. Where it fails is from many of the companies we hear from. We conduct four regional conferences each year in conjunction with the Conference Board, at which Baldrige winners share their strategies. I would say the most commonly asked question at that conference from the audience, every time, and I was at one in Chicago last week, is, I can't get my leadership to buy in, we are floundering, how do I turn around and bring my leadership on board?

What we are seeing is incremental improvement in pockets of the organization and it is not focused on the organization as a whole.

Mr. HORN. Since you are the administrator of the Baldrige Award, why is it that the Baldrige Award has no relationship to governmental processes? Originally, it was designed from the pri-

vate sector, the profitmaking sector. Now how much of the Baldrige Award criteria can we really translate to Government processes?

Mr. HERTZ. I think the President's Quality Award shows we can use the criteria basically, totally, as is, in the Government. Indeed, if one looks at the State award programs that are based on Baldrige, many of them are open to State agencies. They are open with the exact same criteria, no rewriting of the criteria, and there have been winners at the State level that are State agencies whom are education systems within States. Police barracks within States have won them, so that there are ample examples now of State agencies that have adopted Baldrige successfully, as is.

Mr. HORN. And we look forward to their testimony this morning, of showing us how it is done.

What leads to the failure of total quality principles? You have mentioned leadership has to be there. What else is an absolute essential?

Mr. HERTZ. I think another absolute essential is a focus on results. I think the failure in a lot of early attempts at quality management was a total focus on process, find a process that could use improvement, incrementally improve every process that can be improved, without ever focusing on those that really impact results or strategic direction. I think what we learned over time is if you divorce your quality management or quality improvement from your organizational management, you tend to get incremental improvement of processes at local levels without ever tying to the overall organizational strategy. You can improve processes that don't particularly impact the organization's overall performance.

Mr. HORN. As you know, we have put substantial interest in the Government Performance and Results Act. How would you tie GPRA, as they call it—and I will call it the Government Performance and Results Act. How would you tie that to the total quality management effort?

Mr. HERTZ. I think the intent there actually succeeds and ties it very closely because there is a requirement for both performance measures and strategic planning. The intent, obviously, to tie key performance measures to strategy for the organization, and I think, as organizations do that, they will be successfully implementing quality management.

Mr. HORN. Hopefully, the results part would include some realistic measurable criteria and I agree with you completely on leadership, but I think, second, you are absolutely right, that is the most difficult situation, how do we know we have accomplished that and is it easily recognizable by people engaged in the effort? Because if they are engaged and we haven't accomplished something, that just leads to frustration after a year or 2 year's work. Any other things that are absolute essences here? Leadership, results, orientation?

Mr. BAILEY. Let me say, Harry and I didn't compare our lists, but he listed, in my order, No. 1 and No. 2, leadership and results orientation. Those are 2 of the 11 characteristics that Harry mentioned in his testimony. The third one I usually call out in my list is customer-driven quality, or maybe constituent-driven quality might be the particular buzz word here.

You need the leadership at the top. You need to focus on real measures, but you need to be doing it in an environment that is fulfilling, getting better performance for those customers or those constituents. You need to always have to focus on who it is you are serving there, so I think those three are the 3 of 11 that really stand out.

Mr. HORN. And that is certainly the same as the private sector in the sense of the customer is always right. You take it, Target stores and others that have made a fortune because they trust the customer, even if the customer comes in to bring them goods to hand back from some other store that is not one of their chains, that wins them friends.

Now when we look at these efforts, what leads to the failure of the total quality principles in an organization, is it simply the reverse, the lack of leadership, lack of results orientation, and the lack of looking at the needs of the customer, internally and externally? What else happens?

Mr. HERTZ. I think the other key point to failure is a lack of long-term commitment, commitment for a year or two, achieving some incremental improvement and then walking away from the effort, the lack of strategic vision, the lack of long-term commitment, and that is particularly challenging, obviously, in any organization where leadership changes with frequency.

Mr. HORN. Could you cite me a few examples in Government over the last 20 years where there has been an effort, a buzz word approach, I might say, and nothing much has happened, and people are standing around saying, this too shall pass?

Mr. HERTZ. I am not sure I am an expert on the history of buzz words.

Mr. HORN. I am thinking you may be too young to remember PPBS, in terms of budgeting and that kind of thing.

Mr. HERTZ. I don't remember that. I remember MBO, I remember ZBB, and I am afraid that TQM has three letters that have much the same potential. And I think that is, among other things, why we have actually in the Baldrige criteria departed from the word "quality" and focused more on performance excellence and performance management, because that is really what quality management is about. It's about managing the performance of the overall organization.

Mr. HORN. Now, when we discussed the Government Performance and Results Act, we can talk about how you focus on results, you all agree to that. But many employees feel they are simply bound up by a wide range of processes. Now, how do we move from processes to results? Does TQM always do that?

Mr. BAILEY. One thing you do is in the simplification activity. If you are bound up by all these processes, odds are that you have not mapped out these processes into the overall system that you currently have, the "as is" part of how you are operating, and then ask yourself the question of which of the processes are value-adding, and which should we simplify or totally eliminate, so you are looking at the whole system of processes.

I think there is a lot of activity we have seen recently that goes after that simplification. In the private sector we see it a lot, and in the public sector, at all levels, we have seen simplification activi-

ties on one or more of the important processes, and that breaks free the employees to really contribute. They know what is important in terms of the key processes, they know what is important in terms of the key results, they know how to contribute, and they don't feel bound up by all the extra stuff that isn't value-adding.

Mr. HORN. Since you administer the Baldrige Award, Dr. Hertz—and there are other awards, I know, that are offered there; not everybody who does a good job can get one of those awards—what is the incentive to do anything, and what do you find the incentives are as you talk to people off the record?

Mr. HERTZ. I think the incentives are not to win an award. I think the award, from our perspective, is a means to getting a message out to sharing best practices, to putting those in front of organizations. But the real rewards are those from improved organizational performance that come from use of the criteria.

And just to give you some numbers, we typically have about 30 applicants per year for the Baldrige Award. There are about 800 applicants nationally for Baldrige and State award programs, but last year we distributed 150,000 copies of the criteria, State award programs distributed another 90,000 copies of the criteria, so approximately a quarter of a million copies. There were another 70,000 downloaded off our web site on the Internet.

So the use of the criteria far exceeds the application for award programs, and indeed there are many companies in the United States that are now using the criteria in internal divisional improvement efforts where divisions within the company are using the criteria as a basis for learning and as a basis for sharing, without applying for the Baldrige Award.

Mr. HORN. Dr. Hertz, are you involved with the administration of the President's quality awards program?

Mr. HERTZ. I am not involved with that. It is administered through the Office of Personnel Management. However, many of the volunteer examiners and judges for the Baldrige Award also serve on the President's Quality Award frequently after service on the Baldrige Award program, so they bring the expertise with them when they move to the President's Quality Award.

Mr. HORN. I don't think we have a witness here from that group this morning.

And there is the Quality Improvement Prototype Award and Presidential Award for Quality. The reason I raise that, in the Department of Defense testimony, they seem to say since the inception of the program, DOD units have earned 59 percent of the Quality Improvement Prototype Awards and 83 percent of the Presidential Awards for Quality. I don't know if that is good or bad, frankly, at this point. I take it that it's good.

I mean, I am worried about both Baldrige and these awards when you have got the small, little effort going on that might be a superb effort that maybe they can't put it in fancy words that fill out the form, and that is what I worry about in the private sector, and a good part of Government, that there are a lot of people out there, we should note, even if they don't have the time to fill out the form, which is the attitude of some people in this world, they say, let's get the job done.

Mr. HERTZ. We actually provide guidance on use of the criteria, and part of that guidance is that we advise them, when you are first starting, don't fill out a written application. There is a lot you can learn through doing a self-assessment, that is a fact-based self assessment, without writing an application, just outlining your strengths and opportunities for improvement, not doing any scoring, and prioritizing the opportunities for improvement and building on them.

Mr. HORN. What is the most difficult of the Baldrige criteria you have in terms of translating that into governmental total quality management?

Mr. HERTZ. I am not sure that I would say any of the criteria themselves are the most difficult. I think what is most difficult for all organizations, including Government, is the linkage issue, how to link strategy to process, to results, to information, to analysis; so how to take the seven categories of Baldrige and perform the key linkages so that your strategy is tied to your key processes, your key measures are tied to your key processes, and your analysis is tied to those key measures.

Mr. HORN. Since you both are the lead-off witnesses, we expect you to be able to answer the next question easily. What is your assessment of the willingness of Federal employees to get involved in quality improvement efforts, as opposed to private sector employees to get involved in quality improvement efforts? Do you see any difference, in your experience, looking at this now for several years?

Mr. BAILEY. Well, we haven't really discerned any real differences in participation or motivation for quality efforts on the part of Government employees compared to those in the private sector. Actually, we think the two are remarkably the same. We have seen great success stories with individuals and individual groups in both areas, private and public. We have also seen places where it has floundered.

When we get down to the individual, that is where we find more of the success stories that are actually out there. With this growing impetus for adopting quality methods in the public sector, we see patterns of adoptions are very similar to the experiences we are seeing in the private sector. Change happens when individuals in small groups get excited about it and actually start pushing it. You can call them zealots or champions or whatever you will. There are many people out there doing that within the Government agencies, and this is why I said I am very optimistic about the future of quality efforts. Many of the folks do get together at the conference I mentioned that is happening next month.

Mr. HORN. You would say then the Government is no less enthusiastic than the private sector?

Mr. BAILEY. If we talk about Government integrated across all the levels, I would say that.

Mr. HORN. Where have you seen the most difficulties in either the private sector or the Government sector, at any level? What do you think has been the one overwhelmingly sort of strategic factor that has affected what happens in that program?

Mr. BAILEY. Again, it comes back to leadership. As far as strategic factors, you have the leadership and the linkages. I think the other part of cleaning up the multitude of processes that are out

there is, in a sense, you get out of the way of individuals actually being able to make contributions within that overall system. They see the road map, they see the performance they want to ultimately achieve as an organization, and with a simplified system of key processes out there, that paves the way for them to make the achievement they need to make. They are making them now even with, you know, bogged down processes, unclear systems, and non-customer-focused measures, and they could do so much more if you clear the way with better strategic planning.

Mr. HORN. Any comment, Dr. Hertz?

Mr. HERTZ. The only thing I would add is drawing from our revised framework for 1997, in which we have three categories we call the leadership triad, that consists of leadership, strategic planning, and customer and market focus. And I think the most important aspect of a program succeeding is the commitment of leadership and the focus of leadership on strategy, communication of that strategy to the organization, and the focus of leadership on the customer and the markets that the organization serves. If the leadership isn't focused on the customer and markets, then the rest of the organization doesn't.

Mr. HORN. Where do you find most of the initiative comes from in the typical plan? Is it top down from the leadership? Is it a group of employees that think they have developed a better type of mouse trap in their approach? What do you find?

Mr. HERTZ. I think it is both; it is a leadership commitment and employee empowerment that goes with it.

Mr. HORN. It is a chicken and egg question, I understand that. But what has been your experience in both the private and public sector as to whether or not they say, hey, it's about time our agency did something? Is that from the employees or leadership?

Mr. HERTZ. I think it has happened both ways, and it varies from organization to organization. I think what is clear, though, is whether it starts with leadership or starts with employees, if it doesn't then go from the employees to the leadership, it won't succeed. So in the end, it is what we have been saying: Leadership commitment is absolutely necessary.

Mr. HORN. We have in a lot of the written testimony good reports on the involvement of employee unions with management in doing some of the total quality management efforts. We had a bill before us in the House last year that the unions heavily opposed, and that was to encourage quality circle-type operations in business across the country, and nobody up here that put that together thought that they were doing anything to disturb unions, but the unions got very disturbed.

Now, what can you tell me about the role of unions in the private sector in these efforts, and what can you tell me about the role of governmental unions in the public sector on these efforts?

Mr. HERTZ. I can't say much about unions in the public sector. I do know more about the private sector, obviously, because of the Baldrige Award. I do know we have Baldrige Award winners and companies that have adopted those principles that are unionized, and companies that are nonunionized, and some that have union facilities and nonunion facilities within one organization, and they all seem to function and adopt and use and cooperate and succeed.

Mr. HORN. Mr. Bailey.

Mr. BAILEY. We are interested in this area, too, and we have provided some testimony based on some of our team act-type studies. We get concerned when we see in the press articles that say why teams fail, and, of course, there is a union aspect to that, and other aspects as well. We want to try to facilitate, if you will, the allowance for getting barriers out of the way to have folks work in partnership, in order to tap into the great employee base of individuals and teams working together. To whatever extent we can help foster that, we will do that.

Mr. HORN. Well, this can stand, and the question I have heard everybody mention that has ever been in management, whether it be total quality management or just any other new idea, how do you overcome organizational and human resistance to change, and do you find this is a major problem in success of some of these various projects?

Mr. HERTZ. One of our Baldrige Award winners and good friends, Jerry McQuaid of Corning, always tells the story of the high school dance. He said there are those who are at the high school dance who, when the music starts playing, are the first ones on the floor dancing and eager. There are those who are on the corners or the sides of the high school gym, who need a little persuasion and then come and join the dance. And then he said there are those out in the parking lot who can never even be brought into the school, who are out there smoking, drinking, I think is his term, and never come in. And he said, well, maybe those just will never be able to make the change, and you have to work with those who can change and will change, and others just have to be dropped out.

Mr. HORN. Is the conclusion of that story that we ought to move this operation to the parking lot?

Mr. HERTZ. I think it is that we focus on those in the gym.

Mr. HORN. Maybe we are making a mistake, remembering my high school dance.

Mr. BAILEY. I will just add to that that it does sound in a sense like an oxymoron, "constant change." It is what all organizations have to deal with. So those that are resistant to change need to have some overall fundamental structure there that is a constant, at least in terms of a framework, against which they can implement widespread changes. Otherwise the change after change after change that people are resisting is just floundering against not knowing what direction you are going for, what results you are going for, and all of that.

It is an interesting problem, one we in ASQC have wrestled with. Our name is the American Society for Quality Control, and some folks in various industries, like health care and education, look at that and say that control is about the last thing they need; they need something a little bit more change, breakthrough-type stuff. I think you can thrive on both control and change, and, in fact, just as a side point, we are changing the name of our society to the American Society for Quality, effective July 1st.

Mr. HORN. Very good.

One of my favorite corporations in California, a very progressive corporation, did a study about 10 or 15 years ago on the corporate culture in their corporation. They found there wasn't one corporate

culture, there were nine different corporate cultures, based on nine different operating divisions, and the fact that three companies had been merged together, there was a culture carried over from all three that came to the dance, if you will, in the merger. And I just wondered, since the whole business of the culture of an organization seems to either aid implementation or cause problems for implementation, how do you suggest we deal with that?

Mr. BAILEY. The first step is identifying what the culture or cultures are. That is definitely a good step. And then it comes back to the doorstep of leadership to understand that their job is not just to manage for the next quarter or the next half a year, or the next stockholder meeting, if you are talking about the public sector, but they have a long-term commitment to manage, and that a key part of that is the culture.

So, again, you have to identify the few things, whether it is in terms of defining the principles that you are going to manage from or the environment or culture you are going to build, against which all this constant change is going to be able to be rolled out. It's important to identify and build upon the strengths you find in the cultures that exist and somehow eliminate the barriers that are there.

Mr. HORN. Dr. Hertz.

Mr. HERTZ. I think I would pretty much agree with those comments.

Mr. HORN. Let's say in terms of an organization that is unionized, what is the best way to handle that, just bring the union leadership in from the first time you have a glimmer of thinking you are going to do something in this area or what?

Mr. BAILEY. That would be consistent with the partnership mode.

Mr. HORN. Has that usually worked?

Mr. BAILEY. Actually, I can only speak within DuPont. That generally works very well.

Mr. HORN. One of the underlying assumptions, as I look at all this testimony, is the usefulness of teams. However, I think teams are probably not appropriate for every context or problem, yet they are advocated as sort of the universal mantra, if you will. When is it appropriate to use teams and when is it not appropriate to use teams?

Mr. BAILEY. I think that the answer probably is dependent on the culture of the public or private sector entity you are looking at. In general, I think that a lot myself in terms of we need to put another team on this. There are some cultures that don't have basically a management structure at all, they do everything by teams. They don't even have the organization chart, and with the culture there they work really well. I know one of our Delaware-based companies, Gore and Associates, works real well that way. It is a bunch of small sites with very little organizational structure, other than knowing where they are going and getting teams together, when necessary, to do that. They recognize they don't need them all the time.

But you are right. Sometimes teams can be nonempowering with respect to the individuals that are on the team that want to provide their own creative forces to do things, so you need a proper

balance. There is no quick answer to that question. It just relates to the culture you are dealing with.

Mr. HERTZ. I think one of the biggest issues is also to learn when it is time to end the activity of a team. Not all teams need to be teams forever. There are some that have a problem, solve it, and move on. So I think one of the big issues is when organizations become overteamed and don't know when a team's activities have reached the end of their useful life. That is why many teams develop team charters to begin with, that define the goal, and once the goal is reached, finish the activity.

Mr. HORN. Is that the understanding in successful efforts, that you don't keep the team going, or you keep an overall monitoring group going to make sure this progresses?

Mr. BAILEY. I think the most successful organizations have two types of teams, those that are longer-standing teams and that are responsible for ongoing processes and those that are there to solve a particular problem and then move on, and the charters are very different.

Mr. HORN. The word "constant change" came up here. At some point don't employees get a little weary of hearing about constant change or feeling it is constant change?

Mr. BAILEY. Absolutely. These are trying and tough times for organizations, in terms of staying competitive, both in the public and the private sector, and it can be disheartening at times to see all this change. I think, again, where you see it most is where the organization, be it public or private, hasn't at least put forth principles against which they are going to manage the enterprise that are constant. Also, the overall constant framework from which people can see where the "constant change" of each step makes sense: "Oh, I know why we are doing this, it relates to this overall piece of the framework we are trying to move towards, and it supports the principles we are for." So you need to lay that top level framework there, otherwise it is going to be totally frustrating.

Mr. HERTZ. And I think this is where the system's perspective, again, comes in, critically. Change has to be related to vision and values of the organization. Those values are constant, and that vision has to relate to strategy. If change then ties to strategy, then the purpose of ongoing change is visible and understandable. When change becomes an end in itself, then it obviously leads to frustration.

Mr. HORN. Along that line, often there are long lead times between change and the results, as we know. How do you keep the employees motivated during these long lead times?

Mr. HERTZ. The way we encourage organizations to do it is look for milestones along the way, so that progress can be tracked, so there are measures that show that the organization is moving in the right direction, and so that all in the organization feel a sense of accomplishment along the way.

Mr. HORN. And this is where leadership really has to come in and also self-leadership of the employee group, the union group, and so on.

You both mentioned focus on the customer, and I think that is obviously correct. The big problem is how do you get the customer's input into the quality process when the customer, in the case of the

Federal Government, is we, the taxpayers? What is the best way you have seen to find out what the customers want?

Mr. BAILEY. Well, there are plenty of ways. I think many of the customer information gathering techniques that are available, regardless of whether you are in the public or private sector, do apply here. You have to define the customer to begin with, and whether you are talking about meetings, focus groups or surveys, the quicker the better. Pulse surveys get a focus on what folks are really thinking and where we ought to be going. I think all those apply very well, and I think they break down only when you don't know what it is you are going after, customer input when you are going to be doing the surveys.

Mr. HORN. Are you familiar with the Oregon benchmark approach to deciding whether they are being successful in the implementation of various laws and programs?

Mr. BAILEY. No, I am not.

Mr. HORN. We will wait for the State officials. I am sure they are aware of it.

And obviously, the question is, there is the result of the program, and when you have achieved the basic goal in that program versus the quality management approach, which might be steps along the way, and what is measurable, have you found in companies that there have been really accurate surveys of the employees in the sense of either hiring a professional polling organization that would go get a random sample that is legitimate, or is it left open to here are a couple questionnaires and throw them in the suggestion box or whatever? What have you found is the successful way to elicit that opinion as to the immediate internal clientele in an organization and the external clientele being served by that organization?

Mr. BAILEY. We find both approaches work well, and probably both approaches are needed, because one approach doesn't necessarily get you everything you need. The more formally structured survey that has all the statistically valid sampling and analysis criteria associated with it gives kind of a stand-back snapshot of what the customers need or want. And the flip side is some of these very quick data-gathering activities that may not be as scientific, but are quick, get a pulse of what is happening right now. And they really provide a gut check on today's thinking about where it is we are going. I think both of those are definitely needed.

Mr. HORN. Any comment, Dr. Hertz?

Mr. HERTZ. Yes. Leading organizations use both approaches, and I think that the approaches are as valid in the public sector as they are in the private.

I know, for example, in our own program, we have an annual improvement day. We have an annual improvement survey that goes out to all our leading customers to get their input into the ongoing improvement of the program and the criteria. And we also have a feedback survey, for example, from our primary customers, the award applicants, that each of them get 30 days after they receive their feedback report.

Mr. HORN. With the emphasis on the team approach, is the reward system primarily to the team as a whole, or is it the team leader or people nominated by the team? What is the best way to use that reward system?

Mr. HERTZ. I think it's all of the above.

Mr. HORN. Well, in one firm it's usually going to be one or the other. Or they give things to the whole team and then take out a few people within the team, or what?

Mr. HERTZ. In one firm, generally there will be a multiple recognition system, one that is for teams as a whole, one that is individual performance, and one that is company or corporate performance that rewards profit-sharing or gain-sharing to all the employees. So it's generally a combination.

Mr. HORN. How about in Government, what should it be?

Mr. BAILEY. Well, we've seen a mix of both work. But one of the things I've seen that, and I think this may even apply more for the private sector than the public sector, but I've seen it in the public sector; is to act almost like "virtual teams." It's hard to really get your hands on who the team members are.

Mr. HORN. Translate the virtual team for the noncomputer world.

Mr. BAILEY. Virtual teams are nothing more than, in a sense, there's a task that—let's talk about the short-term teams, ones that there is a specific problem out there; there is a problem to be solved. The problem statement is well defined by someone, maybe a so-called team leader. The goals of where we want to get to and the measures and all that are well defined, and it's somewhat understood who the key players ought to be to work on that particular activity. But they don't particularly come out and say, we're going to charter a team that has five folks or seven folks on it, and these specific names are expected to do all this stuff. No one outside that box or five or seven are supposed to help them and people inside the box of five or seven folks are the ones that are fully responsible.

What we find is, once the whole organization knows the problem that needs to be solved and once they know who the responsible single person is to make sure it gets resolved and who the accountable few are, there are other folks in the organization that want to be informed about it, can provide input or need to be consulted about it, and you find that the actual solution of a problem is by a team. But the team, if you see everyone who has participated on it, is a large collection of folks, because they've learned by spreading ideas out through the electronic mail and the like. So there's a wide variety of folks involved.

So the challenge, coming back to the reward piece, is, oftentimes you have a large collection of folks that have been involved in it, and when you try and reward a team, it is very tough to decide where you draw the line, given you don't have this box of seven people that are on the team but, instead, a large number of folks that are actually participating in the solution.

So that's what I mean by virtual teams.

Mr. HORN. Besides the plaque, besides the recognition, besides the feeling good with some of your colleagues and envied by others, should there be compensation awarded to those on the team, primarily employees, not executives, but could be executives occasionally—they take care of themselves, I found, usually—I mean, should there be flexibility where there is monetary compensation that is built into the payroll, not just the annual bonus, which I

regard as sort of nonsense, I would rather reward the people with something that stays in there for their effort.

Mr. BAILEY. I think some of that should be built in. It's very important to note, however—and this is true in both the private and the public sector—if you're talking about what's going to be the biggest motivator for getting folks more on board or contributing to the quality improvement effort, it's not going to be monetary rewards, believe it or not; it will be other things such as simple recognition of a job well done. Some people will trivialize plaques and all, but that can be meaningful things like dinners out and extra vacation, that kind of nonmonetary stuff.

But just the recognition itself is really what scratches the itch of most folks. They want to know that they're in an organization where they're contributing, and that they are recognized that they're contributing, and that oftentimes is all they're asking for, not the extra dollar bill in their wallet.

Mr. HERTZ. I think peer to peer recognition is an important part of that also. In our own office, we've implemented something as simple as what we call than Q notes which one employee can give to another one for thanking them for doing something above and beyond the ordinary, to help them in accomplishing their tasks.

Mr. HORN. It's a good idea. I remember I had one vice president of the university who had won awards from the Nation, the State, and everything else, gold medals, so forth, and the reward that meant the most to him was the plaque from the associated students for being an outstanding professor, despite his administrative career, teaching career, and so forth. So we never quite know what touches people the most.

Let me move to one or two last questions, and then I thank you for bearing with me on this.

Training, obviously, is a major thing to face up to here. In some organizations in the Government, I have seen there has been a lot of training, but nothing has happened or very little has happened. With a scenario like that, what is wrong? And how do we go about tying the training to what we are trying to do in a total quality management effort?

Mr. BAILEY. I think you answered your own question. The reason why it goes wrong is that there is no clear tie-in.

I've seen too many instances, in both the private and the public sector of sheep dip type training. It's just like, here's the training of the day and the answer to all the solutions; we don't know where we want to go and we don't know how we're going to measure it, but if we train everyone on this latest fad, if you will, that will just solve all the problems. If it's not connected to the overall framework of where you're going, and if the employees can't say why do they even care about being in this training and how are they going to use it to go toward those strategic goals you have, then it's just doomed to failure.

So the idea of just-in-time training is definitely a much more—you know, worthwhile and rewarding experience for the enterprise.

Mr. HERTZ. I think there are several things. One is to relate training to key processes and key strategies and try to tie at least a portion of the training to moving in the direction that the organization needs to move. If there are new competencies that are need-

ed in order to accomplish a strategy, to offer that training and make it clear what the relationship of that training to the accomplishment of those strategies or improvements are.

The other is to try to implement some sort of effectiveness measure of the training, and that's something that's still very much at the forefront and difficult to do. But there are organizations that are trying to correlate improvements in a key strategic measure with the training that's being offered.

Mr. HORN. Can the quality management approach work in an organization of any size? And where has been the most success, in small organizations or small parts of a large organization? What is your feel of that?

Mr. HERTZ. I think it can work in organizations of any size and has worked in organizations of all sizes. I think implementation obviously is easier in smaller organizations, because it can be done more informally; it can be done through leadership personally touching each of the employees. There's personal contact with each of the employees, which doesn't occur in a larger organization which requires a cascading system. But it's been implemented in both. I think results can be achieved more rapidly in a smaller organization.

Mr. HORN. Anything to add to that, Mr. Bailey?

Mr. BAILEY. Yes, I'd add to that. Where I've seen it work or not work in small organizations and where I've seen it work or not work in big organizations ties yet again to the overall framework you have in place. You can have a small organization of 50 folks working on something, and the CEO can in fact reach out and touch all of them. That's great. But if the leader don't set forth what is going to be the constant framework for change and what the principles are and really identify that as part of the culture against what you're going to do all these constant changes and improvement, then it will fail even in a 50-person organization. I think it becomes more vital, obviously, with large organizations to have that framework and those principles in front of you.

Mr. HORN. Last question: You're familiar with the Hawthorne case and the famous Harvard Business School litany of cases. The question comes up: As you know, the conclusion of that was, it didn't matter what we do, productivity increased, and that was because it was shown that we cared about people.

How do we differentiate total quality management from the Hawthorne approach, which said, if you pay attention to people, good things will happen?

Mr. BAILEY. Interestingly, I think back then there was a system where you basically were constant all the time, and then you did one new thing and things improved, and then you did another new thing and things improved again.

Now we're in a world with a different ratio of constancy to change; there's just dramatically more change in all types of organizations. So there's so much stuff going on that sometimes you wonder whether you're being attended to at all or being overattended. It's a difficult situation, and I think this leads to the "fed-up" factor.

How many different things in a row do you try to pay attention to get improvements? If the workers are not seeing the measures

that they're supposed to be working toward improving, and if those aren't listed right on top for them to always look at as the constant thing along with the framework, they're eventually going to allow themselves to just turn completely off, and I think it will be an opposite effect.

Mr. HERTZ. I think it's an issue of good things happening and right things happening. I think good things happen when you pay attention to people, right things happen when you pay attention to people, pay attention to strategic direction, and pay attention to your customers and markets.

Mr. HORN. And wrong things happen when you pay attention to, people get their hopes up and you can't make the tough decision that solves the process problem or the results problem. It again gets back to leadership.

Well, I thank you gentlemen for sharing some of your ideas with us. And I don't know if you are going to stay, but if you get any other thoughts going back and forth on the plane, or the automobile in your case, why, let us know and we will put it in the record at this point.

Thank you so much for sharing your knowledge with us.

Mr. HERTZ. Thank you.

Mr. BAILEY. Thanks again.

Mr. HORN. We are now going to the second panel.

OK, I think we have everybody there. If you don't mind, just stand and raise your right hand.

[Witnesses sworn.]

Mr. HORN. All four witnesses affirmed.

We will just go down the line starting with Mr. Joe Conchelos, vice president for quality, Trident Precision Manufacturing, Inc.

Or does the president want to testify first?

Mr. CONCHELOS. No. He is, unfortunately, not here today.

Mr. HORN. OK. Very good. Then, Mr. Conchelos, go ahead.

STATEMENTS OF JOE CONCHELOS, VICE PRESIDENT FOR QUALITY, TRIDENT PRECISION MANUFACTURING, INC.; ROSETTA RILEY, PRESIDENT AND CHIEF EXECUTIVE OFFICER, SIRIUS 21, INC.; REAR ADMIRAL (RET.) LUTHER SCHRIEFER, SENIOR VICE PRESIDENT AND EXECUTIVE DIRECTOR, BUSINESS EXECUTIVES FOR NATIONAL SECURITY; AND LAWRENCE WHEELER, VICE PRESIDENT, PROGRAMS SYSTEMS MANAGEMENT CO., ARTHUR D. LITTLE, INC.

Mr. CONCHELOS. Well, thank you, and good morning, Mr. Chairman. I want to thank you for inviting Trident to give our testimony on our quality journey today.

Let me begin by offering a brief introduction to Trident. Trident Precision Manufacturing is a contract manufacturer of precision sheet metal components at electrical mechanical assemblies. We are located in Webster, NY, which is a suburb of Rochester, NY. Trident began operations in 1979 as a three-man facility and today employs over 180 people.

In October, we were awarded the 1996 Malcolm Baldrige National Quality Reward. We began our total quality journey in 1988, and when our CEO, Nick Juskiw, attended a symposium explaining total quality management, he realized this was the structure that

his young organization needed to grow and remain competitive into the next century.

As a young company, we operated under a business strategy known as crisis management. The strategy was so well developed and ingrained in our society, we even had a motto: "We make it nice because we make it twice." We knew this was not the way to run a successful business.

The entire management staff of 10 was trained in the principles and philosophies of total quality management. That team then spent the following 14 months developing Trident's strategy entitled "Experience in Motion." Although our strategy is based on the Xerox Corp. model, we benchmarked several other organizations, including Eastman-Kodak Co., IBM, Tennant Corp., and Corning. We were able to take the best of the best and incorporate them into our strategy.

The development and implementation of "Experience in Motion" has allowed us to become a customer-focused organization in a continuous improvement atmosphere. We understood from the outset that our employees were the source and foundation of our quality leadership and competitiveness. Our employee involvement is encouraged through a number of strategies, including our Total Quality Round Table, where employees are asked two questions: What is working? And what is not working at Trident?

Management and employees have developed a partnership wherein the employees have the opportunity to develop and implement plans that directly affect their work life. This philosophy and plan to Trident employees can be summed up in one phrase from our mission statement. We utilize our experienced individuals, blending their creative talents and personal dedication to remain competitive, satisfying our customers' needs, and fulfilling the expectations of our employees.

I would like to share with you now one success we've achieved in the area of human resources. At the beginning of our journey, one metric we selected to monitor was employee turnover. We wanted to know what effect the processes we were implementing were having on employee satisfaction.

In 1988, we found our employee turnover rate was 41 percent. We felt somewhat comforted by this result since our local industry turnover average was 52 percent. But we still wanted to know why we were losing so many people each year. We asked an employee team to investigate the problem. We wanted them to identify the root cause and develop a corrective action. Their answer was very frank and direct: Management did not care who they were hiring, so long as they were breathing and they had two hands.

They suggested we revise our hiring practices and develop a new employee orientation process. We implemented their suggestion, and, in conjunction with several other facets of our strategy, we have been able to maintain less than 5 percent turnover for the past 5 years. In the first quarter of 1997, our turnover rate was 1.2 percent.

We've established our key business drivers as supplier partnerships, employee satisfaction, operational performance, customer satisfaction, and shareholder value. We have developed several metrics to measure and determine our progress for each driver.

I would now like to share with you some of the accomplishments we have been able to achieve through our total quality management strategy.

Our corporate quality rating, which is an aggregated rating to our delivered quality to our customers measured 97 percent through 1989. Through many of our process improvements developed by our employees and the use of our statistical techniques, we have been able to achieve and maintain a quality reading of 99.99 percent and higher.

In that same time period, we were able to increase our on-time delivery percent from 87 percent to 99.94 percent. We've been able to reduce our average cycle time from 70 days to 45 days. Today we have teams in place looking at ways to reduce that even further.

In 1990, 8.7 percent of our time was spent on reworking nonconfirming material found within our facility. In 1996, we spent just over 1 percent of our time in this type of activity. As I said earlier, our employees are our most valuable asset. Twice each year, we conduct an employee survey. Our employee satisfaction score for 1996 was 92.5 percent. Our management team has been working to improve this score for 1997. Since the bar has been raised, our goal for this year is 95 percent employee satisfaction.

We spend an average of 4.6 percent of our payroll dollars on training. This compares with an industry average of 1.5 percent. Our employees receive an average of 40 hours of training each year. This includes total quality management training, blueprint reading, statistical process control, and even English as a second language for some of our foreign-born employees.

Process improvements suggested by our employees have increased over the years. In 1991, 550 process improvements were suggested by our employees. In 1996, over 2,200 improvements were suggested. Over 98 percent of all of those suggested improvements have been implemented.

I began by stating that Trident was a customer-focused environment. We want to know how our customers feel about us. Twice each year, we survey our customers and ask them to grade us in nine different areas. We've received an average grade in 1996 of 93 percent customer satisfaction. We understand that 100 percent customer satisfaction is not a realistic goal, since it is such a changing target. What was satisfaction yesterday is expectation today.

There were downfalls along the way. We decided to introduce a suggestion program. We had a box built and put it in our break room. We received over 250 suggestions. We did not have a process in place to deal with one suggestion, never mind 250. Our CEO called a company-wide meeting and explained that he had failed, not the staff and not the employees; he thought this would be something we could do very easily without a process, but we couldn't.

We used this failure as a learning experience. It taught us not to introduce something without a full process developed. It was also the turning point in our journey. It was at this point when everyone understood that this total quality was not a flavor of the month and this gentleman was very serious about making this work.

Does total quality work? I can only speak for my department, and the answer is an emphatic yes.

In closing, I would like to offer you an invitation to Trident to get a firsthand view of Experience in Motion. And thank you very much.

[The prepared statement of Mr. Juskiw follows:]

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Nick Juskiw

Good morning,

Trident Precision Manufacturing is a contract manufacturer of precision sheet metal components and electromechanical assemblies. We are located in Webster, New York, a suburb of Rochester.

Trident began operations in 1979 as a three-man facility which today employs over 180 people. In October, we were awarded the 1996 Malcolm Baldrige National Quality Award.

We began our Total Quality journey in 1988 when our CEO, Nick Juskiw, attended a symposium explaining Total Quality Management. He realized this was the structure his young organization needed to grow and remain competitive into the next century.

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We knew this was not the way to run a successful business. The entire management staff of ten was trained in the principles and philosophies of Total Quality management. That team then spent the following 14 months developing Trident's strategy titled "Excellence in Motion."

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We asked an employee team to investigate the problem. We wanted them to identify the root cause and develop a corrective action.

Their answer was very frank and direct: management did not care who they were hiring so long as they were breathing and they had two hands. They suggested we revise our hiring practices and develop a new employee orientation.

We implemented their suggestions and, in conjunction with the many other facets of our strategy, have been able to maintain less than 5% employee turnover for the past 5 years. In the first quarter of 1997, our turnover rate is 1.2%.

We established our Key Business Drivers as Supplier Partnerships, Employee Satisfaction, Operational Performance, Customer Satisfaction and Shareholder Value. We have developed several metrics to measure and determine our progress for each driver.

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We used this "failure" as a learning experience. It taught us not to introduce something without a full process.

It was also the turning point in out journey. It was at this point when everyone understood that this Total Quality was not a "flavor of the month" and that this gentleman was serious about making this work.

In closing, does Total Quality work? I can only speak for Trident and the answer is an emphatic yes.

Thank You

Mr. HORN. Where is Trident located?

Mr. CONCHELOS. We are in Webster, NY, which is a suburb of Rochester, NY.

Mr. HORN. Well, we'll try to work it out one of these next few months and enjoy seeing what you're doing there.

Now our next witness is Rosetta Riley, the president and chief executive officer of Sirius 21, Inc.

Welcome.

Ms. RILEY. Good morning, Mr. Chairman. Thank you for having me here today. I'm honored.

I'll address the question of whether or not TQM is a fad, or is it a fact, and what are some of the issues that cause TQM to succeed at some companies and fail at others.

Before I begin, let me tell you about my company. Sirius 21, Inc., is a business consulting company that provides expertise to U.S. companies in total quality management, value driven leadership, and the Baldrige Award criteria. I was a Baldrige judge for 4 years, from 1992 through 1995. I'm also a professor at Falmouth Institute of Quality Systems Management, teaching total quality principles. I was previously employed by the General Motors Corp. I led Cadillac Motor Car Co.'s efforts to implement total quality management principles, and I also led Cadillac's efforts to win the Baldrige Award in 1990.

My company, Sirius 21, Inc., works with many types of companies and organizations, helping them to develop and implement processes and systems that will lead to high-performance excellence. My company and my associates have considerable experience in teaching TQM principles to employees and leaders of corporations.

As I work with various companies, one of the concerns that I encounter most often from corporate leaders is: "We've implemented teams, we're listening to them but nothing is happening. What's wrong?" That is what I'm going to address today.

It has been my observation that when TQM is not producing results and has not been embraced by the organization, it's usually one or more of these major issues that are acting as a roadblock to success. These aren't all of the issues, but they are just some major ones that I highlight for today's testimony.

One issue is, leadership does not communicate a customer-focused direction nor establish total business management as a way of life. Many companies venture no further than establishing vision, mission, and value statements. They fail to put in place an organization structure and a leadership system that ensures deployment and implementation.

Leadership is impatient and does not want to and cannot invest the necessary time. They fail to recognize that it took many years to evolve the culture that rendered the United States noncompetitive in the 1980's and, thus, to reverse these negative trends by reinventing our culture takes time.

Leadership has not recognized how to effectively use human resources and capitalize on the significant benefits of using teamwork for implementing strategic objectives, increasing flexibility, improving communication, responsiveness, productivity, and efficiency.

Leadership's commitment is communicated in words but not actions. Employees and stakeholders take their signals and direction directly from the actions of management. When a leader's action is not in line with company directions, the new norms that are required by TQM systems are not implemented.

Last, leadership fails to train itself and its organization. The implementation of total quality management systems represent a massive and complex undertaking. It involves improving and possibly making some change in every aspect of the business. Since business processes are interactive and interdependent, even small changes can have significant downstream ramifications. These impacts can be both negative as well as positive. Therefore, it's imperative that when taking the total business approach to improvement such as TQM, the necessary training must be provided.

If those are all the things that prevent TQM from happening, why is it working for so many companies? Well, for those companies where it works, those leaders lead in a focused, consistent, systematic manner. These leaders have accepted the notion that the customer defines quality and that customer requirements must be met or exceeded. They empower their employees and assure self-directed effort and teamwork. They emphasize management processes to ensure process capability and control, they utilize strategic planning to drive change in improvement, and they place strong emphasis on continuous improvement.

Basically, I'm saying that TQM is not a fad. Due to the changes and the behavioral norms of future employees and customers, TQM is an absolute necessity for success in the 21st century. Besides, we have found nothing else that has had such a profound effect on improvements in the U.S. performance in quality and customer satisfactions.

Many companies have derived significant benefits from TQM. Many of these are Baldrige Award-winning companies, State and local award-winning companies, and many of them are companies that we never hear from. They're just quietly out there implementing TQM principles very, very successfully without any fanfare.

One of my observations is: the problems we had early on with the implementation of TQM and why companies fail, was improper training. There was just not the type of training that would help organizations understand what TQM entails. What is happening now is, schools and universities are starting to provide that training. One of the schools, in particular, that specialize in total quality management training is the Falmouth Institute of Quality Systems Management.

I think that many of the mistakes that were made by companies in the 1980's will not be repeated as we move into the next millenium because of a lot of the things we didn't know in the 1980's. We are more aware now through the education and training provided by schools and universities, through the training provided by ASQC, through the training provided by the Baldrige Award process.

That ends my statement, and I thank you for this opportunity to speak.

[The prepared statement of Ms. Riley follows:]

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TQM: FAD OR FACT?

WHAT IS TQM?

Total Quality Management is defined by many people in several different ways. Some of the more popular definitions are:

1. It is Deming's 14 points.
2. It is teams and quality circles.
3. It is statistical process control.
4. It is customer and supplier needs being met.
5. It is quality in products and services.

TQM is not any one of these definitions, however, all of the above statements are part of the many complex aspects of Total Quality Management. TQM is simply total business management for high performance excellence. It requires involvement of every aspect of the business in the pursuit of quality and customer satisfaction. Quality, customer satisfaction and profitability are all primary performance targets or results. They are the payoff for excellent business management.

ISSUES SURROUNDING TQM

In spite of the significant strides that have been made by U. S. Corporations in improving their products, services and financial performance, the debate on the validity of TQM rages on. Is TQM a viable tool, a passing fad, a costly exercise in frustration or a way of life that is necessary to the future success of this country? In the early 1980's when TQM as a body of knowledge first surfaced, many companies embraced it for several diverse reasons. Those companies that recognized it as a way of life, an on-going journey to high performance excellence and a tool for changing the culture of American industry from management-interest driven to customer/supplier driven have experienced significant returns for their quality improvement efforts. On the other hand, companies seeking a quick fix or seeking to implement only the more palatable segments of TQM principles have failed to reap the awesome benefits of a TQM managed company.

Since the 1980's the U.S. has been in the throes of a quality revolution that has spread across the country. It started with manufacturing organizations and the military and moved to service companies and small businesses. In the 1990's this revolution in our approach to quality and customer satisfaction rapidly spread to Healthcare, Education and Government.

The Baldrige Award Criteria has played a significant and prominent role in being the primary stimulus for much of this rebound in American quality, productivity and

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competitiveness. The State and Local Award programs, many of which are based on the Baldrige Award criteria, also drive TQM principles and methodology as the vehicle for making significant improvements. Companies winning these awards are not always household names. There are companies that qualify for a site visit in these programs that are virtually unknown to the general public, yet they are companies that have made significant strides in their efforts to achieve high performance excellence. There are companies that are implementing TQM without any fanfare. The Eaton Corporation is an example of a leading company that has been quietly and successfully implementing TQM principles for several years and has achieved significant improvement results and is recognized as an excellent company by its customers and stakeholders.

WHY TQM DOESN'T WORK FOR SOME

In spite of the success stories, and there are many, the stories of failure and stagnation abound. An analysis of those companies that have failed to derive the benefits of TQM indicates that the primary reasons for their lack of success are:

- Leadership has not communicated a customer focused direction nor established total business management as a way of life. Many companies venture no farther than establishing vision, mission and value statements. They fail to put in place an organization structure and a leadership system that assures deployment and implementation.

- Leadership is impatient and does not want to or cannot invest the necessary time. They fail to recognize that it took many years to evolve the culture that rendered the U.S. noncompetitive in the 1980's and thus, to reverse these negative trends by reinventing our culture takes time.

- Leadership has not recognized how to effectively use human resources and capitalize on the significant benefits of using teamwork for implementing strategic plan objectives, increasing flexibility, improving communication, responsiveness, productivity and efficiency.

- Leadership's commitment is communicated in words but not actions. Employees and stakeholders take their signals and direction from the actions of management. When leaders' actions are not in alignment with company directions, the new norms that are required by TQM systems are not implemented. Employees assume that these requirements are not a priority of the leadership.

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- Leadership fails to train itself and the organization. TQM is a massive and complex undertaking. It involves improving and possibly making some change in every aspect of the business. Since business processes are interactive and interdependent even small changes can have significant downstream ramifications. These impacts can be negative as well as positive. Therefore, it is imperative that when taking a total business approach to improvement, such as TQM, the necessary training must be provided. Many companies in the 1980's launched TQM systems without being adequately educated and trained.

Some companies that successfully embraced TQM in the early years reaped spectacular rewards. However, some of these same companies failed to recognize TQM as an on-going process and a way of life. For a variety of reasons, such as, new leadership; new focus; shifting direction or because of financial pressures, these companies backed away from TQM. As a result, they have suffered in terms of their overall performance.

WHY TQM WORKS FOR MANY

Numerous companies are enjoying the benefits of TQM. They recognize the time and intense effort it requires. They have embraced it as a way to manage a successful business. Their leaders have made the required behavior changes in themselves and in their organizations. Some of the major characteristics of these companies are:

- Leaders lead in a focused, consistent, systematic manner. Leaders are bold, visionary and visibly committed to TQM. They have adapted the new roles of leadership which are to establish direction, coach, support and encourage a learning organization. In these companies, leaders provide clear, consistent direction and are actively involved in the organization.

- They have accepted the notion that the customer defines quality and the customers' requirements for product and service design, performance, delivery and support must be met or exceeded by the organization.

- They empower people and ensure self directed efforts and teamwork. They encourage learning and recognize the importance of employee growth and development.

- They emphasize management of processes to assure process capability and control. This ensures that potential defects are found in the process and not by the customers.

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- They utilize strategic planning to drive change and improvement.
- They place strong emphasis on continuous improvement.
- They experience significant improvements in business results measures.

IS TQM FAD OR FACT?

Society has changed. In his work on "Generation Norms", Dr. Fred Johnson indicates that the "busters" (Generation X) and "blasters" generations have to be reckoned with. These generations of young people have grown up under a set of standards that are different from those that drove the development of traditional American corporations. These new potential customers and employees demand instant gratification; have a global perspective; are opinionated and insist on being heard. Their commitment to the organization is based on an alignment of their personal values with company values rather than job security and blind loyalty. They are highly educated and self directed. They have grown up in a permissive society and have difficulty functioning under restrictive laws, regulations and procedures.

These new behavioral norms of future customers and employees make the TQM based company an absolute necessity for success in the 21st century. TQM encourages employees to share opinions and does not require blind loyalty. It insists that walls and artificial constraints to communication, innovation and creativity be removed. It requires the leader to trust, coach and encourage employees. It celebrates learning and assures growth.

TQM is here to stay because we have found nothing else that has had such a profound effect on improvements in U.S. performance in quality and customer satisfaction. Rather than denounce TQM, we must resolve those issues that are at the heart of why TQM fails some companies. The primary reason for these failures is a lack of knowledge because education and training in what TQM entails were lacking or inadequate.

In order to help companies successfully implement the principles of TQM and prepare for the 21st century, a few schools and universities have begun to offer some courses on various quality topics. This of course will help prepare employees for their role in a TQM based company. One school in particular is The Falmouth Institute of Quality Systems Management, located in Falmouth, MA and led by Dr. Robert J. Gee. Falmouth offers a Masters Degree in Total Quality Management to its students who are primarily employees and managers from over 200 organizations representing business, healthcare, education, the U.S. Military and government. Their program is completely centered on courses in Quality Systems Management. Falmouth from its inception was designed not only to teach TQM principles but also to provide a practical application of TQM by

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utilizing a team approach for students as well as instructors. It may be the only institution of its kind in the nation. Its program has achieved significant results in savings provided to companies through student team projects and also by its students who have achieved career advancements in a number of fields. Falmouth is populating corporate America with many TQM experts to assure tangible yet enduring results. With knowledge resources like the Falmouth Institute available, many of the mistakes that were made by companies in the eighties do not have to be repeated as we move into the next millennium.

Mr. HORN. Well, we thank you.

Our next witness is Rear Admiral, Retired, Luther Schriefer, senior vice president, executive director, of Business Executives for National Security.

Admiral Schriefer.

Admiral SCHRIEFER. Thank you, Mr. Chairman. And I want to thank for you inviting me to come and testify today.

First of all, I would like to tell you a little bit about our organization, BENS, Business Executives for National Security. It's a nonpartisan organization of business and professional leaders that are dedicated to the idea that national security is everyone's business. BENS members apply experience and commitment to help our Nation's policymakers build a strong, effective, affordable defense and find practical ways to prevent the use of even one nuclear, chemical, or biological weapon. We work with Congress, the Pentagon, and the White House to ensure that the changes we recommend are put in practice.

I am currently directing the BENS Tail to Tooth Commission. It's purpose is to address the imbalance that exists in the ratio of the support side of defense to that of the combat side, a 70 to 30 ratio. Through the application of best business practices, we believe this ratio can be reversed with dollars saved put into forced modernization. The commission is comprised of successful political leaders such as Bo Calloway, Vin Weber, Warren Rudman, and Sam Nunn, and also very successful CEO's and chairmen from business communities throughout America that brought the business community of America out of the struggling period of the eighties into today's preeminent position. We believe that many private sector business practices are equally applicable to the business of defense.

Now, before joining BENS, I had just completed, in February of this year, 37 years of active duty in the Navy, both as a carrier pilot, ship commanding officer, and commander of several major shore establishments. I was commander of the naval base complex in San Diego. And I finished up my career in the Navy as director of the Navy's Environmental, Occupational Safety and Health. I also chaired the CNO's Total Quality Leadership Board. And I believe that is the relevant reason why I am here today.

My following comments are that of my personal experience. I've applied the concepts of total quality in four separate commands, a ship and three shore-based commands. I experienced varying degrees of success, with the most successful in my last command. At least I got to practice the mistakes in the first three.

In the Navy we called the program TQL, Total Quality Leadership. A TQL program embodies all the elements of Dr. Deming. It had support from the top. And the CNO, in fact, Admiral Kelso, was a very strong component, not just a supporter. He practiced it at the Navy's highest levels.

Originally, in the Navy, it was the responsibility of each commanding officer to implement TQL in his or her command. The Navy established schools, trained facilitators to develop mobile teams, and provided the essential materials necessary to really change the attitude and, I could say, the culture of the Navy which is required to effect the principles of TQL.

However, as it evolved, the training became more and more centralized, and the emphasis and cost shifted to schoolhouse training of randomly selected individuals. Less effort was spent training and coaching senior leaders at command level, where such coaching and training was really needed.

It might be useful to review what I believe to be the principal elements of TQ so we can better analyze why the gaps and flaws occurred in its implementation. There is some variation in agreement of these concepts. However, the following notions are readily accepted.

One, establish continual process improvement; two, focus on primary customer satisfaction; three, use data and statistical methods to identify, study, and solve problems; four, empowerment of individuals and teams through the entire change of command; five, strengthen and renew the Navy, command by command, through an ongoing assessment, evaluation of data, clarification of core values, and planning; six, emphasize leadership and personal development from the top down; seven, provide the best known vehicle to introduce and manage positive change thoughtfully and systemically; eight, redefine the leadership role to include managing processes and management change; and the last one, create a learning culture.

I don't need to amplify any of these elements because they're fundamental to the Deming concept. However, I will say that as basic as these seem, the implementation of all nine in sequence as building blocks was seldom achieved. In fact, seldom did we get beyond element three into almost four, empowerment. And that is where the real payoff begins.

From this perspective, I can comfortably state that the TQL program has not taken root except in isolated cases. In many of those isolated cases, they've been very successful. I believe the reasons for this are as follows: There is a focus on random schoolhouse training instead of focusing on an entire command: One, at a time learning and adapting and benefiting from application of TQ philosophy and its principles; two, although there were some outstanding TQ instructors developed, there was an overall lack of qualified TQ instructor facilitators and coaches with whom the Navy personnel, particularly our seniors, could relate and could translate TQ principles in operational Navy terms.

You have to remember that tradition is endemic throughout the military and it is hard to change. There's also a lack of ongoing assessment of program results, no predetermined measures of effectiveness, and no individual accountability for success or failure. There was little or no reward for command implementation, no penalty for ignoring prescribed TQ goals or standards.

Finally, the senior leadership failed to acknowledge that the responsibility for TQ's failure lay solely on implementation management and not on the TQ philosophy and the principles.

Now I would like to sum up these five items in the following manner: The policy and direction that the Navy followed in implementing TQL was focused on training individuals one at a time. The concept of applying this training and implementing it across the entire command as an entity was not followed. TQ as a concept and philosophy can only prove itself in the context of an oper-

ational command accomplishing its mission. Genuine proof of its value in a command context is probably the only way that total quality will ever be accepted system-wide.

Now having said all of that, statistics could be provided citing all of the training that was accomplished, the numbers of people or the percentages of training that had been completed, the number of programs that were created for command implementation, and the list could go on, giving you a tremendous picture of a concerted and successful effort introducing and implementing TQL.

But I contend that no benchmarks have been established; there are no assessments that show the results of TQL or any identification of meeting the goals of predetermined measures of effectiveness, and, finally, no incentive to justify taking the extra effort required. Tremendous resources in dollars and people have been given to this program without establishing valid measures of effectiveness. To meet the Government Performance and Results Act requirements, it would fall far short.

What can be done to salvage this program to take advantage of the hundreds and millions of dollars already spent and to establish a program that truly makes a difference? The following is one approach: Conduct an assessment where the Navy's TQL program is today, where in relation to where it wants to be and should be.

In order to be an unbiased and effective assessment, the following criteria is recommended: Establish an assessment team. The charter of that team is to evaluate present plans for command and leadership management development, and evaluation of the resources existing and expended.

The product of this team should be specific recommendations for required adjustments that will make current plans effective, timely, and economically feasible. Team composition should be composed of those members who are knowledgeable, experienced advocates of continuing process improvement and leadership development.

Now it's important that the team members be independent of today's organizations which design and implement the Navy's leadership/management and command development programs. Existing biases and attitudes that impede the organizational commander must be bypassed. All members of the team, including the civilians, should have experience in the field.

Mr. HORN. I wonder if I might just interrupt you at that point since we've got all the time in the world. I didn't quite understand that sentence: The existing biases and attitudes that impede the organizational commander must be bypassed. All members of the team, including civilians, should have experience in the field. I'm not quite clear on what is the bypassing. If you could just elaborate here, I think it would help us.

Admiral SCHRIEFER. I think if you deal within the existing structure that we have right now to correct these problems, in other words, using the ongoing personnel, the bureaucracy that exists to implement TQL throughout the Department of Defense, you have a certain number of biases based on the way we've done business in the past: The reluctance to change, the reluctance to take that significant step, and also the mentality that exists throughout the entire structure, the tradition that I was referring to earlier.

In order to avoid that, I think you need to have an outside group independently look at it, evaluate it—and that outside group includes not only military personnel, but also those civilians who are experienced in this field—and then deliver that directly to the commanders, and avoid the bureaucracy that tends to bog it down.

Mr. HORN. Good. Please proceed. Sorry to interrupt on that one, but I thought it was a very important point and wanted to get it clarified.

Admiral SCHRIEFER. The next point is to ensure that the senior leadership—and this is for long-term involvement—supports the implementing and the recommendations that come out of that advisory group. The program will only be successful if the senior leadership forcefully supports and implements the recommendations. As initially conceived, the elements of TQ are tools which can have a major impact on readiness, efficiency, and effectiveness of the organization.

No. 3, establish an ongoing assessment which reflects and determines how predetermined measures of effectiveness are met and how they are implemented.

No. 4, establish incentives to promote the program. These inducements can run the full gamut from just a simple directive to budgetary controls as envisioned by the GPRA. Regardless, incentives will be an essential part in the implementation at the organizational level.

If the Chief of Naval Operations forcefully supports these recommendations and systems changes that will provide incentives, you will see this TQ program take off.

In summary, total quality as initially conceived provides tools that can have a major impact on readiness, efficiency, and effectiveness of any organization. I believe that TQ provides an important philosophy and technology that will enhance both our Federal Government and national security. Implementation is already a matter of both national and DOD policy.

It would be a shame to let it die as a result of poor politics, bureaucracy, or benign neglect. With modest experimentation, data collection analysis, and really courageous leadership at the top of Government agencies, we can develop a much lower cost TQ implementation effort. This will enhance the integrity and cost effectiveness of the entire Federal Government.

I want to thank you for giving me the opportunity to express these views.

[The prepared statement of Admiral Schriefer follows:]

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Mr. Chairman, Members of the Subcommittee, thank you for inviting me to testify today. I am Luther F. Schriefer, Senior Vice President and Executive Director of Business Executives for National Security, BENS.

BENS is a national non-partisan organization of business and professional leaders dedicated to the idea that national security is everyone's business. BENS members apply experience and commitment to help our nation's policy makers build a strong, effective, affordable defense, and find practical ways to prevent the use of even one nuclear, chemical, or biological weapon. We work with Congress, the Pentagon and the White House to ensure the changes we recommend are put into practice.

I am currently directing the BENS Tail to Tooth Commission. Its purpose is to address the imbalance that exists in the ratio of the support side of defense to that of the combat side—a 70:30 ratio. Through the application of "best" business practices, we believe that this ratio can be reversed, with the dollars saved put into force modernization. The commission is comprised of successful political leaders, such as Bo Calloway, Vin Weber, Warren Rudman and Sam Nunn, and CEO's from America's most successful companies who have brought the US business community out of the struggling period of the 80's into today's preeminent position. We believe that many private sector business practices are equally applicable to the business of defense.

Before joining BENS, I had just completed, in February of this year, 37 years of active duty with the US Navy as a carrier pilot, a ship driver, and as commander of several major shore based organizations including the Naval Base Complex in San Diego. In my last assignment, I was the Director of the Navy's Environmental and Occupational Safety and Health programs. During that tour, I also chaired the CNO's Total Quality Leadership Board and I believe that is the relevant reason why I am here today. My comments will be that of my personal experience.

I have applied the concepts of Total Quality in four separate commands: a ship and then three shore based commands. I experienced varying degrees of success, with the most successful my last command—at least I got to correct the errors of the first three experiences. In the Navy, we called the program TQL—Total Quality Leadership. The TQL program embodied all of the elements of W. Edwards Deming. It had support from the top, the CNO, in fact Admiral Frank Kelso was a very strong proponent—not just a supporter—he practiced it at the highest Navy levels.

Originally, in the Navy, it was the responsibility of each commanding officer to implement TQL in his or her command. The Navy established schools, trained facilitators, developed mobile training teams, and provided the essential materials necessary to really change the culture of the Navy—which is required to effect the principles of TQL. However, as it evolved, the training became more and more centralized and the emphasis and cost shifted to school house training of randomly selected individuals. Less effort was spent training and coaching senior leaders at the command level where such coaching and training was really needed.

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It might be useful to review what I believe to be the principle elements of TQ so we can better analyze where the gaps and flaws occurred in its implementation. There is some variation in agreement of these concepts, however, the following notions are broadly accepted:

1. Establish Continual Process Improvement philosophy.

2. Focus on Primary Customer Satisfaction.

3. Use data and statistical methods to identify, study and solve problems.

4. Empowerment of individuals and teams and involvement of the entire chain of command.

5. Strengthen and renew the Navy, command by command, through on-going assessment, evaluation of data, clarification of core values, and planning.

6. Emphasize leadership and personal development from the top down.

7. Provide the best known vehicle to introduce and manage positive change thoughtfully and systematically.

8. Redefine the leadership role to include managing processes and managing change.

9. Create a learning culture.

I am not going to amplify any of these elements as they are fundamental to the Deming concept. However, I will say that as basic as these may seem, the implementation of all nine, in sequence as building blocks, was seldom achieved. In fact, seldom did we get beyond element three and into element four, **empowerment**, and that is where the real pay off begins. From this perspective, I can comfortably state that the TQL program has not taken root except in isolated cases. I believe that the reasons for this are as follows.

1. There was a focus on random "school house" training instead of focusing on an entire command—one at a time learning, adopting, and benefiting from application of the TQ philosophy and its principles.

2. Although there were some outstanding TQ instructors developed, there was an overall lack of qualified TQ instructors, facilitators, and coaches with whom Navy personnel, particularly seniors, could relate and who could translate TQ principles into operational Navy terms.

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3. There was a lack of on-going assessment of program results. No pre-determined measures of effectiveness and no individual accountability for success or failure.

4. There was little or no reward for command implementation; no penalty for ignoring prescribed TQ goals or standards.

5. Finally, the senior leadership failed to acknowledge that the responsibility for TQ's failure lay solely on "implementation management" and **not** on TQ philosophy and principles.

I would like to sum up these five items in the following manner. The policy and direction that the Navy followed in implementing TQL was focused on training individuals one at a time. The concept of applying this training and implementing it across an entire command as an entity was not followed. TQ as a concept and philosophy can only prove itself in the context of an operational command accomplishing its mission. Genuine proof of its value in a command context is probably the only way Total Quality will ever be accepted system wide.

Now having said all of that, statistics could be provided citing all of the training that was accomplished, the numbers of people or the percentage of the Navy that has been trained, programs that were created for command implementation, and the list could go on giving you a picture of a concerted and successful effort introducing and implementing TQL. But I contend that no bench marks have been established, there are no assessments that show results of TQL nor any identification of meeting the goals of pre-determined measures of effectiveness, and finally, no incentive to justify taking the extra effort required. Tremendous resources in dollars and people have been given to this program without establishing valid measures of effectiveness. To meet Government Performance and Results Act (GPRA) requirements, it would fall far short.

What can be done to salvage the program, to take advantage of the hundreds of millions of dollars already spent on development of TQL, and to establish a program that truly makes a difference? The following is one approach:

- Conduct an assessment of where the Navy's TQL program is today in relation to where it wants to be and should be. In order to be an unbiased and effective assessment the following criteria are recommended:

  a. Assessment team. Charter an assessment team to evaluate present plans for command and leadership/management development and an evaluation of the resources existing and expended. The product of this team should be specific recommendations for required adjustments that will make current plans effective, timely and economically feasible.
  b. Team composition. The team should be composed of members who are knowledgeable, experienced advocates of continuing process improvement and leadership development. It is important that the team members be independent of

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today's organizations which design and implement the Navy's leadership/management and command development programs. Existing biases and attitudes that impede the organizational commander must be bypassed. All members of the team, including the civilians, should have experience in the field.

- Ensure senior leadership (CNO) support for implementing the recommendations. The program will only be successful if the CNO forcefully supports and implements the recommendations. As initially conceived, the elements of TQ are tools which can have a major impact on readiness, efficiency and effectiveness of any organization.

- Establish incentives to promote the program. These inducements can run the full gamut from just a simple directive to "do it", to budgetary controls as envisioned by the GPRA. Regardless, incentives will be an essential part in the implementation at the organizational level—if the CNO forcefully supports these recommendations and systems changes that will provide incentives for those who use TQ principles.

In summary, TQ as initially conceived, provides tools which can have a major impact on readiness, efficiency, and effectiveness of any organization. I believe that TQ provides an important philosophy and technology that will enhance both our federal government and national security. TQ implementation is already a matter of both National and DoD policy.

It would be a shame to let it die as a result of poor politics, bureaucracy, or benign neglect. With some modest experimentation, data collection and analysis, and courageous leadership at the top of government agencies, we can develop a much lower cost TQ implementation effort. This will enhance the integrity and cost effectiveness of the entire federal government.

Thank you for giving me the opportunity to express my views.

BUSINESS EXECUTIVES FOR NATIONAL SECURITY (BENS) DOES NOT ACCEPT FEDERAL GRANTS OR CONTRACTS. NO FEDERAL FUNDS WERE RECEIVED IN THE CURRENT OR TWO PRECEDING FISCAL YEARS.

Mr. HORN. Well, we thank you, Admiral. That's a blunt and truthful statement on the situation, and I thank you for saying it. We'll have a lot of questions about it later.

Our last witness on this panel is Lawrence Wheeler, vice president, Program System Management Co., Arthur D. Little, Inc.

Mr. Wheeler.

Mr. WHEELER. Mr. Chairman, thank you very much, and good morning. Thank you for the opportunity to provide information about Arthur D. Little's experience in consulting on quality management principles within the Federal Government.

I'm a director of ADL's Washington Government consulting operations. As a director, I oversee Arthur D. Little's total quality management services to Government clients. I also have personal experience in several assignments to help improve Government operations. I have been with Arthur D. Little for almost 13 years. Prior to joining ADL, I completed 24 years of active-duty military service as a Navy supply corps officer. I will now give you Arthur D. Little's observations on the subject of this hearing.

Corporate America adapted the principles of total quality management in the 1980's as the means to revolutionize business practices, empower employees, improve productivity, and raise profits. While some corporations were successful in the short run, few improvements have led to sustained high performance. Within the Federal Government, I believe you would find the same results.

We currently provide total quality management implementation services to the Federal Government under a General Services Administration contract. We have worked with the Navy, the Office of the Secretary of Defense, the Federal Aviation Administration, and the Internal Revenue Service.

In general, our experience has left us with an overwhelming impression that the vast majority of civilian and military employees of the Federal Government sincerely want to improve Government operations; they want to provide best value to the taxpayers. The application of the TQM principles often results in more efficient and effective ways of doing business. However, as in private industry, the success of Government employee individual efforts requires persistent leadership, long-term funding to implement, not just design changes, and rapid passage of ideas through organizational change of command boundaries.

My message is that the application of these principles to make Government work better and cost less is a positive approach. But the application to these principles must be championed consistently from the highest levels of an organization, and the trained resources must be aligned to make and, more importantly, sustain improvements.

I will now cite a few examples from our work with Government agencies. Near the conclusion of my remarks, I'll provide our observation of the pitfalls to successful performance improvement that we have also seen in private industry.

In the first example of our Government experience, we reviewed the financial procedures of an organization. Our mutual objective was to establish an improved process for determining whether the organization was making or losing money on a monthly basis.

You probably know this is not standard procedure in the Federal Government, but we were trying to develop an easy way to forecast a proper loss for the year sufficiently in advance to be able to take proactive corrective measures. The desired result was to break even by the end of the year.

As it turned out, our recommended approach was viable. The information was readily available and useful within the organization, and the process improvement worked without adding people. However, since the organization was not high enough in the chain of command, it did not have the authority to adjust resources to match work load, the key element that affected the year-end results. Thus, the organization had in fact improved the local process but the total process was controlled at higher levels in the organization.

The lesson learned was that the processes to be improved by the organization must be critical processes that can be exchanged effectively at their level.

In our second example, we made recommendations for significant improvements in a process that crossed organizational division boundaries, as most critical processes do, but the necessary resource and organizational realignment needed to implement the improvements could not be done quickly, and some of the benefits probably were lost because of the delay. The lesson here is that top managers must not only be consistent in their support of both the pursuit of the improvements, but also be persistent in making changes occur within a reasonable time.

In the final example, or success story, we worked for the highest level in the chain of command with routine feedback and communication with the highest official. After an intense effort to find the best single standard system that would improve an acquisition process, it became apparent that there was no one system that would be the answer. But in this case, because of the routine personal involvement of the highest official, our unexpected recommendation to use more than one system, depending on the circumstances, was accepted quickly and is being implemented.

The lesson here is that without the senior leadership commitment, our nonstandard answer would have had to be passed through several levels of review, probably delaying action on a very time sensitive issue.

Changing directions now, we thought that a few observations from our experience in private industry might also be of interest to you. In private industry, we have seen three root causes for the failure of many quality initiatives. First, most TQM projects fail to focus on the most critical business processes. Rather, they focus on obvious, classically defined processes like manufacturing, in which the task are identified, the individuals responsible for the processes are clearly defined, the customers are known, and the success or failure of improvement efforts is easily measured. Unfortunately, most of today's critically important business processes do not meet these criteria.

Rather than grappling with the complete and, most often, highly complex process, management allows improvement efforts to focus on only a portion of the overall operation. The results are usually marginal. My first example of our experience in the Federal Gov-

ernment is representative of this root cause in that the Government organization was improving only the local operation and not the entire process.

Second, most organizations fail to align their organization and their resources to support long-term improvement efforts. For most companies, quality recommendations require fundamental changes in the characteristics of an organization. In its policies, culture, and structure, quality initiatives also will require wise investments in the resource base, the people, technologies, information, and facilities. Companies often understand the need for such investment also, but typically fail to recognize their interconnectedness.

My second example of our Government experience fits this scenario and that the delay and implementation of improvement recommendations was related to culture and structure changes that could not quickly be overcome.

Last, TQM-based improvements often are viewed and communicated as being separate from the strategic goals of the organization. Consequently, the quality initiative is not communicated through planning processes or translated into specific objectives for departments or employees. Quality programs that don't support strategic goals will confuse workers and create conflicting priorities. I believe these observations from the private sector should guide the implementation of TQM in the Federal Government as well.

In summary, our experience in both the Government and the private sector indicates that positive and lasting results from quality improvement initiatives depend primarily on a consistent support of top managers at the level where critical processes are controlled.

That concludes my remarks, Mr. Chairman. Thank you very much.

[The prepared statement of Mr. Wheeler follows:]

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Testimony of Larry Wheeler,

Director of Washington Government Consulting Operations

Arthur D. Little, Inc.

before the

Subcommittee on Government Management, Information and Technology of the Government Reform and Oversight Committee

June 9, 1997

Chairman Horn, distinguished members of the Subcommittee , good morning. Thank you for the opportunity to provide information about Arthur D. Little's experience in consulting on quality management principles within the federal government. My name is Larry Wheeler; I am a Director of ADL's Washington government consulting operations. As a Director, I oversee Arthur D. Little's total quality management services to government clients. I also have hands-on experience in several assignments to help improve government operations. I have been with Arthur D. Little for almost thirteen years. Prior to joining Arthur D. Little I completed twenty four years of active duty military service as a Navy supply corps officer.

I will now give you Arthur D. Little's observations on the subject of this hearing. Corporate America adapted the principles of total quality management in the 1980s as the means to revolutionize business practices, empower employees , improve productivity and raise profits. While some corporations were successful in the short run, few

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improvements have led to sustained high performance. Within the federal government I believe you would find the same results.

We currently provide total quality management implementation services to the federal government under a general services administration contract. We have worked with the Navy, the Office of the Secretary of Defense, the Federal Aviation Administration and the Internal Revenue Service. In general, our experience has left us with an overwhelming impression that the vast majority of civilian and military employees in the federal government sincerely want to improve government operations and provide best value to the taxpayers. The application of the TQM principles often results in more efficient and effective ways of doing business. however, as in private industry, the success of government employee individual efforts requires persistent leadership and long term funding to implement, not just design, changes, and rapid passage of ideas through organizational chain of command boundaries. My message today is that the principles of TQM and the application of these principles to make government work better and cost less is a positive approach but it must be championed consistently from the highest levels of an organization and the trained resources must be aligned to make and, more importantly, sustain improvements.

I will cite a few examples from our work with government agencies and at the conclusion of my remarks I will provide our observation of the pitfalls to successful performance improvement that we have seen in private industry.

In the first example, we reviewed the financial procedures of an organization. our mutual objective was to establish an improved process for determining whether the organization was making or losing money on a monthly basis. You probably know this is not standard

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procedure in the federal government but the concept was to provide a means to forecast a profit or loss for the year sufficiently in advance to be able to take proactive corrective measures. The desired result was to break-even by the end of the year. As it turned out, our recommended approach was viable, and the information was readily available and useful within the organization. The process improvement worked without additional effort within the organization; however, the organization was not high enough in the chain of command to have the ability to adjust resources to match workload, the key element that affected the year end results. The organization had an improved process to manage better locally but the total process was controlled at higher levels in the organization's chain of command. The lesson learned was that the processes to be improved by an organization must be critical processes that can be changed at their level. In our second example, we made recommendations for significant improvements in a process that crossed organizational division boundaries, as most critical processes do. But the necessary resources and organizational realignment needed to implement the improvements could not be done quickly and some of the benefits might have been lost because of the delay. The lesson here is that top managers must be consistent in their support of both the pursuit of improvements and that changes occur in a reasonable time frame.

In a final example, a success story, we worked for the highest level in the chain of command, with routine feedback and communication with the highest official. After an intense effort to find the best single standard system that would improve an acquisition process it became apparent that our finding was that there was no one system that would be the answer. Because of the routine personal involvement of the highest official , our

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unexpected recommendation to use more than one system, depending on the circumstances, was accepted quickly and is being implemented. Without this senior leadership commitment, our non-standard answer would have passed through several levels of review, delaying action on a very time-sensitive issue.

Changing directions a bit now, we thought that a few observations from our experience in private industry might be of interest to you.

In private industry we have seen three root causes for the failure of many quality initiatives.

Our first observation is that most TQM projects fail to focus on the most critical business processes. Rather, they focus on obvious, classically defined processes, in which the tasks are identified , the individuals responsible for the processes are clearly defined, the customers are known, and the success or failure of improvement efforts is easily measured. Unfortunately, most of today's critically important business processes do not meet these criteria.

Rather than grappling with the complete and, most often highly complex process, management allows improvement efforts to focus on only a portion of the overall operation. The results are usually marginal. My first government example is representative of this root cause in that the government organization was improving only the local operation and not the entire process.

Secondly, most organizations fail to align their organization and their resources to support long term improvement efforts. For most companies, quality recommendations will require fundamental changes in the characteristics of an organization-- in its policies,

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culture and structure. Quality initiatives also will require wise investments in the resource base--the people, technologies, information and facilities. Companies often understand the need for such investments, but typically fail to recognize their interconnectedness. My second government experience example fits this scenario in that the delay in implementation of improvement recommendations was related to culture and structure changes that could not be quickly overcome.

Lastly, TQM-based improvements often are viewed and communicated as being separate from the strategic goals of the organization. Consequently, the quality initiative is not communicated through planning processes or translated into specific objectives for departments or employees. Quality programs that don't support strategic goals will confuse workers and create conflicting priorities.

I believe these observations from the private sector should guide the implementation of TQM in the federal government.

In summary, positive and lasting results from quality improvement initiatives depend on consistent support of top managers at the level where critical processes are controlled.

That concludes my remarks.

Mr. HORN. Well, we thank you.

Let me just ask some specifics now before I get to the general questions. And I might as well start, Mr. Wheeler, with you, just so I can clarify some of the testimony. You noted on page 2, you worked with the Navy, the Office of the Secretary of Defense, the Federal Aviation Administration, and the Internal Revenue Service. At what level were you dealing in working with those agencies?

Mr. WHEELER. It varied, sir.

Mr. HORN. Let's go down. Whom did you work with in the Navy now? What level was that?

Mr. WHEELER. The Navy was at the commanding officer of a naval activity out in the field.

Mr. HORN. This is a naval command?

Mr. WHEELER. Yes, sir.

Mr. HORN. Here in Washington?

Mr. WHEELER. No, sir; it's in California.

Mr. HORN. What's the aviation command?

Mr. WHEELER. The aviation depot.

Mr. HORN. This is in where? San Diego?

Mr. WHEELER. San Diego, yes, sir.

Mr. HORN. Everything seems to be in San Diego, so I thought I would have a good guess. The Office of the Secretary of Defense, who was——

Mr. WHEELER. That was locally here, sir, right in the acquisition arena.

Mr. HORN. This is Mr. Kaminski's area.

Mr. WHEELER. In his area, yes, sir.

Mr. HORN. In his area. I'm trying to figure out how high one has to go to get a success story here.

Mr. WHEELER. Yes, sir. The point I was trying to make was, if you're dealing with a field level activity, as we were in the Navy, generally they try to do things that improve locally for that command. But the process itself is generally higher and goes through many levels up to the top.

So your question is a good one, of course, but it depends on what process you're looking at.

Mr. HORN. Well, in the case of the command in San Diego, was that the initiative of the commander of the Pacific fleet, or was it within the support system?

Mr. WHEELER. No, sir.

Mr. HORN. Who told them to get moving in this area?

Mr. WHEELER. It was the CO permanent initiative, sir, and trying to find a better way to do business.

Mr. HORN. Well, that's interesting. So in other words, they have the freedom within this——

Mr. WHEELER. Yes, sir.

Mr. HORN [continuing]. To not have to get the anointment, I take it, of the Chief of Naval Operations or the rest of the hierarchy in Washington; they actually can go ahead and do something.

Mr. WHEELER. Yes, sir, they can.

Mr. HORN. That is good news. So I have learned something here. And in the Office of the Secretary of Defense, was this in one of the major assistant secretaries' realm? And if so, which one are we talking about?

Mr. WHEELER. Sir, it was for acquisition reform.

Mr. HORN. Acquisition reform. OK.

FAA, who are we talking about there?

Mr. WHEELER. This was done for the administrator.

Mr. HORN. OK. And the Internal Revenue Service?

Mr. WHEELER. This was for the Corporate Education Division of the IRS.

Mr. HORN. So they seem to have the freedom to contract, also——

Mr. WHEELER. Yes, sir.

Mr. HORN [continuing]. Or go right up to the commissioner.

Mr. WHEELER. Yes, sir.

Mr. HORN. Well, did it? The commissioner signed off on——

Mr. WHEELER. No, sir. We got this from the Corporate Education Director.

Mr. HORN. OK. Let me just see here if there was something else I wasn't quite sure on. No. That is the main thing I wanted to get clear in my mind. OK.

You said, Mr. Wheeler, that most quality management projects fail to focus on the most critical business process; rather, most projects focus on classically defined processes. How can organizations address those critical business processes? What is your advice on that?

Mr. WHEELER. I believe that there has to be a more correlated approach to—as the admiral was saying, that there has to be a higher level approach to determine what a full critical process is, and then have the individuals that are part of that process cooperate together to make it better. To go in and just shotgun processes for the purpose of statistics serves no useful purpose. How would they determine the most critical processes I believe would be determined basically on what the activity's results are expected to be and work backward from that.

Mr. HORN. OK. Admiral Schriefer, let me ask you a couple of things. I was very interested in your almost first opening comment on the need to turn that ratio around of support to actual people on the line, the combat side, and you noted the 70/30 ratio.

As I remember, as a little kid, and I was fairly small then, but I sort of followed the Second World War, and I would like maybe if you could correct me if these were the wrong figures: The United States had essentially 90 percent behind the line and 10 percent on the line. The USSR, with its military, had 10 percent behind the line and 90 percent on the line. Is that too much of a difference or what? It has been in my mind for 50 years now, so you have——

Admiral SCHRIEFER. I can't verify those statistics. I haven't heard it that bad. Historically, over the last 15 to 20 years, we've been running about 50/50. As a benchmark, the Israelis run 30 percent, almost the reverse of what we have today.

Mr. HORN. This is 30 percent on the line?

Admiral SCHRIEFER. 30 percent support.

Mr. HORN. Support, OK.

Admiral SCHRIEFER. And 70 on the line.

What's happened to us is that as we have downsized at the end of the cold war, we have cut the combat forces and all of the support going with them, pretty much a steady budget, and we barely

touched the supporting infrastructure. And that's how it's gotten so large. And our thrust is to look at the way that the Department of Defense does business and see if we can't apply the practices, the best practices that the business has to offer. And I could cite some various specific examples that show how that could be done.

Mr. HORN. Well, I would like you to give us a taste of that here, as to how it could be done?

Admiral SCHRIEFER. Well, as an example, in the housing business, it costs about two and a half times more per person for the Department of Defense to maintain housing than it does if we turn it over to the private sector. Our administrative oversight and the travel budget——

Mr. HORN. Well, let me ask you on point. I can see where you are coming from, but would that mean the sailors would have to go out and find their own housing, or does it mean the Navy would have to contract with private housing rather than build it?

Admiral SCHRIEFER. There are all kinds of variations with that. That's part of the ongoing discussion right now. In fact, the Department of Defense has taken a real hard look at it. They've got prototype projects most significant right now starting out in Corpus Christi.

But the thrust is basically to get the Department of Defense out of the housing business, that is not their core business, fighting and destruction is their core business and to get into the business of things like housing, the business community can do a much better job.

Mr. HORN. Would that be true around the country? In an urban area that might be true. How about in some of the rural areas where they simply don't have that amount of housing available with large group——

Admiral SCHRIEFER. That certainly would be one of the variations. And Department of Defense is looking at that.

Mr. HORN. It's interesting. Did that start with Secretary Cohen, or has that predated him?

Admiral SCHRIEFER. It's predated him, although he has certainly taken the initiative in it.

Mr. HORN. OK. How long has that study been going on?

Admiral SCHRIEFER. I can't answer that question. I don't know.

Mr. HORN. It isn't over a year or 2 years?

Admiral SCHRIEFER. There have been various pockets of it. I think the most recent one Secretary Goodman has, who is responsible for this, is probably about a year. I know the Navy particularly has been addressing that and they've had some very strong prototype programs that are showing success.

Mr. HORN. You mentioned the Chief of Naval Operations. Admiral Frank Kelso is a strong supporter of quality leadership. You served in the Pentagon under two CNO's. Was the other one the stronger supporter, and who was that?

Admiral SCHRIEFER. Well, Kelso was relieved by Boorda, and Johnson relieved Boorda. There has been just a change in the attention and the emphasis that's been placed on it, and primarily, I think, because there's more emphasis throughout the spectrum than was required or they felt was required on TQL. The effort that we had put in infrastructure, the training, and all of that did

not change; that pretty much stayed as it is. It is just the emphasis that came from the top.

Mr. HORN. Has the Secretary of the Navy made any effort to back this program up?

Admiral SCHRIEFER. He certainly has. He has an office that he's established that specifically is focused on quality management, TQL.

Mr. HORN. As I remember, that is under the under secretary of the Navy and reports——

Admiral SCHRIEFER. That's correct.

Mr. HORN [continuing]. Directly to him. We will get into that a little later.

Do you think as you look at it—and the Pentagon is sort of unique compared to other agencies here, with rare exception—if we are going to get something done, is it basically the chief military officer in this case, the Chief of Naval Operations or the chief of staff or the Commandant of Marine? Is that where the initiative has to come from? Or do we need the civilian sector to keep prodding them even though they come and go every 4 years or 8 years or we need both? What is your feeling?

Admiral SCHRIEFER. I think we clearly need both. All we're really talking about is change, change the traditional way of doing business, and when you want to start talking about the combination of management and leadership or just leadership, that clearly falls under the uniform service.

Mr. HORN. Yes.

Admiral SCHRIEFER. And that's his charter, is to take care of his troops. And as a result, it has to be fully embraced at that level.

Mr. HORN. In the testimony of the Department of Defense, it will be the last panel of the day, there really isn't much there, unless there is something they just aren't putting there in terms of the services, and is it just so much more difficult to get total quality management through the service hierarchy or is it simply the support services, little dibbles and dabbles here in the Department of Defense? I didn't get the feeling that anybody cares about it, after reading the testimony.

Admiral SCHRIEFER. I haven't seen the testimony, so I probably can't respond to it.

Mr. HORN. There is probably a copy over there on the table. If not, we can furnish it. We will get into that at length when their witnesses come.

So I was just curious in your sense of having been in the Navy hierarchy, having observed it, the civilian sectors of the Pentagon, is it much more difficult for us to have and expect a total quality management effort in the military services than in the civilian run services, where some come from business, they are familiar with the concept, and so forth?

Admiral SCHRIEFER. I don't think so. I think in my testimony I might have come across very negative, and that was not the intent. The thrust was to point out where I thought the weaknesses were.

We have had some very good successes in the Navy. In fact, as was mentioned earlier by Mr. Wheeler, the work that was done by the commanding officer in aviation depot in San Diego was very

well done, and we have several other examples where it has been within the local command and the structure has supported in it.

From an overall perspective, I think it has been subsumed, the effort has been subsumed, in just the overall leadership approach the Navy has got.

Mr. HORN. Is the commanding officer that did that in the San Diego depot, is he still in the Navy?

Admiral SCHRIEFER. I think the one that started it is no longer in the Navy. I know one is and I think the immediate successor is out at this time.

Mr. HORN. So they retired from the Navy?

Admiral SCHRIEFER. I believe they did, yes.

Mr. HORN. So there is no reward for a commanding officer to believe in total quality management is what that tells me, if the Navy let's an officer that is on the pioneering side——

Admiral SCHRIEFER. I think that is a wrong reaction or understanding of it. Any commanding officer's reward in applying this will be, if he in fact has a stronger, better, more effective, efficient organization. TQ really addresses not only the end product and all the things that are associated in Deming's concept, but also the fact you take care of your people better. They become real players, and as a result, that really supports the organization better, and any commanding officer that achieves that is going to get tremendous satisfaction on that. So I would not say that his incentives are lacking. If he understands what he is doing, he should have no trouble at all in really being motivated to go after it.

Mr. HORN. Well, is it agreed that the TQ operation there was a success?

Admiral SCHRIEFER. I would say that it was a success.

Mr. HORN. Well, I guess I would say if I were a junior officer in the Navy wanting to get to the top, gee, you know, it was a success, and he isn't rear admiral or he isn't vice admiral or he isn't admiral. It seems to me, the smoke signals, the shock waives, whatever you want to call it, people are stupid, they look ahead and they say, gee, what do you get rewarded for around here, and as you say, it is the total effort of that particular command, but if it was a success, that particular command ought to be doing better than a comparable command.

Admiral SCHRIEFER. Let me turn that question around a little bit. There are significant numbers of flying officers that applied TQ concepts in success of their command.

We took a ship to a shipyard up in San Francisco. Any time you take a ship into a shipyard, it is not a pleasant experience, particularly for the crew. He was up there and started this—it was a major year or year and a half overhaul. At that time, the retention of the troops, the yearly, dropped significantly. Well, about 3 or 4 months into the overhaul, the company that was doing it went on strike, and they stayed on strike for a year. Now here you have a crew aboard a ship, who has really no focus on life anymore, and it is a very bad leadership problem.

Well, he took that crew, he applied the total quality principles to that. His retention went up higher than just about anything, and he was very successful. So that is an example, and he clearly got rewarded for that. He went on and had plan of a carrier and

selected for a flag by the way he applied those same principles both on his membership, as well as on his shore commands after that.

So there are rewards and there have been rewards for those who applied it. When I talk about incentives, it has to be an incentive across the entire spectrum. In other words, the lowest level, as well as the senior readerships, have to realize and understand that.

Mr. HORN. Well, from your position to observe the Navy now as a retiree, what percent of the Navy would you say is involved with total quality management efforts? Ten percent? Twenty?

Admiral SCHRIEFER. I tell you, I really couldn't answer that with any degree of confidence.

Mr. HORN. Has this gotten into the bloodstream of the American Navy?

Admiral SCHRIEFER. Let me answer that two ways. I think the concepts of TQ are starting to be felt throughout the Navy, the concepts, not the application, because we are teaching it at all levels right now from the academic position. The actual application of it, which, again, we heard it several times today, requires the commitment of senior leadership, right straight on down. That has not been nearly the level you would expect, and a gut feel might be 20 percent, but I have no idea.

Mr. HORN. Well, as I hear the grapevine in various fleets, Atlantic and Pacific, from just the average person, it sounds like a lot of people are being trained and they aren't given a project to deal with after the training. That just seems to me to lead to a lot of frustration and hopes and expectations, that we found the new religion of management, Drucker 10 or whatever we want to call it, or Deming 2, you know, it is just not the way to run an organization, to get all that high level of training and then not have projects where there is something to be done in a manageable period of time that puts that training to work. So you learn something from—as John Dewey said, learning by doing is what counts, not just reading about it.

And that is what concerns me in the Department of Defense submission. It is a zilch, frankly, and we will be getting into that, unless they just forgot to say anything about the armed services, with rare exception, and some of the projects are fine, but they are piddling in terms of the challenge, and that is why I am curious whether we are just training people or whether we have missions for them to accomplish when they are training.

My first mentor was the Secretary of Labor, under President Eisenhower. I was his assistant. He taught me early that endless job training does no good unless there is a job at the end of the line that someone can see and someone can place. He was right, and it just leads to frustration and organization when it is the other way around.

So let me ask some questions of Mr. Conchelos and Ms. Riley. How did it feel for you to win the Baldrige Award? That is why you are here as witnesses.

Mr. CONCHELOS. Absolutely phenomenal. It was not the end of a long road, actually; it is the beginning of a new road for us. I have never done so much public speaking in my absolute life.

Let me explain, we didn't get into the Baldrige process, as Harry Hertz said earlier, to win this award. What we wanted to know

was, in 1990, we submitted our very first application, and as I said, we started this in 1988 and it took us 14 months to develop our process, so we were virtually just implementing this throughout the organization when we applied for our first Baldrige. But what we wanted to know was, were we on the right track? We had benchmarked several organizations, as I stated earlier, but we still weren't sure and this was the criteria that could be used to find out exactly if we were on the right track.

Mr. HORN. Well, what was the reaction and feedback from the employees?

Mr. CONCHELOS. At implementing total quality or winning the award?

Mr. HORN. Winning the award.

Mr. CONCHELOS. They were ecstatic.

Mr. HORN. How many years ago did you win the award?

Mr. CONCHELOS. 1996.

Mr. HORN. So we haven't had a full year yet.

Mr. CONCHELOS. No, not yet. One of the things that people are very amazed about is we have a very small facility, we are 180 people, we have 87,000 square feet right now. That Baldrige Award, along with our New York State Excelsior Award, which we won in 1994, are right in the break room.

Mr. HORN. Who is the sponsor of that award?

Mr. CONCHELOS. That is our local State award.

Mr. HORN. Very good.

Mr. CONCHELOS. Both of those glass crystals are right in our break room for our employees because they are the ones that won the award.

Mr. HORN. How about it, Ms. Riley?

Ms. RILEY. Well, at General Motors it was complete pandemonium when we got the call that Cadillac had won the Baldrige Award. We were in a business meeting and our chairman, who at that time was Bob Stempel, called to tell us that he had received a call, and you could hear the senior executives of General Motors: we could hear all the noise and excitement. Now what impact did it have beyond the excitement? It had a very significant impact.

Going back to your question that you have asked several times this morning, that is, can you implement TQM without the total commitment of the top leadership? Ideally, and I know Harry will support me on this, we want the top leadership to be in front of the parade, we want them to put TQM on their t-shirts, we want them to name their first born quality, but the reality in the United States is that just doesn't happen.

So the start sometimes is not at the top; the start may be some individual, because concepts come from individuals, not teams. Conceptually, it is possible in some types of organization where there are strong autonomous units, the change may start somewhere other than the top. In order for the development and implementation to occur, and become a true, total quality management system across the total company, you do need top leadership to get involved and lead the parade.

Now how do leaders do that? Sometimes they do it by waving flags and putting slogans on the walls and what have you. Certainly the important thing is they have to establish direction and

have to be consistent with respect to their direction, no matter how many changes are going on.

Another way that leaders lead that we don't talk about a lot and I call it rotational leadership. That is when leaders have the ability to allow those in the organization to lead the change, who know best what the change is, and I heard the Admiral Schriefer talked about examples of change agents, down in the organization, who have started the momentum. Once Cadillac won the award, General Motors didn't say, hey, we don't want this here; the chairman called me up and said, Rosetta, if we can make this happen at Cadillac, at a 60-year-old company that was in severe trouble, we ought to be able to make this happen at General Motors.

To make a long story short, I was assigned to work directly for the chairman and his direct reports so that we could create a total quality management process for General Motors for the 21st century. That is what GM is trying to implement now. So becoming involved with the Baldrige Award had a significant impact on General Motors Corp.

Mr. HORN. Well, let's limit it a minute to the characteristics of the supporting leader. You have done some of that. I would like to know the characteristics of a leader that is unsuccessful and what are the primary things that the leader does wrong, even though they might mean well when they start on it.

Ms. RILEY. Right. Leaders, in many organizations that I have come in contact with, and even in my company, General Motors, and some of these autonomous units would establish values, vision, and mission statements. We would put them all over the wall. But we didn't have a process in place to make anything happen.

It is the same thing as your comment on training. You can train all you want, but if the training doesn't have a mission and a purpose, and you don't have an organization structure in place so that employees can make something happen with that training, it just simply won't happen.

In many organizations, we want TQM and its benefits, but we don't want the pain. So we take TQM principles and like fruit on the low hanging tree, or it is very similar to what we did in the early 1980's when we went to Japan and decided they had the best quality possible and looked at everything and we came back and said the reason for their quality was quality circles. We didn't understand it was systems.

Well, the same thing is still going on in many companies where leadership does not understand that you don't look at one process and improve just that process. You have to look at every single process because they are all linked and interdependent, and just improving one and not doing anything with the others, you are not going to get the results you need, so you must take a systems approach. So that is certainly one of them.

The other issue we talked about was training. In many of our companies we train our employees, and especially union companies, we trained union workers because, after all, they are the problem. However, we didn't train management or anybody else, so we created a euphoria for these employees. They came back with religion, they were ready to turn the company around, but their leaders or supervisors or foreman have never been trained so they would say,

"Hey, great news but that dog is not going to bark here." These kinds of issues are the kinds of issues that get in the way of success.

Mr. HORN. When you did train union shop stewards and people in the collective bargaining hierarchy, did anybody find that made a difference in future collective bargaining negotiations?

Ms. RILEY. Training makes a difference. What made a difference in future bargaining negotiations at Cadillac, and you asked this question earlier, how they involve unions in the development of total quality management, the worst thing you can do is develop the process and then go to them and them to sign up for it.

The second worse thing you can do is give it a name, because once you give it a name, it becomes a target. What you need to do is assume that they are our people, our greatest resource, and so we need to clear the table, start off with a blank sheet of paper with them around the table and say, here is what is wrong with our company, here is our values, here is our direction, here is where we need to be, show us how to get there. And they will come up with the same concepts.

No matter how many times you go through this exercise—and I know Harry will support this—no matter how many times you come up with the exercise, the employees are going to come up with the same, basic answer, maybe giving different terminology. What I am saying about unions is when you go to them with the answer and ask them to buy in, it is very difficult for them to do that.

Mr. HORN. Anything else, Admiral Schriefer, Mr. Wheeler, that you want to say on the successful characteristics and the unsuccessful characteristics of a leader, anything you want to add to the menu here?

OK. I think we probably discussed this one enough, but what are the components of a good training program? How long should it last? Is it a daytime thing? Is it a day every few months? An incremental building of knowledge? What? How do we deal with that? You are an expert, Ms. Riley. Tell us about it.

Ms. RILEY. Well, I don't know about being an expert. But training certainly has to have a mission and a purpose; it has to be tied to something. It is best if it is just-in-time delivered so that once employees received the training they can go right in and use the training.

In order to make training effective, leaders of a company, we must be certain that we have removed all roadblocks. We can train them, we can have mission, but if a company has roadblocks that prevent employees from doing the implementation, they still can't do it with the best training in the world.

Training in terms of whether it should be 1 day or 2 days or what have you, that all depends on what kind of training you are doing. But certainly any kind of training that is done for process improvements or to help employees do their jobs should be done on a regular basis. In other words, what I am saying is you don't do it once at the beginning and never do it again; you have to reinforce knowledge over time.

Mr. HORN. Anything anybody would like to add to that?

Mr. CONCHELOS. Our training right now for total quality management is 21 hours. That is within the work cycle, within the regular work day.

Mr. HORN. Twenty-one hours over what period?

Mr. CONCHELOS. That is over 7 days.

Mr. HORN. Over 7 days. So it is essentially 3 hours a day?

Mr. CONCHELOS. Three hours a day.

Mr. HORN. And when do the 7 days occur?

Mr. CONCHELOS. We were, in the beginning, waiting until after the 60-day waiting period after they were hired, to make sure they were Trident material and we were right for them. Because we have had people there leave because they couldn't understand total quality. The original plan was after 60 days.

We have since modified that as part of our new hiring practices. And to help these people understand about Trident and the team atmosphere they are going to be in and help them understand our language a little bit, they get 6 hours of training within the first 2 weeks of their working at Trident. So we are trying to bring them into our family a little faster, and we found that has helped with our turnover rate in our less than 60-day period.

Mr. HORN. Is that 1 hour every other day or 1 day you take 6 hours?

Mr. CONCHELOS. We have kept it in 3-hour blocks, 2 days, 3 hours, so they can really get a feeling for what they are going to be hearing, their interactive skills. It is basically their interactive skills training and introduction of the problem solving process because we do like to have new eyes on our teams, so they are constantly asking, why do you do that, why do you do that.

And for our older—not older workers, but people who have been in the organization for a while, the easy answer is because that is the way we have always done it. When you have new people looking at it, they really make us stop and look and say, why do we really do that, help streamline our processes.

Mr. HORN. What did you find your biggest mistake was when you started your first training program? What had you forgotten or what didn't you know or understand? I mean, you obviously learned a lot.

Mr. CONCHELOS. The difficult part about training was how are we going to do it. That was the difficult part for us. We didn't know whether we could do it during the work day, whether we had to do it after hours, so that we didn't interfere with the manufacturing process, because as wonderful as it is, business must go on. You still have to get those parts out the door in order to get paid at the end of the week, so that was a very difficult aspect for us, trying to figure out exactly how to do that.

We made a few mistakes along the way, for example, we shut down entire departments when it really wasn't necessary. We went back and instead of just training people by departments, we took them cross functionally. And that even added to the conversations, because the people in one department could ask the people in the other department, "well, as my customer, why are you doing this?" And it helped to increase internal customer supply relationships.

Mr. HORN. One of the things they said for years about law enforcement training is, when they have to go through the academy,

is the graduate of the academy comes out with a lot of knowledge and a lot of ideals or they wouldn't have gotten into the police force. And they get out on the beat and the sergeants says, "hey, kid, I know they taught you a lot at the academy. Forget it. Just watch what I do."

How do you deal with that in any human organization?

Mr. CONCHELOS. As everybody has stated here, our training is just in time. What you learn in the classroom will be put to use very, very quickly.

One of the most difficult aspects for us in this total quality journey has been the changing role of the manager, who for years has worked his way through the ladder to become the, quote/unquote, boss, who is no longer the boss, who no longer has all the answers. That was difficult for us, and we did lose a couple people on our staff because they could not handle that. But our people now understand they are no longer the boss, they are the coaches. The real experts are the people that are on the punch presses or on the press brakes. They are the experts in what they are doing, and we have, as we said in our statement, utilized their talents to become one of the—I hate to say best, but a national organization.

Mr. HORN. It shows it can happen and can be done and can continue.

Mr. CONCHELOS. It can continue, and it has to continue. It is the greatest thing when competitors come by. People don't understand how we can open up the doors to competitors, but we do open them up. We offer seminars each month, and there is no way of stopping them. But the better that our competitors become will be that much better that we become.

Mr. HORN. So competition works.

Mr. CONCHELOS. Absolutely. Absolutely.

Mr. HORN. Are your competitors all trying to emulate you on this?

Mr. CONCHELOS. They are trying to figure out if it is just painting the machines or keeping the place clean. They are trying to figure it out. They are trying. They are trying. We have some of them that are very, very close to us and keeping us just ahead of them.

Mr. HORN. Ms. Riley, do you want to add anything to this on training?

Ms. RILEY. The one thing I wanted to address is the comment when you do train folks, and they go out and the sergeants on the beat says, you are not going to do this here. What we did to get around that, because that was the exact situation we encountered, we trained the people at the bottom levels of the organization the union workers and folks in the plant, but we didn't train senior leaders. We learned, though, through working with the Baldrige criteria and other sources to start our training at the top and let it cascade down to the rest of the organization. Our leadership in our divisions were required to conduct the training. They did not do all the training, but they did train a cross-section of the organization in various training courses that we considered to be key.

Mr. HORN. Admiral, do you want to add anything to this discussion?

Admiral SCHRIEFER. I think the training, at least the experience I have had in the Navy, has been pretty significant. We have, in

fact, incorporated it through all levels. The problems that we have had have been in the implementation phase. And like I said, the training is mostly schoolhouse-type training. It is the academic, it is the actual application of the techniques. That is where the breakdown has occurred.

Mr. HORN. Well, let's use analogies with other types of training the services do. There is probably no group in the country that is more committed to training than the military services, and they have been way ahead of the rest of the country in a lot of areas. So are they treating total quality management different than normal training, or where are we missing it, besides the fact there is not much to implement it on when they get out of their training, and that is a frustration, obviously? But where are we missing it? Is it somewhere between the ranking noncommissioned officer that things aren't happening, or how does it work?

Admiral SCHRIEFER. Let me go back to a comment I made earlier. We are talking about change and changing a culture and how we go after things, and that requires involvement across the entire command spectrum. It involves the entire command to go at it. If you just have pockets within the command that no one understands and tries to implement it, it is not going to be successful. It's got to be a command involvement in it. The just-in-time training, if that is applied properly, with the leadership fully knowing and understanding, you are going to have success.

Mr. HORN. We had a hearing here a week or so ago on the Government Performance and Results Act, otherwise known as GPRA, and that is what struck us is there is a little bit of a sprinkling around on sort of the easy stuff, and there is no involvement of a total department or no involvement of a total major section of a department, and it sounds like the Government Performance and Results Act is going the way of the Total Quality Management Act, where, I grant you, if you can show some small examples in some phase and then spread it out, I am not going to knock that, that is a possible success and learning story on both the training and the implementation.

But the question comes, then, how do you deal with, as was pointed out, all of these interactive processes that relate to your neighbors in the organization, and how do we get at, through leadership and other matters, of making that commitment?

Mr. Wheeler, do you want to add anything to this?

Mr. WHEELER. Just to reinforce your last comment, sir, the commitment has to be there. The people that are receiving the training have to know there is a reason for the training, rather than just getting their ticket punched.

Mr. HORN. What should Congress do, if anything, to encourage more widespread application of the total quality management principles throughout the Federal Government, because right now they are working on a timed schedule with the Government Performance and Results Act? That is somewhat different. But if you are going to be successful there, total quality management is needed in high numbers to really make that work.

Mr. WHEELER. One idea might be, again, picking up on your feeling, maybe a commanding officer who did some good quality management didn't get recognized for the performance. Maybe there

ought to be something put in performance evaluations to make it a serious commitment on the part of all the senior leadership.

Mr. HORN. Well, let me ask Admiral Schriefer for a little history. As I remember, when Admiral Zumwalt became Chief of Naval Operations, some of the old guard was driven mad by his Z-grams. But what it really was was a commitment to listen to everybody, whether they were the newest enlisted personnel or the most senior admiral, and I would think that made a difference.

Now we were coming out of Vietnam, all of the services were having trouble on retention and all of that, but as you look back at your 37 years or so, what success stories have we seen in leadership in the CNO's office to make a commitment to turn a very complex organization around? Who has been successful in that? Who has been the most successful in that area? Granted, in a 4-year term, you can't do much.

Admiral SCHRIEFER. I am not really qualified to judge all of our CNOs. I will say I think Admiral Kelso was really fully behind, supported, and believed in this program. He embraced it, and just about every aspect of the way he tried to run the Navy was incorporated in that. And it took his strong leadership, I think, to put the Navy out in front in this business.

Now that wasn't sustained, and one of the problems that we have got in the service, with all of our commands, is a commanding officer is in command for a relatively short period of time. And that is why I commented so strongly on the implementation process. If it is totally dependent upon the characteristics of a given commanding officer, and he leaves, and he hasn't embedded that throughout the entire command, it is going to fall apart when he leaves. That is why it is so important to implement it throughout the command and have a good process in doing that, otherwise you are not going to have success, as we have experienced.

Mr. HORN. Isn't the only way to assure continuity, that it becomes part of the promotion pattern within the service—let me give you an analogy. Maybe it isn't directly on point. As I remember, the Army was the first to recognize that they needed scientific officers at the general rank, and they just simply started rewarding that in terms of promotion. Scientific officers could advance as fast as many of the nonscientific officers, and that showed they welcome people in science and research and so forth on which the future Army depends. And the only way I know to get the incentives out is when you change the promotion system and the compensation system. Now we can't do much about the compensation system, but there is a lot I would like to do on it and I will be doing on it if we can get everybody to sign off around here is what we did in the university system where I was. It took me 5 years, but it happened, and that was to reward management and to give management flexibility and to have a contract written out as to what are you going to accomplish in the next 6 months or a year and hold people to that.

So I would hope that we could get this into the promotion system, if anything is going to happen, because I don't know how else you keep people's attention on it. But, again, that has to be done by the top management, both civilian and military, I would think.

Any other suggestions on this area? Do we have any other suggestions here?

I think total quality was developed for manufacturing processes. Can it be successfully adapted to the Government environment? We have shown some of it has been adapted, but is that just a misnomer that people say, "Oh, well, that crowd in the private sector, it isn't relevant to us, we serve the people." Any bright answers to that?

Admiral SCHRIEFER. The smart answer is that is a cop-out.

Mr. HORN. That is a what?

Admiral SCHRIEFER. A cop-out.

Mr. HORN. Yes, it is, and yet I bet you run into it once in a while.

Ms. RILEY. You can run into it in just about any company. The support functions like financial and marketing say, that does not involve us, it is only for manufacturing. But what we have found through the Baldrige process by observing all the companies that have applied all the information we know of what is going on out there, it applies. It doesn't matter what type of company or what type of organization. You can be profit or nonprofit, manufacturing or small business or Government, and it just really doesn't matter. We could probably implement it here at the Rayburn Building, if asked to.

Admiral SCHRIEFER. Within our own organization, when I talked about reducing cycle time, we look at the manufacturing process. We didn't even think of the service end of the business, and yet that is where we are finding most of the delays, in the paperwork end, not in the manufacturing end. We have gotten that down very well, but what we are looking at now is from the date we receive an order to the date we get paid, that is now our cycle time. And we would like to reduce that by 50 percent, in 45 days. But we are applying the total quality management, and have been, to the service end, in the accounting areas, in the order entry area, et cetera, and in—wherever we have tried to implement this, so long as we look at the metrics and develop the right metrics, what are we looking at, what are we looking for, we have made significant progress. And I am sure that within Government, whether it is the Federal Government or State and local, which I am going to be hearing from later on, this does work.

Mr. HORN. One last question would be the setting up of a special office, as you suggested, Ms. Riley. You were reporting directly to the chairman, CEO, or does one depend on the personnel office? Or does one set up a special office that integrates broader considerations than personnel, if you are going to be successful in this area, and what do you see out there? I mean, when people try this—and all panels might want to participate in this question and file it for the record, we will put it in here without objection—and what is the best way to get down to the nitty-gritty and organize and pull the pieces together?

You have somebody who has to monitor this. The chairman, the Chief of Naval Operations, or chief of staff, whatever, are running around with other obligations, but they have got to have somebody that keeps them informed, and that they can pat on the back and focus in the right direction and back them up, and I assume that would be a special office. Now, is it just a one-shot affair, or is that

a special office forever, if you are really going to face up to getting this into the system? What is the best way to do it, special office; let the personnel people do it, what?

Ms. RILEY. Because personnel or human resources management is certainly one of the major processes of teaching, that needs to be addressed, as we empower our people and put together a human resources-type process so they can get their jobs done and come up with new work design approaches. However, I think TQM is the responsibility of the leadership. There needs to be a person on the leadership team that acts more or less as a consultant to help train the leadership, to help advise the leadership or consult with them on TQM principles, to act as an overseer who is pulling all of this together, because you are looking at the total business. Ideally, the leadership team of a company, you try to get them to behave like a board of directors. Thus they get rid of their functional responsibility, and every executive around the leadership table takes responsibility for every part of the business. We end up with engineering equally responsible for human resources and marketing equally responsible for engineering. That is the ideal situation. But even in that situation, you need someone sitting at the table with TQM knowledge that constantly acts as a consultant to the leadership group.

Mr. HORN. Any other comments?

Admiral SCHRIEFER. I think her comments were right on. It is a leadership issue. In fact, that is why the Navy called it TQL, to wrap it right up in there, and it has to come at the highest level, and he has to be advised, and he has got to support it.

Mr. HORN. Well, I think you are right, and I guess, just based on my earlier questions, what concerns me on the military side is the feeling that very few senior military or civilian leaders believe in or practice total quality management or leadership, and in view of the critical need for senior officers and senior civilian personnel to embrace and support that effort. I guess I would ask you, what is your estimate, whether it be in your industry, nationwide—you point out your competitors are coming in to look at what you are doing—or whether it be where you are consulting or looking at who Arthur D. Little helped over the years, in the case of the Admiral and the Navy, what percent of people do you think in these organizations just really don't want to spend their effort on it? And is it a major first job in saying how important it is and get them involved so they get excited by it; and after the excitement do we still have a group that says, "Oh, well, I like the old way of doing things?" You mentioned a few left your firm with that attitude.

Mr. CONCHELOS. Yes, exactly.

Mr. HORN. Or did you force them out?

Mr. CONCHELOS. No.

Mr. HORN. They decided this wasn't the way they wanted to go.

Mr. CONCHELOS. Exactly. That one particular day when the CEO called the entire place together to explain about the suggestion box, that he was really the one at fault, that was really our turning point. People really understood this guy was serious about this, and no matter what they may be doing in the background, they were not going to change this, and they felt bitter—they wanted to be the boss. They could not accept the cultural change, and this is

exactly what this is, this is a cultural change. This is not a flavor of the month, and people have to understand that. It is—unfortunately, American business today wants to see their invested dollar grow within 2 or 3 days. This is a minimum of a 5-year project. When we undertook this, we understood that, our CEO understood, because understand, he was the one footing the bill for this, he was the one paying money; not so much us, but he was. We were putting the time in. He understood this was a minimum of a 5-year program. We weren't going to see any results for 5 years. That is what we went in looking at and understanding.

The results we have gained since then have been absolutely phenomenal. Our turnover rate went from 41 percent to less than 2 percent this year. It is a major cultural change. And I just wanted to say, we have been talking about leadership so much, and Harry mentioned this morning that people at the regionals that we are giving our presentations to do ask us, how do I convince my CEO this is the way we have to go in order to stay competitive? And I had to look at this gentleman and actually tell him that I didn't know how to answer the question because I did not have to convince my CEO, my CEO convinced me, so it was a completely different relationship.

Mr. HORN. Well, you raise an interesting point. We did have great resistance in this country for a long time to any change, and the prime example was the automobile industry, of being so backward it was unbelievable. But that is when it really comes to getting informed, members of boards of directors or boards of trustees, as the case may be, get a commitment there from people on the boards that would get the CEO in a good mood enough to say, hey, your future here is dependent on you turning this organization around. And the danger, of course, and I have seen it in universities, you can turn it around. What happens when the person leaves?

I think of Robert Hutchins at the University of Chicago, probably the greatest educational reformer of this century. The minute he got out of there, however, they started going back to their old traditional university ways. That doesn't mean they aren't a fine university, they are. They could have been a better university if they kept what he started there in terms of interdisciplinary connections between disciplines and all of that, and they didn't.

I asked him one night when I had dinner with him, because he was my intellectual mentor, I said, how did you get away with all you got away with? He said, they were flat broke when I got there, they had to listen. And, of course, tenured faculty and other tenured people in Government, that is one of the problems. They sort of say, oh, we will wait this craze out and do something else; you know, it comes, it goes. And you have to break through that and say, we are serious and future administrations, regardless of party or Congresses, regardless of party, are going to be serious, too.

So anything else to add on this?

Well, you have been very kind and patient with your time. I appreciate all of you coming. We are now going to take a break, and we will recess until 1:45, with panel three, starting with Mr. Wall from Ohio and Mr. Frampton from South Carolina. Some exciting

things are going on in the States, and we want to hear about them. So we are now in recess.

[Whereupon, the subcommittee recessed at 12:20 p.m., to be reconvened at 1:45 the same day.]

Mr. HORN. We have our third panel. And if you gentlemen wouldn't mind, please stand, raise your right hands.

[Witnesses sworn.]

Mr. HORN. And we're going to start with Mr. Wall, the director of the Ohio Office of Quality Services. We thank you for coming and sharing your ideas with us.

STATEMENTS OF STEVE WALL, DIRECTOR, OHIO OFFICE OF QUALITY SERVICES; AND GREG FRAMPTON, EXECUTIVE ADMINISTRATOR, SOUTH CAROLINA DEPARTMENT OF REVENUE

Mr. WALL. Thank you. And good afternoon, Mr. Chairman. I appreciate the opportunity to talk a little bit about the lessons we've learned in Ohio trying to make our quality improvement efforts work. I hope to be able to share with you both some of the successes we've had and some of the real frustrations we've had as we've moved forward.

But before I begin, I want to give you a quick word about terms, and that is that most of us in Ohio really are sick of the term "TQM." It doesn't come from that it stands for anything bad. What it comes from is that it has become jargon. It seems like every consultant that comes along and wants to sell a new course or a new book comes up with a new word. I recently received a brochure that said, come to this new course, it goes beyond TQM. It's about customer service, too. I don't think there's really an understanding of what this is all about.

It begs the idea that what we're trying to do is implement a program. And so that word is an end in itself, and our efforts are a means to an end. We call our efforts Quality Services through Partnership simply because those words mean something to us about our union-management partnership, but primarily what we talk about is we're simply trying to become a high-performance workplace, one that both gives value to the customers and one that's a better place to work, and these are just simply the best practices we use to try to get there.

And learning these best practices are not hard. There's a grade-school teacher in Westerville, OH, who teaches kindergarten kids how to use parados and fish bones and even control charts to improve the process. This is not hard to do. What's hard is to get people to change and do things differently from the way they've always done them before.

I read somewhere that the only people that really welcome change are wet babies. And I'm not sure that that's necessarily the case, but I saw the this great Calvin and Hobbs cartoon that I think sums it up. And Calvin and Hobbs are flying down the road in a wagon, and Calvin says to Hobbs, "I thrive on change." And Hobbs says, "You? You threw a fit this morning because your mom put less jelly on your toast than yesterday." And Calvin says, "I thrive on making other people change." And I think that really is what makes people mad. This is about giving the people who do the

work and who deal with the customers the tools and the power to make things better for them. And it really is a better full kind of tool if we can just get the powerful managers to let them do that and to support them doing that.

Three quick stories I want to tell about our QStP efforts. One of them is the bottom line numbers, what's been done, and the results we've achieved. Another has to do with the cultural changes that are needed and are still needed in some cases to make this work. And the last is how it affects people's lives.

We started out slow, but we expected to start out slow, but the results are really coming in. We've got a long way to go, but we've come a long way. We've trained over 50,000 employees in a 3-day basic training session. And I emphasize basic training because you're never done learning on the principles and processes and tools.

Each department has a steering committee that's in charge of the transformation effort made up of half the union and half management members. We have a quality coordinator for each agency and a union liaison for each agency. And we do our training in partnership, both union and management, and we do our training ourselves. We think that's important to cascade it down.

One of the most important things we've done is develop a cadre of over 1,000 facilitators. Most of the teams that I've been on prior to this effort I would more call clumps than I would call teams, not getting a whole lot done. And the facilitators really step in and make it work. They make it happen. They follow the process. And you're not just throwing people to the wolves.

At this count, we have about 1,600 formal process improvement teams currently underway trying to make things simpler, faster, better, and less costly for the citizens. But I want to admit something that I heard from the testimony this morning, and that is we fell into the same trap as where we trained a lot of people and didn't have much for them to do. We knew we shouldn't do that. We tried not to do that. We did it anyway.

What happened was it was just easier to train people than it was to get projects started. We assumed that it would take the same amount of effort to both. We had to go back and redevelop our training so that it specifically had them come up with projects during the training. We had to go out with the supervisors and help them through a ready-set-go process to find teams that would actually work; and finally, our Governor had to stand up in front of his department directors and say, "I want to see more teams. I want to see more teams. I'm going to be watching."

About 3 months after I first started the job, the Governor called down and said, "Where are your results?" He not only said, where are your results, but, where are your home runs?

And I tried to explain it didn't work that way. And I got a memo the next week saying, where are your results? And every week for the next 6 months I think I got a memo saying, where are your results? And I scoured high and low and I was able to come up with a one-pager with four or five fairly feeble excuses for how we had done things better. But a year later we put together our first results book, and that results book had 14 perfect examples that had been implemented that had been working well. And every 6 months

since then we've doubled in size until our most recent one, which I provided a copy with, has 134 different teams and accounts for a legitimate $47 million in savings.

About 25 percent of the teams didn't save a nickel. Simple things like reduced long, long lines; tens of thousands of busy signals not being answered anymore; permits that take days to get done instead of weeks to get done; snow plow blades that don't blow up when you hit a bump, and bolts don't go off into the oncoming traffic.

Recently we had a hostage situation where someone was disgruntled, went into our Bureau of Workers Compensation and took an employee at gunpoint because he didn't think they were getting what they were worth. Instead of knee-jerk reactions, the first thing the Governor did was put a process improvement team and a QStP facilitator to take a look at it. So things are happening.

But I do want to say that I don't think the $46 million represented in this book are the big deal. I think the big deal is the thousands of names in here of State employees who are thrilled about serving their customers better, have better skills than they used to before, and can't wait to use the same process for the next problem and the next problem and the next problem.

I want to go on to the cultural changes real quick and tell you that we also made a mistake. We tried to do it to our unions rather than with our unions. We had to take a step back. We had to learn from the private sector a little bit about how to form partnerships, and we still struggle with that, but I feel very good about how our partnership is forming.

We got help from Xerox to begin with, and we made a mistake where we tried to copy them. We're not Xerox. We don't have the same culture. We had to adapt these things rather than adopt them. For instance, one of the first things we had to do was learn that we actually did have customers. That came as a shock to people 5 years ago, I'm afraid to say. It's not much of a shock now. But the private sector model didn't help us to figure out who our customers were. We don't sell goods and services the same way.

I'll give you an example. I stay at a lot of nice motels, and they really do a good job of treating me well. They get me in, and they get me out. They do things very quickly and efficiently. They know who their customers are. It's the people who eat there and sleep there and they want to come back over and over and over again.

Now, let's turn to the Government for a second. I used to work in corrections for about 7 years. I'm going to go to a correctional officer and teach him about customers, who do I tell him the customer is? Is it the people that eat there and sleep there and we want to come back over and over again? I mean, obviously not. I don't think so. Their definition of customers was to delight and please the customers. I got nothing with delighting and pleasing them. But I'm not sure the cops or the inspectors or the regulators think that their job is just to say yes and delight and please.

We had to redefine it. Our goal for customers is to help them be more successful. If we can delight and please them, too, great, but we want to help them to be more successful.

We even had one group of people who decided that their customers weren't even born yet, some folks from the historical soci-

ety, trying to decide whether or not to preserve things or use things. It makes it kind of hard to survey customers when they haven't been born yet. We had to figure out ways to adapt some of these kinds of techniques.

Our mid-level managers were a serious issue for us, continue to be a serious issue. We spent a lot of time telling people what not to do; forgot to tell them how to lead, how to coach, how to remove barriers. And the last thing I think we did poorly that I would like to do over again is we tried to do everything everywhere all at the same time. We became a mile wide and an inch deep.

I think it's really critical that you focus your limited resources on the champions that want to make this work and leave out the folks who are kind of retired but just haven't left yet, and later they'll come along after they've seen some results.

The final thing I want to say is that one of the best parts about this, I think, is how it affects people's lives. I heard a speaker earlier talk about what motivates folks to get into it, and I guess I'm going to disagree. I believe strongly that it's not the money that does it for folks. I'm not sure it's even the recognition. I think it's the chance to be in on things and to make a difference; to not check your brain at the door, but to really do something different. The people that are the most frustrated with the long lines and the busy signals and the waste are the folks who have to deal with those people all the time. They want to make a change. And that's what this does.

We hold an event every year called Team Up Ohio. Last year 2,000 people crowded into the convention. People watched 130 excited, proud State employees talk about how they serve their customers better. You couldn't pay money for that kind of enthusiasm no matter what you did. It was fantastic. We also have a competition where people talk about things. And at one forum, I heard one person say, I've hated my job for 23 years, but on Tuesdays from 3 to 4:30, I love it because I get to make a difference.

Another woman said, if they make us feel good, we'll make them look good, referring to their managers who let them do things.

I guess I want to wrap that up by describing one more cartoon I saw, and that was two dogs are walking down the road together, and they're kind of grumbling with each other. And one dog turns to the other and says, "It's always sit, stay and heel; never think, innovate and be yourself." If we really want to make a difference in Government, I think that's what we do is we get those people who do the job, who do the work, who know the work best, the power, the tools, the skills to serve their customers better.

Thank you.

Mr. HORN. That's an excellent statement, confessions of where things went wrong, and success stories, and I think that's reality. And I'm grateful to you. I thought you did an excellent job in your presentation also.

[The prepared statement of Mr. Wall follows:]

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Quality Services through Partnership

WHAT IS QStP?

Quality Services through Partnership — also known as "QStP" — is a process for continuously improving the services provided by state government. It's based on the principles of partnership, customer focus, data-based decision making, employee empowerment and teamwork.

Our goal is to transform government into a high performance workplace that provides our customers with value for their tax dollars. QStP makes this possible by turning improvement into a daily undertaking that involves all employees.

HOW IS QStP BEING IMPLEMENTED?

The Ohio Office of Quality Services, working closely with the Governor's Office and the labor unions, guides and coordinates the overall implementation. A QStP State Steering Committee, made up of equal numbers of management and labor, provides additional direction.

In addition, each department has a Quality Steering Team, also made up of equal numbers of labor and management. These teams guide and support the implementation process at the department level.

WHO'S INVOLVED?

With QStP, management and the unions have come together in a unique partnership. They are working as partners to ensure that QStP is done right the first time. "Partnership" means that unions have equal representation on all QStP steering committees. It also means that union representatives are involved in selecting trainers, selecting team facilitators, identifying processes for improvement, and guiding the overall effort.

Beyond this, every employee in State government is involved. In fact, employee involvement is critically important, since the employees themselves are in the best position to identify and implement better ways of providing services.

WHAT ARE SOME OF THE RESULTS OF QStP?

Teams of employees who do the work and represent the entire system being improved, determine customer needs, analyze the current process, determine the root cause(s) for inefficiencies, systematically remove non-value added steps and make improvements, while measuring the results. Over 1500 teams have been formed so far and their efforts are achieving impressive results, including:

* A team reduced purchase-order processing time from 28 days to just five days. Incredibly, 15% of all requisitions are now processed in one day.
* A team increased the effective life span of their fleet of 129 dump trucks by four years by analyzing and eliminating the many causes of wear and tear. Considering replacement costs of $55,000 per truck, the potential savings are enormous.
* A team improved the process for handling telephone calls from their customers. Data from the telephone company showed that "on hold" time dropped 80%, abandoned calls dropped 60% and the old rate of 50,000 busy signals per month was reduced to zero.
* A team reduced the error rate of a system to bill the Federal Government for millions of dollars owed ODOT by 68%, dramatically reducing reimbursement delays, and saving $300,000 in lost interest per year.

In addition to making government services simpler, faster, better and less costly for the customers that we serve, an important result of QStP is the incredible impact it has on people's lives. Pride, enthusiasm and self worth have all increased throughout Ohio's state agencies. Employees report that being equipped with new skills and being empowered to make changes in their own work not only improves the quality of services, but also improves the quality of work lives.

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How are we doing?

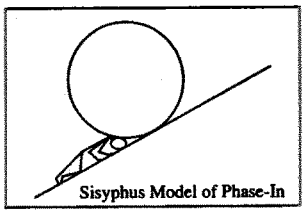
Progress can be effectively measured only if you have a clear destination and a road map for getting there. Our road map is the five-step Strategic Planning Framework (see page 5) developed in 1992 by the State QStP Steering Committee. This map is offered to individual departments to adapt as the basis for developing annual, agency-specific tactical plans.

The principles, processes and tools that make up QStP are simply a means for transforming state government – a vehicle that we can use as we move toward our destination. And what a powerful means! QStP encompasses world-class practices such as working in partnership with employee unions, training everyone in quality-improvement methods and tools, sponsoring process improvement teams that use proven best practices to improve service, and supporting departments to make culture changes that develop employees and encourage innovation. None of this comes easy, to be sure, but organizations that can tap the power of these concepts move surely and steadily to high-performance status.

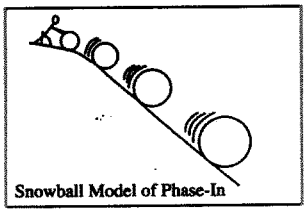
The "steps" of QStP portray in words and pictures the distinct phases it takes over many years to transform an organization. The framework conveys that these efforts are not additional work or goals, but should become the regular way we do all our work to reach all our goals. And it shows that while some of the steps may be worked on simultaneously, wise organizations start with Step 1 and move through all successive steps so they can build a solid foundation for long-term success. In sharp contrast are the "just do it" organizations that jump to step 4 – without implementing Step 1 (Build Awareness and Commitment) or Step 2 (Develop the Plan and Structure). Empowerment without vision is chaos, and these well-intentioned organizations encounter frustration and setbacks.

The basic strategy for implementing QStP is to focus resources on those champions most ready and able to make these best practices work, and then to leverage the early results so that more and more people participate. This involves focusing resources to build pockets of excellence that gain momentum, rather than trying to push the entire organization up the hill at the same pace.

A simple illustration from *A New American TQM: Four Practical Revolutions in Management*, describes this strategy better than written words ever could.



Sisyphus Model of Phase-In



Snowball Model of Phase-In

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Where are we now, and what are the current challenges?

In an organization the size of state government, progress is never uniform. Even within agencies there is variation — due to a diverse mix of challenges and opportunities. Continuous improvement is a never-ending process and agencies may be involved in all steps of the process throughout their quality journey. In general, though, the major focus of this year's statewide efforts have been on Step 4 of the Strategic Planning Framework (Empower Problem Solving at All Levels).

Even with more than 1,500 teams in progress and hundreds having already achieved measurable results, there remains a challenge in several agencies to expand the number of improvement teams beyond the small handful now under way. More teams can be created and effectively supported – which will enable trained employees to put their new knowledge to work and ensure that team results continue to expand.

Some specific tactics of building and leveraging early results (going from Step 3 to Step 4) include the RESULTS Book, Team Up Ohio, Team Excellence in the Public Sector Showcase, and a variety of newsletters.

A second common challenge is to move beyond sponsoring teams that take on relatively easy projects – to setting up teams to improve the core business processes of the agency.

Our next challenge, Step 5, is to begin aligning systems to support and encourage best practices. This has already begun in some agencies, including ODOT, whose strategic plan calls for "a quality culture that embraces continuous improvement as fundamental to the way we do business." A study of Malcolm Baldridge award-winning companies indicated that these world-class organizations attributed a full 65% of their improvements to the formation of a quality culture through systems alignment – while 35% of the positive change was attributed to teams, tools, measurement, and data. In other words, this fifth step in our journey may be the most challenging, but it holds the promise of producing our biggest results.

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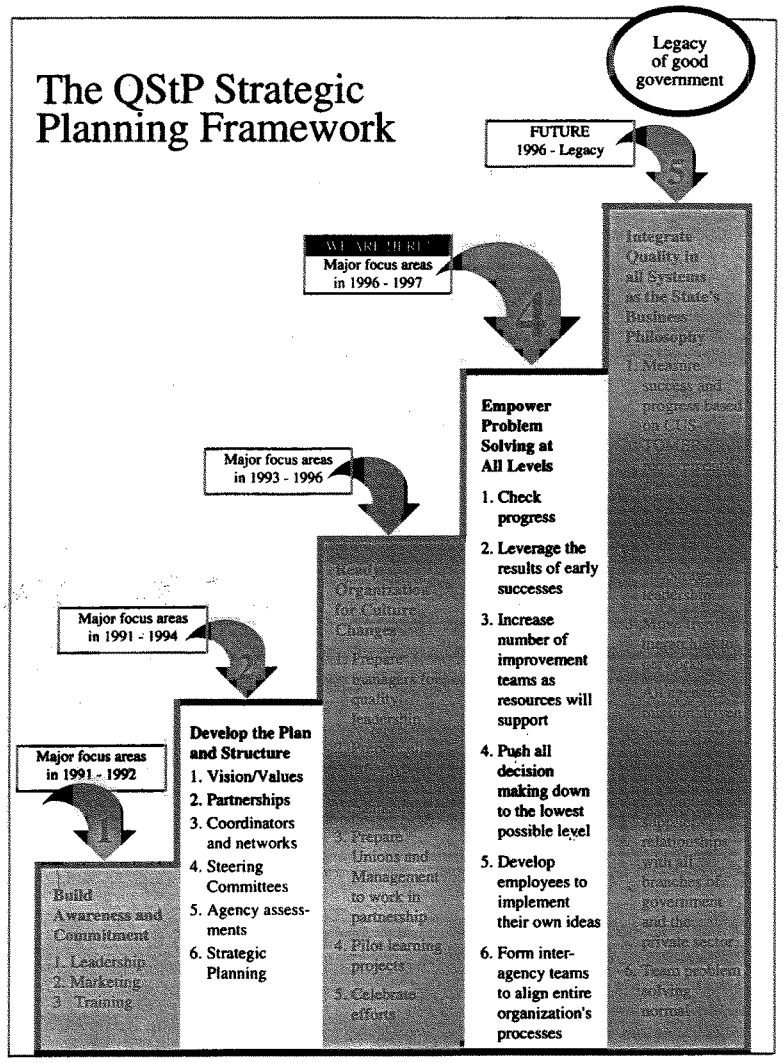
The QStP Strategic Planning Framework
Legacy of good government
FUTURE 1996 - Legacy
5
Major focus areas in 1996 - 1997
4
Major focus areas in 1993 - 1996
3
Major focus areas in 1991 - 1994
2
Major focus areas in 1991 - 1992
1
Build Awareness and Commitment
1. Leadership
2. Marketing
3. Training
Develop the Plan and Structure
1. Vision/Values
2. Partnerships
3. Coordinators and networks
4. Steering Committees
5. Agency assessments
6. Strategic Planning
Ready Organization for Culture Change
1. Prepare managers for quality leadership
3. Prepare Unions and Management to work in partnership
4. Pilot learning projects
5. Celebrate efforts
Empower Problem Solving at All Levels
1. Check progress
2. Leverage the results of early successes
3. Increase number of improvement teams as resources will support
4. Push all decision making down to the lowest possible level
5. Develop employees to implement their own ideas
6. Form inter-agency teams to align entire organization's processes
Integrate Quality in all Systems as the State's Business Philosophy
1. Measure success and progress based on CUS-TOMER
6. Team problem solving normal

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Measuring Progress

The current assessment of QStP progress shows an abundance of quantifiable results – dollars saved, errors reduced, process steps eliminated. All of these indicate major gains, but they tell only part of the story. A full assessment requires a "balanced scorecard" approach that measures progress based on customer needs and expectations, quality of work life, financial data, process data, effectiveness, and efficiency. High performance organizations "count" things, to be sure, but they make a point of connecting those "counts" to a bigger vision – to the outcomes we are working to achieve.

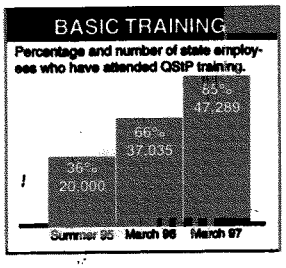
As QStP progress has evolved, so has our measurement methodology. We will continue to seek more effective ways of demonstrating our progress. This report captures much of the quantifiable data, conveys anecdotal information about improvement, and describes many best practices. Included is a conservative estimate of real dollars saved as the result of teams solving problems.

Other achievements are more difficult to capture: the enthusiasm of employees who participated in Team Up Ohio, the satisfaction surrounding a special place and program for children of patients at a mental health hospital, the feeling of increased security for families of Highway Patrol officers who now have instant access to vital information as they stop vehicles on Ohio's highways. Results like these elude easy measurement, but they have tremendous impact on the work we do to serve the people of Ohio.

Training

Step one of the strategic plan began with training and awareness. A goal was set by the State Steering Committee to have all employees attend basic QStP training by the end of 1998. We appear to be right on target with that goal. As of April 1997, 47,289 state employees have attended *QStP Basic Training*. That is 85% of the work force – up from 66% a year ago. If we stick with this rate of training, we will meet our goal.

In addition to the basic quality training, other learning opportunities have enabled employees to expand their know-how and skills. These cover a wide range of key topics: measurement, meeting effectiveness, strategic planning, innovation, creative thinking, customer surveys, data collection, etc. This training is seen as an integral part of becoming a high performance workplace, not as an end in itself.



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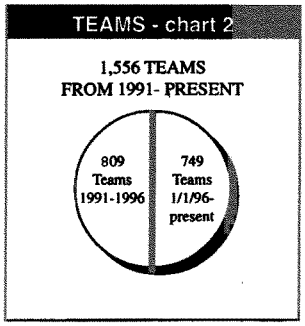
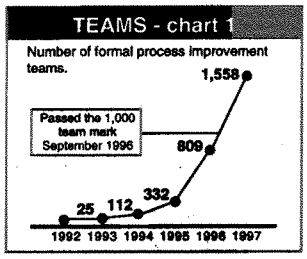
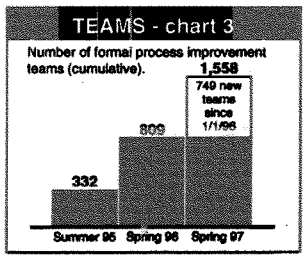
Teams

While getting people trained and knowledgeable was and is an important goal, the purpose of the training is to enable employees to use that knowledge on teams so they can solve problems and make real process improvements. Early on, as the groundwork was being laid and people were being trained, there were few teams. Over time more and more teams were begun and the growth of formal process improvement teams was dramatic. (See Teams Chart 1)

The number of improvement teams has nearly *doubled* during the past 12 months – from 809 to a current total of 1,558. (See Teams Chart 2) Since summer 1995, there has been a *fivefold* increase. (Teams Chart 3) This rapid growth is an outcome of building a strong foundation focusing on steps 1 and 2 of the QStP Strategic Planning Framework.







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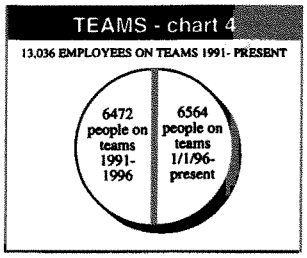
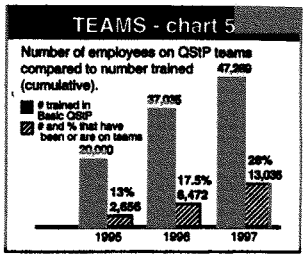
Teams continued

More trained employees are having the chance to get involved with teams. In fact, the number of employees on teams has also doubled in the past 12 months. (See Teams Chart 4)

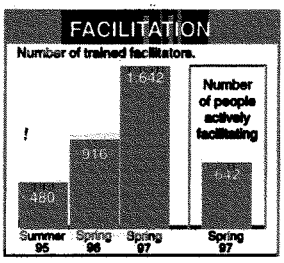


Currently, 28% of all employees who have taken QStP Basic Training have been members (past or present) of a formal QStP process improvement team. (See Teams Chart 5) This is a significant climb from last year's 17.5%, but the challenge remains: We need to involve an even larger portion of our trained employees in teams, so they can help create a government that delivers quality services to each and every customer.



Facilitation

Not only are there more teams, but those teams are operating more effectively. Today, nearly all teams have facilitators, charters, and sponsors. Facilitators are serving a key role in helping teams become better organized and more effective, and their numbers are growing rapidly. A total of 1,642 employees have attended facilitator training – a 79% increase in just one year. There are 642 people actively facilitating a variety of groups and efforts, including process improvement teams, informal teams, meetings, conferences, etc. Facilitation is becoming widely used throughout state government.



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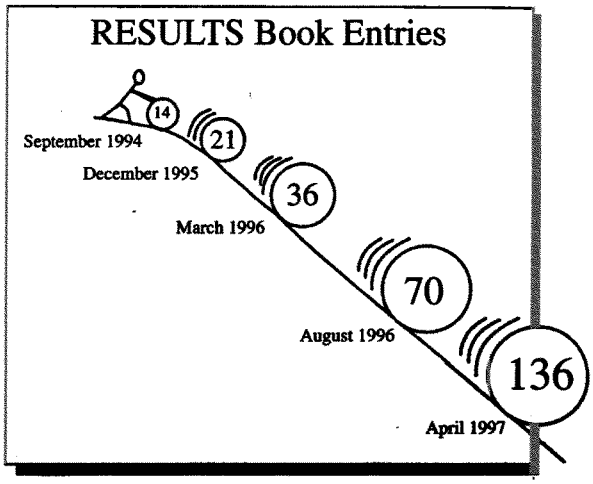
Results

Results of our investment in training and people's involvement in process improvement teams is beginning to pay off. We have seen the number of teams in the RESULTS Book double every six months. In the most recent edition, 136 teams tell their stories and report many improvements. For those reporting measurable results, two basic types of performance measures were used: financial measures (dollars saved or gained) and process/service-oriented measures (reduced processing time, reduction in the number of forms completed by customers, etc.)

Since January 1, 1996, the solutions and better methods developed by 405 process improvement teams have been implemented. This is powerful proof that the team effort is generating real change. A conservative estimate of the dollars saved by state government and its customers, as reported by teams in the RESULTS Book, is $46 million.



The results of QStP teams are adding up, as these examples show:

Teams are boosting productivity. At DRC's Division of Parole and Community Services, it was taking 5 days to produce a key monthly report on caseloads. A team came together and developed a way to generate a better report in 20% of the time. It now takes just 1 day to assemble the report, and the new approach has completely eliminated data errors.

Teams are using resources more wisely. At the North Central Correctional Institution, a team set out to increase the amount of recycling while cutting costs for garbage removal. They made it happen, shaving $30,000 off annual costs. In the process, they put inmates to work by creating 36 recycling jobs.

Teams are saving money. At ODOT District Six in Fayette County, a team took a new look at an old problem: dump truck maintenance. They created an improved process for oil changes that reduces service costs by 52%. With 1,550 dump trucks in the ODOT fleet, the savings will add up to $3 million over 10 years.

Teams are creating needed services. A team from the Department of Mental Health created a special family room for children whose parents are being hospitalized for treatment of mental illnesses. This center is the first of its kind in the country, and it's carrying out a daily mission of preserving and strengthening the bonds between family members.

Teams are doing right by their customers. At the Massillon Psychiatric Center, a team looked into the process for getting new clothes to patients. When the team started, 55 days passed from when a clothing order was placed and the patient received new clothes to wear. Now, it all happens the same day. This is a classic QStP story of doing things the right way *and* doing the right thing.

Teams are even saving lives. In January 1996, a state trooper was shot and killed when stopping a suspected drunk driver who had been involved in a domestic shooting. At the time, the main statewide law enforcement computer system did not allow for easy access of general officer safety information. A QStP team changed all that, creating a new field of up-to-the-minute information to tell troopers what to look out for when on the road. Now, when a highway Patrol officer pulls over a vehicle, potentially life-saving information is a single computer keystroke away.

Mr. HORN. Mr. Frampton, we're delighted to have you here. We've had South Carolina testify before this committee and the last Congress. The State is way ahead of almost every State in the Nation except maybe Oregon. You are right on the path on the benchmarking of various programs, and you're way ahead of the Federal Government in terms of being results-oriented. So I look forward to hearing your testimony as executive administrator of the South Carolina Department of Revenue. Welcome.

Mr. FRAMPTON. Thank you, Mr. Chairman.

When we first started this process we didn't really try to set out to make people like paying taxes. What we tried to do in the process was to make sure that when they were involved with us, that the process was simple. It was responsive. And the people that we dealt with were courteous and polite.

I would like to quickly review our management system that we use. It basically involves strategic planning, total quality management, and performance measurement. And we like to convey to our employees that strategic planning is what we want to do, total quality management is how we do it and the performance measurement piece is how we're doing, and we set those out separately even though they could be rolled obviously under the total quality umbrella. We felt like they needed showing specifically because it was so important.

On the strategic planning part, we found and discovered that the process was really more important, or as important, as a product. We built in a lot of customer input and customer involvement, much to the amazement of people when we went out and contacted them that we really were interested in how they paid taxes, how the system worked for them. It truly involved our employees. And it really helped enhance our enterprise view of our organization as opposed to our stovepipe view. And we tie basically back from the strategic plan to the performance measurement piece, and the cyclical part of that process really gives us the discipline and accountability to move forward on it.

On our total quality portion, we emphasize three major areas: our customers, our systems, and our employees. We do reach out. We ask our customers what they want. We do not assume that we know and we build a lot of trust, really, through that process. We have constant feedback systems. Our branch managers out in the field are required, for example, every month to visit a local CPA firm or visit a tax manager of a small business and say, what are your problems? What can we do to improve our service? What are the future trends that you see?

We've involved people in implementation of new tax systems. We go out to the business community and give them some of our proposals, work with them to implement good responsive tax processes, involving industries into some of our teams and analysis. The trucking industry came in and worked with us on a team, a joint industry-government team, to improve that particular tax process. And we think we really do understand what our customers want, and we're trying to move to customize service for our citizens rather than a one-size-fits-all-type mentality.

From a systems thinking standpoint, the broader we define the system, we think the greater opportunity is for improvement. A

very quick example is when we eliminated a lot of complexity in our tax filing system and conformed to the Federal Code in 1984, we reduced our numbers of errors on tax returns from 22 percent to 4½ percent. That's 330,000 rejections as opposed to 60,000 rejections. And you can guess what we were doing in that particular arena. We were working on nondeliberate errors that the taxpayer public had made and confused them in that complex process.

Some examples of a systems perspective that I think are very encouraging, there is an initiative called STARS which is a simplified tax and wage reporting system that the IRS and States and Social Security Administration are involved in where they're actually looking at reporting that tax and wage information into one source, and then the users of that information would go in depth and use what they wanted to, eliminating a lot of the cost to the public, and reporting to all of these various entities that we're involved in.

When you start looking at systems perspective, you have to start asking the question, how many people need to be involved in collection activities? In the State of South Carolina, we have many agencies involved in collection, the county, the cities, and we're dealing with the same customers. As we redefine the enterprise, we see that Government really shouldn't be stovepipe agencies, but we need to look at how we deliver service and the niches that our Government agencies should be involved in.

Third element being our employees, we think we have tremendous capacity in our work force. I love Dr. Deming's quote that "the greatest waste in America today is the failure to use the abilities of our people." We believe that, and we are sobered frequently by looking at the Milliken Co.'s benchmark in employee involvement. They average 60 improvement suggestions per employee per year. Even though it took them 4 years to get to one per employee, it's an incredible statistic that we look at very often to see how we're really stacking up, and we frankly don't stack up too well to that type of world class activity, trying to get management to take responsibility for employee failure and stop blaming employees and improving the system.

We really are constantly pleased and amazed at the commitment ability of our work force. We try to focus in our organization not on teams as much as the natural work team. What we want to see organizationally is that natural work team working together every day, using the tools, using the process to improve that system. And we see teams surfacing as a by-product of that activity.

In the performance measurement area, there's a lot to overcome: fear of measuring oneself and how that measurement system might be used. We found that we've measured the wrong things. In fact, they've been driving us in the opposite direction, away from voluntary compliance, when we measure too hard on the collection activity.

We see a lack of emphasis, so often on dollars saved the tax-paying public with compliance. We think that we've got an environment today that rewards mostly if you save budget dollars. We need to see more of a view on what does it cost the public to comply with your laws. If you save a dollar on the administrative cost, that goes to the bottom line just as fast as a tax cut does.

Some of the results that we've seen organizationally, since, basically, 1991, we began a downsizing. We've had a 13 percent reduction in our staff. Workload has increased through most of our common measures 25 percent. And, basically, we decline the option to cut programs and decrease customer service systems.

Our total collections are up 32 percent. Our enforced collections, which are a measure of our dollars which we have to chase, are up 94 percent. We've put about $378 million in the till after inflation through those efforts. Dollars collected per employee is up. Cost of collection is down. Our customers think we're doing a pretty good job. We survey annually through the University of South Carolina on April 15th to make sure that people know when we're touching them with our system, and we are showing about a 7½ percent dissatisfaction rate, which needs to be worked on. But we think we're beginning to give people what they want out of our process.

Some of the barriers that we've seen, quickly, mandates seem to be a problem sometimes. We think that, in South Carolina particularly, this has been done by invitation. It's been a grassroots effort, and we think it should be something that should be encouraged. People should be persuaded to move into this process.

Delegating to the quality department, with all due respect to Steve, I know he understands that it's very, very important to keep top management involved in this process, and for him, for the quality departments, to serve as consultants to that particular role. Accounting teams have been a problem. We want to focus on our natural work team to make sure the improvement is going on there. We've seen soft skills being another difficulty where people are not really involved in process analysis and measurement of the system and a little too occupied with teams.

We're delighted to be here today. And we will certainly be happy to answer any questions, Mr. Chairman.

Mr. HORN. Well, I thank you very much for that very helpful statement.

[The prepared statement of Mr. Frampton follows:]

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TQM In Government: Does It Work?
The Experience of the South Carolina Department of Revenue

Introduction

In the last decade, an increasingly global and competitive marketplace has driven private industry to seek more effective ways to manage. While the environment surrounding government is influenced by somewhat different factors, we, too, faced many new realities. The decision at the South Carolina Department of Revenue to explore and employ total quality management was brought about not by a crisis, but rather a keen awareness that managing in the 90's and beyond would be conducted in a very different arena We began our continuous improvement journey in 1989.

Important trends began to emerge in the early 90's. They included:

- ✔Fewer dollars available to government
- ✔Higher expectations of customers
- ✔Cries for greater accountability
- ✔Pressure to eliminate duplication of services
- ✔Blurring of jurisdictional boundaries

The combination of rising taxpayer expectations and rapidly increasing workload, coupled with a downsized workforce and a flat or diminishing budget required that we take a long, hard look at how we would conduct business in the years ahead.

This paper is an overview of our experience with TQM over the last nine years. It outlines a brief description of our agency, the primary pieces of our TQM puzzle, major quality initiatives, representative successes and lessons learned. Lastly, a section is included which describes successes of many other South Carolina state agencies who have joined the quality journey over the last few years.

Who We Are

The South Carolina Department of Revenue is a cabinet agency in Governor David Beasley's administration and is headed by Burnet R. Maybank, III. Our mission is to administer and enforce the revenue laws of this state in a manner warranting the highest degree of public confidence in our integrity, effectiveness and fairness. We administer 32 different taxes in nine taxpayer service centers across the state. Seven operating divisions employ approximately 750 permanent and 200 temporary employees, with additional corporate auditors in New York, Chicago, Atlanta, Dallas, Nashville and Phoenix.

In fiscal year 1996, the Department of Revenue:

- ✔Collected $5.015 billion in total revenue for the state
- ✔Processed more than 5 5 million tax returns of all types

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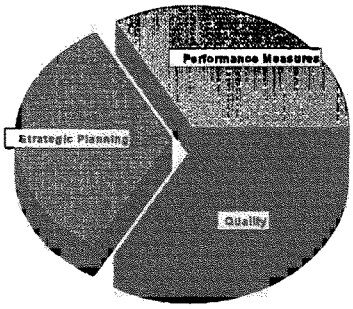
- ✓Issued 1.3 million income tax refunds totaling $568 million
- ✓Helped more than 848,395 customers by phone
- ✓Assisted 273,764 walk-in customers across the state
- ✓Operated at a cost of collection of $0.0072 per $1 revenue

In accomplishing our mission, we have the opportunity to impact most citizens of our state. Therefore, it is even more important that we manage our enterprise in a customer-focused, fair and efficient manner.

Major Quality Components

Three primary components shape our agency's way of doing business:



Our **strategic plan** is our compass. Through strategic planning, we determined where we were, where we want to go and the path we need to follow. It is our direction for the future. Our annual business plans are based on initiatives that tie directly to the five key issues of our plan. All work groups participate in setting annual improvement objectives.

The second major component is **quality**. While the strategic plan tells us what we're going to do, quality tells us how we do it. It involves looking at everything we do as processes that can be improved. At the Department of Revenue, quality is:

- Customer focused
- Problem prevention
- Teamwork
- Continuous improvement
- Lifelong learning

Our approach is based on the work of W. Edwards Deming whose approach transformed an

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economically devastated Japan to become the world leader in many markets today. Our transition from traditional management to the quality approach involved a cultural change with a new set of priorities and values. Our commitment to customer service and continuous improvement required leadership from the top, training, cross-divisional communication, teamwork, risk-taking, and patience. It meant cultivating new partnerships with stakeholders both inside and outside the agency. It required a new comfort level with change for it is a constant. It means "walking the talk" in both the small decisions and the major ones.

How do we know that quality works? The third component of our puzzle is **performance measurement.** This is our scorecard that tells us whether the initiatives we've undertaken are getting the desired results. Simply put, performance measures help us manage our resources in the most efficient and effective manner.

While strategic planning and quality are big bites and a long-term investment, performance measurement is truly the most difficult piece of this puzzle in our experience. We are currently revisiting our measures and are taking the measurement process down further into the organization. Our long-term vision is that each work group will measure their own processes and make informed decisions with data for improvement.

The blend of strategic planning, quality, and performance measurement are a powerful combination for our managers and employees. We know the directions we need to pursue; we have the problem-solving skills and mindset to look for best practices; and we have the measurement tools to give us feedback on our efforts.

Major Quality Initiatives

Many process improvements have been made in the years since we began our journey. Representative initiatives include:

- ✓Working to simplify tax laws and filing procedures with emphasis on electronic funds transfer and electronic filing
- ✓Systematically soliciting customer feedback and using it to evaluate opportunities for improvement
- ✓Simplifying and consolidating processes that affect taxpayers
- ✓Involving taxpayers on Department of Revenue quality teams to help us study and improve processes from the customer's perspective
- ✓Reducing cycle time (e.g., license applications, refunds, etc.)
- ✓Increasing accuracy of all information
- ✓Improving the measurement process to evaluate system improvements
- ✓Using various avenues to educate taxpayers on difficult tax issues
- ✓Reducing the burden of compliance for customers through cooperative agreements with other governmental agencies and industries affecting the customer
- ✓Working with other governmental entities to simplify and enhance delinquent debt collection

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✓Improving the processes of applying for licenses (e g., alcoholic beverage licenses)
✓Providing training for all employees in the quality improvement process and tools
✓Involving all employee work teams in setting annual improvement objectives,which are linked to the strategic plan

Results

Have our quality initiatives had an impact? Without question they have. Consider these findings:

➤Despite budget reductions, 13% decrease in staff, and 25% increase in workload since 1991, total collections have increased 32%. Enforced collections have risen 94%; average dollars collected per employee has risen from $4.5 million in 1991 to $6.5 million in 1996; and our cost of collection has decreased 20%.

➤After adjusting 1989 enforced collections for inflation, our focus on systems simplification and process improvements has resulted in 378 million additional dollars being collected for the state of South Carolina.

➤An independent statewide customer satisfaction survey conducted by the University of South Carolina showed that of those participants who had contact with us during the last year, only 7.9% were dissatisfied with services provided.

➤Quality studies showed the need for an automated attendant telephone feature. Through this initiative, we have had a tenfold increase in the number of people served.

➤New postal regulations required a study of ways to streamline postage costs. A team made and implemented recommendations that will show $200,000 savings in the first year alone.

➤Supplies inventory has been decreased resulting in a 17% reduction in investment

➤A taxpayer error resolution work team used process analysis to reduce 46,000 math error notices that would have been issued to taxpayers. This reduced printing and mailing costs and provided a quicker turnaround time on refund issuance of approximately 76 working days on returns with errors.

➤During peak individual income tax season, our refund cycle time was an average of 35 48 days. On the South Carolina survey, 87% of our customers were satisfied with refund cycle time.

➤Delays of getting monies deposited in the bank in 1990 caused loss in interest earnings of $1.385 million per year. Through process analysis and simplification, we reduced this delay cost to only $126,000 per year in 1996.

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➤Thorough study, implementation and marketing have resulted in our state having the highest percentage of electronically filed returns in the nation. Not only does this provide a service to the taxpayer, but it also reduces our cost of operation. This year 450,000 returns were filed using telefile, electronic filing, and filing from home PC's.

➤Consolidating certified mail to delinquent taxpayers resulted in a savings of $142,000 in one year alone.

➤Instituting a fax-on-demand for tax forms delivery to citizens eliminated the need for filling and mailing forms orders by employees. During the most recent tax season, we filled 35,776 forms through fax.

Through the efforts of the entire agency, we have made significant headway on our journey. While it is a journey that does not end, we can identify some significant milestones. We have

- ◆A data-based track record of successes
- ◆Critical mass of buy-in and skills
- ◆Realization that this is not a passing fad
- ◆Solid base of basic skills and quality tools
- ◆Skilled team leaders
- ◆Systems focus
- ◆Enthusiastic front-line participants
- ◆Projects better scoped
- ◆Barriers coming down
- ◆Network of support/resources available
- ◆Received the Governor's Quality Achiever award based on Baldrige quality criteria

Lessons Learned

What have we learned? Plenty! The path we have taken challenged the status quo and required our entire agency to approach our work in a different manner. It required communication, new skills, perseverance and patience

Perhaps our most important lessons include.

- ◻Leadership is required from the top.

  This change effort cannot be delegated to the quality department. Because it involves fundamental changes to the business, top management leadership and support is required on issues ranging from major to small. Our employees watched their actions to see if they matched the words. A successful venture requires that words and actions match.

- ◻Long-term focus is the key. Patience is required.

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A transition of this scope requires time. Neither strategic planning, TQM, nor performance measurement is a short-term fix. They involve new skills, new attitudes and new practices. Expect plateaus. Patience is a necessity to realize long-term gains.

□Leadership will face new challenges.

The quality approach represents a fundamentally different way of thinking than does the more traditional approach. Our focus is three-fold: our customers, systems, and employees. Study is required to truly understand the nuances of this change process. Expectations will be raised and turfs will be challenged. Decisions should be passed down to the lowest possible level; however, this change in management style will present challenges of its own. All decisions are not group decisions; some decisions will always be made at higher levels for valid reasons. It takes time for these differences to be understood.

□Beware the naysayers.

Resistance will come in many forms--expected and unexpected, actively and passively. Expect some managers to say, "I've always managed this way,." but be wary. This typically is a red flag of resistance or misunderstanding of the profound nature of this change. Only time and consistent direction will prove that quality is not a passing fad. Buy-in is measured in years, not months.

□Input and involvement are essential.

Executive leadership is important, but the most significant keys to long-term improvement are held by those who are closest to the work. This includes stakeholders both inside and outside the organization. Front-line employees know or can determine specifically how their work can be improved. By providing the backdrop of customer and systems focus, the agency sets the stage for true progress by workforce involvement. It is also extremely important to involve middle managers and supervisors, for they typically feel the most threatened in this type of change process.

□Recognition is important.

Celebrate successes, both big and small. Use any and all methods available to recognize not only achievements, but efforts. Reward informed risk-taking and experimentation that uses data to improve. Those things that are recognized and measured become the new standards.

□Training is required.

New skills are required on many fronts. A training plan that addresses philosophy and skills from the top of the organization to the front-line employee is important. This requires a substantial investment, but is one that is key in the success or failure of a change effort of this type. Lifelong learning is required for the

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changing environment in which we all operate today and in the future..

- Tie all the pieces together.
  Strategic planning, TQM and performance measurement are all strong links and contributors to our success. They only become powerful, however, when linked together. An organization needs to have a common vision, strategies and standards upon which to judge their efforts.

Conclusion

> "The greatest waste in America today is the failure to use the abilities of our people."
>
> W. Edwards Deming

For us the quality journey will continue. There is no question that total quality management will work in government, as well as in private industry. The skills are universal. Perhaps one of our greatest lessons has been the great capability and willingness of our workforce to learn new skills and employ their creative potential. By maintaining our focus on customers, processes and employees, we will continue to add to our successes and determine new ways to effectively and efficiently serve the citizens of South Carolina.

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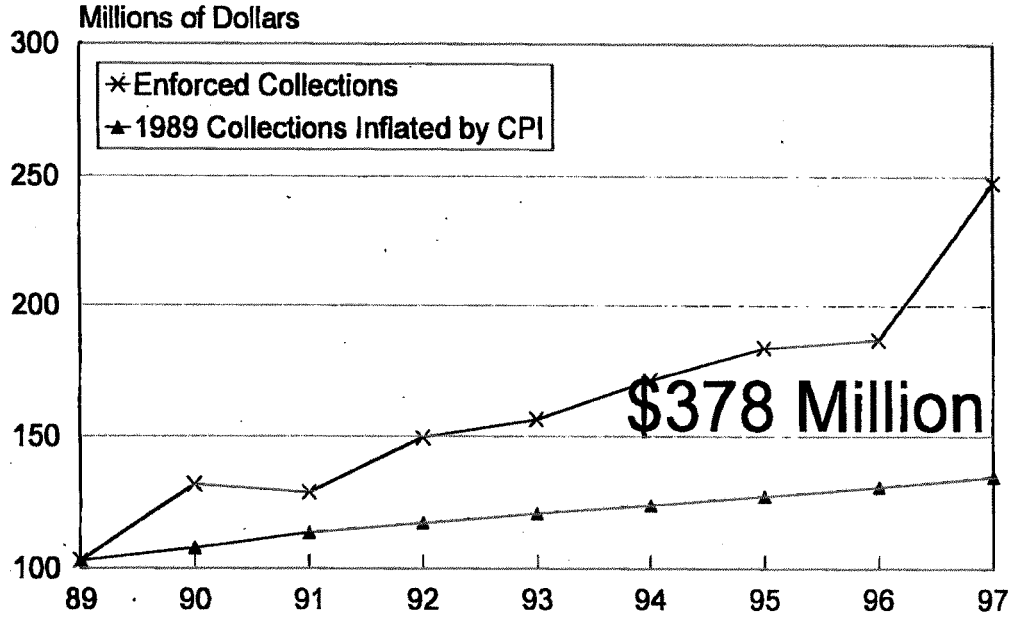
S.C. Department of Revenue Enforced Collections Relative to Inflation



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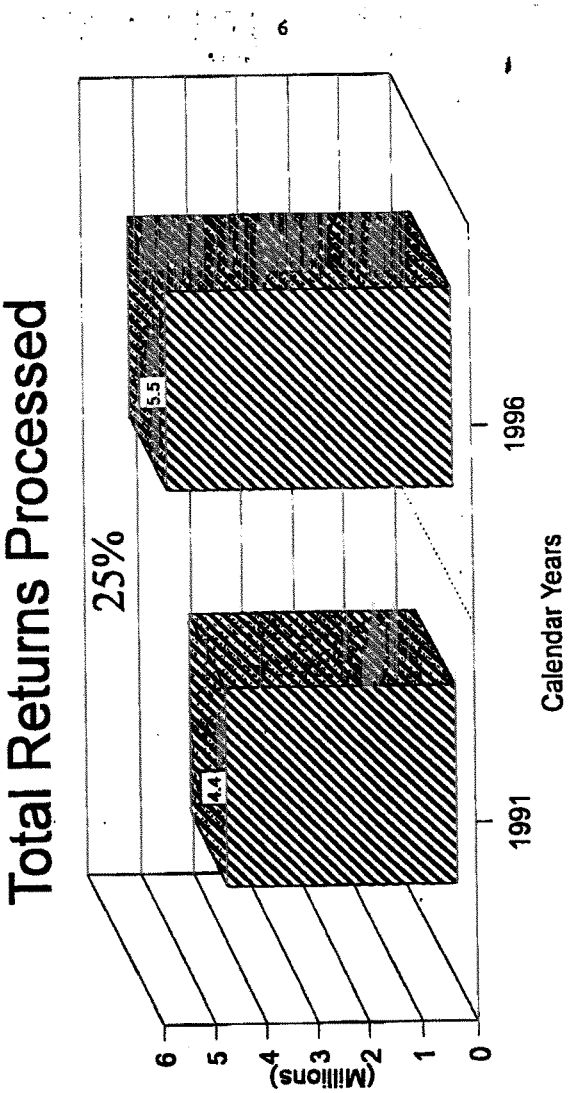
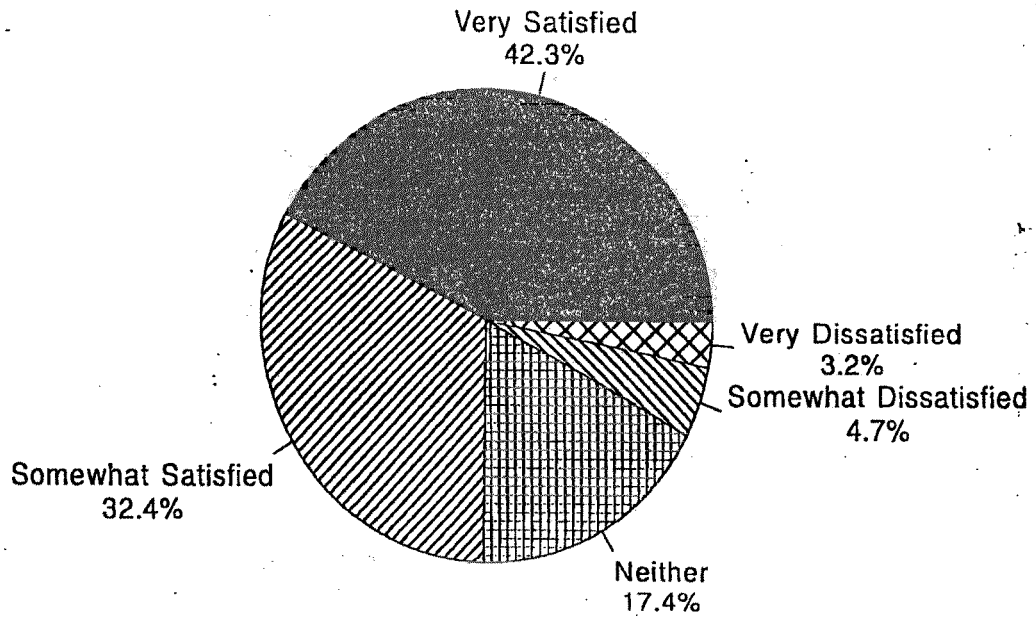

Total Returns Processed
25%
4.4
5.5
6
5
4
3
2
1
0
(Millions)
1991
1996
Calendar Years

Satisfaction With Service Provided



Asked Only of Respondents Who Had Contact With the SCDR in the Past Year

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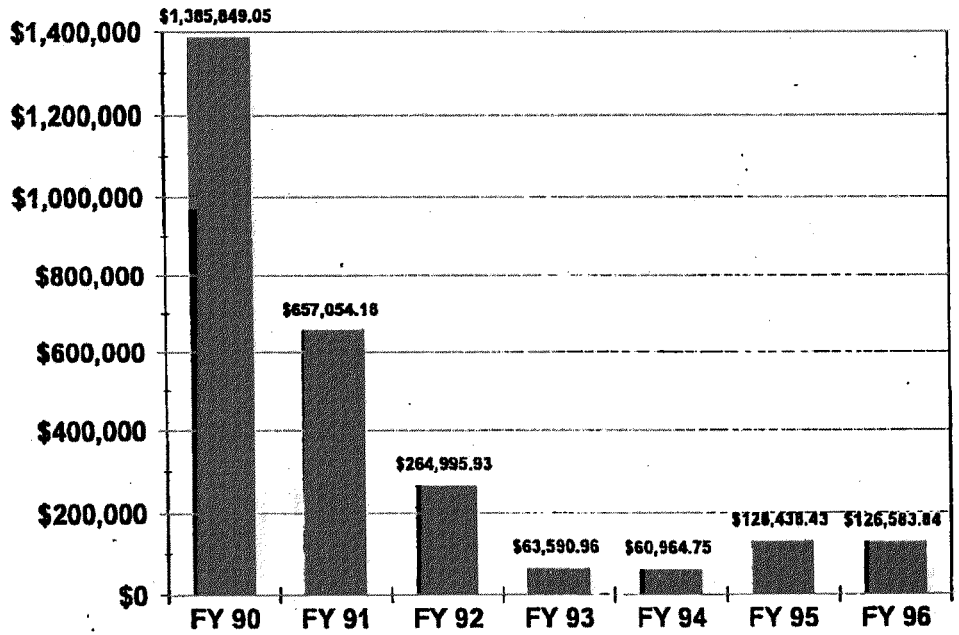
Actual Deposit Opportunity Cost



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Quality Efforts in South Carolina State Government

In late 1990, the Department of Revenue and several other South Carolina agencies whose organizations had embraced a quality philosophy recognized the need to begin pooling resources for quality training and sharing experiences and ideas about this "new" way of doing business. Thus, the State Government Quality Network was born. Over the next several months, this group of leaders and other interested state professionals struggled with organizational issues and the new group's role and purpose in state government. A mission statement and a set of by-laws was adopted. The Network's mission states:

> The South Carolina State Government Network is a cross-section of State agencies working together to increase awareness of quality management and to promote total quality principles and their applicability to the public sector.

The Network's philosophy has been to sell State agency leaders on the concept of quality management by showing the benefits of the process. There are currently more than 50 state agencies who are members and contribute regularly to Network activities.

In 1992 the Network developed its first comprehensive strategic plan for quality implementation. Later that year, the State Budget and Control Board, which consists of the Governor, the State Treasurer, the Chairman of the Senate Finance Committee, the Chairman of the House Ways and Means Committee and the Comptroller General passed a resolution endorsing the efforts of the Network. This was the first official recognition of the Network's activities. Subsequent to this endorsement, the Chairman of the House Ways and Means Committee offered to sponsor a small, nonrecurring appropriation of $75,000 for the development of training programs for statewide use. This was a significant vote of confidence in the Network's mission and approach to furthering quality in State government. In FY 93-94 a second appropriation of $140,000 was received.

In the 1994 legislative session, dramatic change took place for the Network as the General Assembly included a proviso in the Appropriations Act to fund statewide training efforts. $582,000 was set aside to invest in training agency managers and employees in strategic planning, customer service, team facilitation, supervisory practices and leadership. A process to apply for and award funding was developed. The Executive Board of the Network reviews and scores applications based on predetermined criteria and a Baldrige-type scoring scale. This has become a recurring item in the state budget and the Network has funded numerous agencies' training activities. Some results of the training and quality efforts follows:

- Department of Archives and History - Implemented some 44 initiatives in the area of quality of service/product, cost savings/earned revenue, safety and initiative.

- Department of Corrections - Established a new transportation hub (busing system) to better move newly received inmates across the state to our institutions, reducing the number of vehicles on the road and maintaining central control.

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- Department of Education - Conducted a self assessment using the Baldrige criteria, made application for the State Governor's Quality Award and were recognized with an Achiever Award in April, 1997.

- Department of Health and Environmental Control - Developed the agency strategic plan. Trained virtually all managers and professional staff in *Principles of Fourth Generation Management*. Implemented more than 200 successful quality initiatives.

- Department of Health and Human Services - A total of 25 quality improvement teams developed enhancements in processes from the appeals process for Community Long Term Care clients to improving the quality of services when privatizing. Many of these teams included members from outside their agency.

- Department of Labor, Licensing and Regulation - Their "Plans Review" team identified ways to save two weeks in the plan assignment process and cut time in trying to gain missing information, freeing up the engineer's time to conduct reviews.

- Department of Mental Health - Used quality improvement methods to identify ways in reducing the use of physical restraints for clients from 28% to 8%, in keeping with the national trend to provide nursing care residents with greater freedom of movement while not compromising safety.

- Department of Natural Resources - Eliminated notary requirements on Boat and Motor applications providing a great customer service.

- Department of Social Services - Trained approximately 1,127 employees in the *Voice of the Customer*. The attached video highlights some of those results.

- State Accident Fund - The Litigation Management Team's efforts resulted in a savings of over $48,000 in contract attorney cost, a reduction of 27% in the number of hearings held with a reduction of 38% in the number of appeals filed.

- State Budget and Control Board -

  Office of General Services - The Property Management Section refined processes and increased efficiency using quality practices. They saved $970,000 through negotiated rate reductions and $1.2 million was realized in cost avoidance in brokerage fees for leasing and management services.

  Office of Human Resources - An extensive study of the administrative processing of grievance appeals was conducted. The result was a streamlined process which reduced the administrative processing time of an appeal by more than 70%.

Many more examples of the results of the state's quality efforts are included in the South Carolina

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State Government Quality Network Association's Annual Progress Report which is attached. A thirteen minute video is also enclosed which highlights the use of quality in South Carolina state government.

Mr. HORN. What I'm going to do is concentrate on clarifying some of the testimony first, and then I'll have questions for both of you. But since you just spoke, Mr. Frampton, let me start with you. There are just a couple of things I want to know in relation to the testimony.

One that interested me and would interest all Members of this subcommittee is the statement you make on the bottom of page 3, the major quality initiatives working with other Government entities to simplify and enhance delinquent debt collection. Since the debt improvement collection bill was authorized by this committee and is now the law of the land, we're very interested in how agencies go about structuring themselves to encourage more effective debt collection. I would just like to hear from you how you do it in terms of steps one, two, three, four, five, and let's see where we are. And I'll have a few more questions on that.

Mr. FRAMPTON. All right, sir. We basically began with the ability to offset our refunds for debts from State agencies, the Federal Government, or the Internal Revenue Service.

Mr. HORN. Could you speak into the microphone a little more? It's not picking up up here. Just raise it a little. They're crazy microphones. That should be the first total quality effort for the House. Go ahead.

Mr. FRAMPTON. We began for offsetting refunds for delinquent debts for the Internal Revenue Service, other State agencies, county government, and city government. That's been a very, very successful program for us. In South Carolina, we're up to about $30 million for other agencies. Recent legislation has allowed us to go into the debt collection business for other State agencies and gives us the ability to contract.

Mr. HORN. When you started this effort, what was the amount of the delinquent debt that the State of North Carolina had in both the Revenue Department as well as all the other agencies?

Mr. FRAMPTON. I do not have a figure for the consolidated debt.

Mr. HORN. Well, if you do, let's put it in the record at this point without objection if you could find the figure, because I think it's a benchmark here of what did you face, and then what has this system done to change that picture?

Mr. FRAMPTON. All right, sir. We move from that basic refund offset process. And we're beginning today to contract with our Department of Health and Environmental Control.

Mr. HORN. With whom?

Mr. FRAMPTON. Department of Health and Environmental Control.

Mr. HORN. OK.

Mr. FRAMPTON. On some of their water fees, we're looking at what is known as a second injury fund. That's on some of their uninsured workers' compensation claims. We'll move into that process with them, and frankly, it's on a little bit of an experimental basis. But we have tremendous tools available to us to collect debts that are not available to a lot of the private debt collection services. So what we're doing strategically as an agency—a lot of our smaller debts that don't require a lot of the heavier tools we're going to start privatizing, pushing off. We'll focus our tools on the major debts that we have from our organization and other State agencies.

We have the ability to close businesses, for example, and levy on salaries, et cetera, which are quite effective in debt collection.

Mr. CHAIRMAN. Let me ask at that point, in terms of dividing your debt into the smaller debt, which you say you will privatize, and the larger debt, I take it you have a State income tax, do you?

Mr. FRAMPTON. Yes, we do.

Mr. HORN. OK. What's your idea of a smaller debt versus a larger debt?

Mr. FRAMPTON. Well, we're looking right now at our initial phase of dropping off everything under $500.

Mr. HORN. So you turn that over to private bill collectors?

What would they get in turn for collecting that debt?

Mr. FRAMPTON. Our current contract is 17 percent.

Mr. HORN. Seventeen percent.

What did you do before you had the private bill collectors? Did the agency try to collect at all itself?

Mr. FRAMPTON. We did. But what happens is you lose your focus on some of the higher priorities when you have the mountain of debt coming to you. And this is just the way of us prioritizing what's important and not leaving anything on the table.

Mr. HORN. Tell me—both pre-quality management and post are in your plan. How does the agency, when it handles the larger debt and originally handled all of the debt, how were you structured? Was there a telephone bank? Did you first give them sort of automated notice at all, that there was a debt and you should do it by X date, or did you have a phone bank in there somewhere? I'm just curious of the mechanics. Obviously, I'm interested in what the Internal Revenue Service will be doing on this problem.

Mr. FRAMPTON. Our debt collection process was basically, initially a notice, a second notice, or a referral into telecollections process. If no results there, a lien was issued.

Mr. HORN. What was the collection process?

Mr. FRAMPTON. Telecollection process.

Mr. HORN. Telecollection. OK, by telephone?

Mr. FRAMPTON. Right.

Mr. HORN. Three notices essentially, and then it's the telephone.

Mr. FRAMPTON. And if no results there, then referred into a lien status, and then that goes out to the field staff to work.

Mr. HORN. And they administer the lien essentially——

Mr. FRAMPTON. Yes.

Mr. HORN [continuing]. The field staff? And then what happened, did somebody actually call on the person or what?

Mr. FRAMPTON. Various techniques, depending on what you might find to collect. It may be a levy on salary. It might be a levy on a bank account. It may be a telephone call again from the local people, a knock on the door.

Mr. HORN. Now, does the State Department of Revenue have branches throughout the State of South Carolina?

Mr. FRAMPTON. We do.

Mr. HORN. Or how do you work with that people power?

Mr. FRAMPTON. We have nine branches.

Mr. HORN. And so that was it. And you weren't happy with that because too much time was wasted on some of the smaller debts. And then that's what led you to privatization of the smaller debts?

Mr. FRAMPTON. Privatization was one of our efforts started initially with our out-of-State collection. Us simply not having the time or the resources for us to chase somebody to Michigan or Kansas to check a debt, so we began with privatization of that particular area. And I must tell you that it's a pretty significant cultural change for an agency to move that collection off to a private side, and that did well for us and really was the foundation for us moving into privatization with some of our in-State debts. And we started first there with everything that was over 2 years old, that it was obvious we weren't going to either get to or hadn't been successful with.

Mr. HORN. Do you have a law in South Carolina that would be a privacy law, a confidentiality law, that one cannot reveal the taxpayers form and status and so forth? Do you have such a law?

Mr. FRAMPTON. Absolutely.

Mr. HORN. OK. Is there any problem at all living up to that law when you privatize the debt to private bill collectors?

Mr. FRAMPTON. None whatsoever. We only send to private bill collectors those debts that there is a lien recorded publicly, and the information in the lien is a matter of public record, and that's the information that the private debt collectors use.

Mr. HORN. In other words, you give them the amount owed and the address?

Mr. FRAMPTON. That's correct. Type of tax and basic information that would be included on a courthouse lien-type record.

Mr. HORN. You mentioned that's tough on an agency when they've been doing this job for years. I don't think South Carolina has employee unions, or am I wrong on that?

Mr. FRAMPTON. We do not.

Mr. HORN. You do not. But whether you have unions or not, just the work force generally, I take it from your comment, was sort of upset that part of the agency business was being delegated to a private entity.

Mr. FRAMPTON. Well, it was a significant change in what we were accustomed to, but the fact of the matter was we weren't going to get any additional employees from our legislative process, the number of debts and liens were stacking up, and something needed to be done. We did bring it in incrementally and slowly on a trial basis and worked out a lot of the problems in that fashion, because we started with out-of-State, went to over 2 years old, and now on the verge with going to everything under 500. That's been an incremental way and softer on bringing it in. The public is not always as pleased with this process as might be. Some of these collection processes are pretty difficult. We've had to manage that and make sure that they collect it according to our standards and our style and the way we treat our customers in South Carolina.

Mr. HORN. Now, on your out-of-State do you just open for bid or contract, or how do you pick the person in Kansas to collect that debt for you?

Mr. FRAMPTON. We will bid with a principal contractor.

Mr. HORN. Is that a nationwide contractor?

Mr. FRAMPTON. Yes. They have to have national ability.

Mr. HORN. Has that contract been let yet?

Mr. FRAMPTON. We were in our third contract, I believe.

Mr. HORN. Who has the contract?

Mr. FRAMPTON. FCA is the current contractor, Financial Collection Agencies.

Mr. HORN. I'm not familiar with them. They are a major national firm, I take it, represented in every State in some way?

Mr. FRAMPTON. That's correct.

Mr. HORN. That's why you picked them.

What about the situation of deadbeat dads? Some of your colleagues who are State commissioners say that our debt collection bill, although it didn't apply to the IRS, has permitted State tapes to be matched against Federal tapes as to where some of these people who have skipped across State lines might be when you're trying to enforce a court order issued by the State in a divorce case, and they're leaving the State, figuring that order won't apply to them anymore. Is that of concern in South Carolina? Is that a problem?

Mr. FRAMPTON. We don't administer the deadbeat dad collection process.

Mr. HORN. Who does?

Mr. FRAMPTON. Our Division or Department of Social Services.

Mr. HORN. I see. And are they doing what you're doing to try and track people down and privatize that operation, or what? Because a lot of them are in other States.

Mr. FRAMPTON. I do not know the answer to that.

Mr. HORN. OK. Well my staff can perhaps followup with social services, since you are privatizing, and we obviously had a problem here in Washington with the thought of it even in the Internal Revenue Service. So I'm very interested in that. When other States are making progress, the Federal Government isn't making much, but we'll get there eventually.

Now let's see if there's anything else I wanted to ask on the testimony.

You note here that, on page 5, through the efforts of the entire agency, we've made significant headway on our journey. While it is a journey that does not end, we can identify some significant milestones. What I was particularly interested in was enthusiastic frontline participants. If you could elaborate on that a little, in what way were they enthusiastic, and what did that do to help achieve the goal of total quality management or, as the Navy says, total quality leadership?

Mr. FRAMPTON. Through two different sources. One, when we were casting our last strategic plan, we used some external folks from the university to come in and have some focus groups with our employees. They reported back to us, and almost to the person those individuals who were involved in the quality process, involved with teams, been through the training were much more engaged and enthusiastic about what they were doing.

No. 2, in a recent assessment that we've gone through with our State Total Quality Forum, which is a Baldrige-like assessment process, the folks who came in from the private sector, one of the things that they reported back to us was the enthusiasm of the randomly sampled frontline participants and what was going on in the organization.

And we feel like that our people really are, throughout top to bottom of the organization, real players with us. They feel that, they understand that, and they know that. We think the enthusiasm comes from the fact that they know they can make a substantive change to the organization.

Mr. HORN. You also noted barriers coming down. What were some of the major barriers you and other agencies have faced in this regard?

Mr. FRAMPTON. I think early on, the perception that we were moving into some type of process that this would be a democracy, and we would take a vote on every decision that was made. We had some major rejudgments in that particular area in making employees understand that they were going to participate in the process, but ultimately somebody had to be responsible for a decision. There was a lot of misunderstanding about that initially.

Mr. HORN. That sounds like a university government system. And Mr. Calhoun, a citizen of your State, certainly believed that if one person objected, why the whole works ought to stop. But I take it South Carolina is beyond Calhoun's philosophy at this point.

Mr. FRAMPTON. It really is a new challenge for a lot of our leadership. We had to make sure that our people really were up to the task of being able to take some fairly direct criticism on their style and the way they've done business in the past. And that has not always been easy.

We started early on with some surveys in our process, all employee-type surveys, and we didn't find it to be particularly productive. In several instances we saw some agencies where the survey was used adversely against some of their leadership in a political environment. We also saw in some instances where the surveys would talk about the management not being up to par, and the management being really the group that you need to lead this effort. We haven't seen where it really does much good to start off calling people names and calling processes bad or whatever. That's not a good way to start a process.

Mr. HORN. I believe you said that you have a number of collection agencies in your revenue department, or did I misunderstand that? Do you have one collection process within the department, or do you have several?

Mr. FRAMPTON. Yes. We have a basic collection process, but it's multifaceted.

Mr. HORN. Oh, I see. So it's directed by one operation. It isn't separate collection agencies within the department?

Mr. FRAMPTON. No.

Mr. HORN. I didn't think it was, because I wondered what centralization had occurred among those agencies. And on the multifaceted side, is any competition ever built in between some of the facets of the one collection agency, and is that helpful in achieving total quality management, or isn't it?

Mr. FRAMPTON. We don't have the cost accounting processes that we need to really build a competition in yet. I think where the competition is going to come down the road is that if we don't have good measurement systems in our agency and know what our costs are, there will be people from the private sector who will. And it's

going to be very difficult if you go to the table and say, well, you can't measure me, and you've got someone there who can measure their effectiveness, I think I know who's going to get the business. And that's the message we're taking to our professional businesses: You better get going because there are other people out there who will be glad to do your job for you.

Mr. HORN. On the collection process, with the other State agencies, where debts are incurred and maybe not paid off I take it, do you have a responsibility to supervise that collection, or is that left to the other State agencies?

Mr. FRAMPTON. They will certify the debt to us.

Mr. HORN. I see. They turn it over to you?

Mr. FRAMPTON. That's correct.

Mr. HORN. And it then goes through your process?

Mr. FRAMPTON. That's right. If there's some difficulty with the substance of the collection, of accuracy of the debt, then that gets referred back to the originating agency.

Mr. HORN. Now, is there any incentive built into the South Carolina debt collection law or laws that would encourage agencies to spend more time on debt collection than perhaps they have, since often the agency is thinking of, gee, you know, forget the debt. This is national experience and Federal experience. We're going ahead to do our real mission, and many of the agencies do not regard that as part of their mission. Obviously a debt collection agency would be part of their mission. But the more old line departments, I suspect—I know in the Federal Government, and with rare exception, in many States, they just say, well, that's getting in my way, we don't have time for that; and the debt accumulates.

I'm curious how you deal with that. Do you give them any incentive if they collect the debt or—in other words, if they didn't collect it, they wouldn't have any money, but if they brought in some money to the Treasury, do you give them a percentage or anything like that?

Mr. FRAMPTON. Well, the dollars usually flow back to the agencies, but the incentive really is on our side. We actually go out and market our services, particularly the refund offset services. We get $25 a match on that particular process, and it accounts for now almost 10 percent of our budget. So we're out actively marketing that particular service with agencies. And you know, it's a what-can-they-lose-type proposition.

Mr. HORN. And do they get to keep the money——

Mr. FRAMPTON. Yes.

Mr. HORN [continuing]. And spend it on anything they want, or does the legislature have to reappropriate it?

Mr. FRAMPTON. It varies from agency to agency and the kind of dollars, but generally goes back into their funds available to spend.

Mr. HORN. That's interesting. What we tried to do in the Debt Collection Act was stimulate the agencies to improve their computerization that helps them collect the debt. And so in that sense, it's an incentive. They get a percentage of what comes back to them.

How much of a problem is it in debt collection when people take personal bankruptcy in the State of South Carolina? Does that just foreclose you from collecting this debt? And how much of a problem is that?

Mr. FRAMPTON. It's always a significant problem in dealing with automated systems and people that fall into a bankruptcy-type position.

Of course, that prohibits us in post-petition-type bankruptcy debts, but we've become heavily involved in making sure that the folks stay current, stay on the rolls with us, and don't fall off the rolls while they're in the bankruptcy process, particularly if they're reorganizing.

Mr. HORN. Well, that's why I'm thinking if there's a pattern and practice of taking personal bankruptcy and then popping up somewhere else with a new business, new name, I don't know if you go by taxpayer numbers, but maybe a new taxpayer number, is there a way the State can get at that so—or does the judicial proceedings just excuse them from any collection of those debts they did under that other name?

Mr. FRAMPTON. The judicial process really excludes you from going after a lot of those debts. But it's not a significant problem for us. We haven't seen a major change in that process.

Mr. HORN. You mean even with the leniency of bankruptcy that we have now?

Mr. FRAMPTON. It hasn't come up as a significant change or problem for us.

Mr. HORN. What percent of your debt is based on personal bankruptcy?

Mr. FRAMPTON. I don't have that number.

Mr. HORN. OK. Well, if you could get it, let's just put it in the record at this point.

[The information referred to follows:]

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
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	43YABC5N478	4680000B	10/06/95	09/30/96	856	E SWANSTROM
A&M UNIV		5838200B	03/01/96	12/31/96	977	A CARAGAY
ABB		4012700B	09/27/91	09/12/92	943	T OLSSON
ACERL		4501000B	10/08/93	09/29/96	923	A BALASCO
		6585000B	08/17/90	04/16/93	977	R CARON
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		4789200B	11/11/94	12/31/94	183	G MELHEM
AED	CCN-0012-Z-00-3155-00*	4804700B	12/09/94	12/31/94	218	S HURLEY
	USAIDCONNOCCN-0012-Z..	4870400B	03/10/95	04/04/95	701	P HERMAN
	USAIDCONNOCCN-0022-Z..	4867000B	03/10/95	04/21/95	701	P HERMAN
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AF AEROM	F4162295MS013	4785800B	11/11/94	12/09/94	968	C MARBLE
AF BROOK	F41624-91-C-1001	6697000B	03/29/91	09/30/93	118	P MCTAGGART
	F41624-91-C-1001	6697100B	03/29/91	09/30/93	118	P MCTAGGART
	F41624-91-C-1001	6697200B	03/29/91	09/30/93	118	P MCTAGGART
AF ESD		4184300B	07/31/92	12/15/92	172	M REED
AF TYNDALL	DAAK60-91-D-0005,D.O.4	6792400B	09/02/94	12/31/95	118	P MCTAGGART
	F08635-91-C-0212	4462300B	08/13/93	05/31/94	966	R FORNI
	F08635-91-C-0212	6795700B	09/20/91	09/21/92	964	S HYNEK
	F33615-87-C-3414/P00030	4196600B	08/21/92	12/31/92	117	R BRECKENRIDGE
AF WPAFB	D.O. 0002	3197400B	12/20/96	03/16/98	118	P MCTAGGAR
	F33615-86-C-4505	5691300B	10/10/86	12/31/92	545	WDLEE
AF-AMC	95S-0087-DC5	3095400B	08/16/96	07/16/97	782	M JOYCE
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AFR		6903000B	06/21/96	06/30/96	964	W FULLER
AFROAMINST		4054900B	12/20/91	12/31/93	217	T MOORE
AGAL		6779900B	09/06/91	01/31/93	977	R CARON
		8899055P	09/18/92	09/30/92	961	R CARON
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		5791900B	01/26/96	02/29/96	115	L PENSOTTI
		5792000B	01/26/96	02/29/96	115	L PENSOTTI
	ESC/021ST	5638900B	10/20/95	10/31/95	398	J PUFFER JR
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	OAWF/006	6908300B	06/21/96	07/10/96	398	J PUFFER JR
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ALLIANT	P.O.BOX460800	5187700B	07/21/95	12/31/95	885	D FAUTEUX
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	SC920001	3654000B	07/17/92	01/23/93	452	A RADFORD
ANALYTICAL	P.O.NO.49065	5168400B	06/23/95	12/31/95	313	G DOUGLAS
APP PHYSIC	P.O.715527	5176100B	06/30/95	12/31/95	172	J FOWLER

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	DAAA15-87-C-0016-DA53	6428300B	10/13/89	01/05/92	943	T OLSSON
	DAAA15-87-D-0003	6425200B	10/06/89	06/30/92	943	R LAMBE
	DAAA15-87-D-0016	6035000B	09/04/87	07/28/92	195	A GRAFFEO
	DAAA15-87-D-0016	6043300B	08/14/87	08/14/92	199	PEFARROW
	DAAA15-87-D-0016	6427700B	10/13/89	04/10/92	943	T OLSSON
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	DAAA15-87-D-0016/DA49	6427900B	10/13/89	01/05/92	943	T OLSSON
	DAAA15-87-D-0016/DA50	6428000B	10/13/89	08/11/92	943	T OLSSON
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	DAAA15-89-D-0003	6391400B	09/29/89	03/15/92	923	A BALASCO
	DAAA15-89-D-0003	6391700B	02/16/90	03/15/92	923	A BALASCO
	DAAA15-89-D-0003	6391800B	03/30/90	03/15/92	384	D DARLINGTON
	DAAA15-89-D-0003	6392200B	09/28/90	09/28/93	012	L RAMBO
	DAAA15-89-D-0003	6392300B	09/28/90	03/15/92	967	C BENSON
	DAAA15-89-D-0003 DO # 10	6391000B	09/15/89	02/29/92	923	A BALASCO
	DAAA15-89-D-0003 DO 15	6391500B	10/27/89	03/15/92	384	D DARLINGTON
	DAAA15-89-D-0003 D01	3644001P	03/17/89	03/16/92	451	JFFISHER
	DAAA15-89-D-0003 D026	6392600B	01/25/91	02/28/92	384	D DARLINGTON
	DAAA15-89-D-0003/0013	6391300B	09/29/89	03/15/92	923	A BALASCO
	DAAA15-89-D-0003/29	6392900B	08/16/91	05/16/92	923	A BALASCO
	DAAA15-91-D-0016	6706000B	04/12/91	09/30/97	943	RNLAMBE
	DAAA15-91-D-0016/D001	6706100B	08/30/91	08/15/92	942	M DIBERTO
	DAAA15-91-D-0016/0002	6706200B	05/22/92	08/19/94	923	A BALASCO
	DAAA15-91-D-0016/0005	6706500B	03/12/93	07/31/97	943	R LAMBE
	DAAA15-91-D-0016/0010	6707000B	06/11/93	06/30/94	943	R LAMBE
	DAAA15-91-D/0016/0008	6706800B	09/18/92	01/30/94	923	A BALASCO
	DAAA15591-D-0016-0006	6706600B	08/14/92	01/30/93	907	J GREENO
	DAAD05-93-P-6749	6495572P	10/08/93	10/30/93	183	G MELHEM
	DAAJ02-92-C-0030	4168600B	06/19/92	08/17/95	146	R STRINGFELLOW
	DACA31-93-P-0647	4326800B	02/26/93	02/01/94	923	A BALASCO
	DACA39-92-D-0014	6393000B	07/24/92	07/17/97	923	A BALASCO
	DACA39-92-D-0014/01	6393100B	08/07/92	10/31/92	923	A BALASCO
	DACA39-92-D-0014/02	6393200B	03/05/93	12/31/93	923	A BALASCO
	MDA903-88-C-0064	6456200B	11/24/89	10/31/93	544	W ULRICH
ARMY APG	DAAA15-89-D-0003	3644000B	03/17/89	03/16/92	381	L WHEELER
ARMY ARRAD		4666700B	05/13/94	06/13/94	942	J HARRIS

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ARMY ARRAD	*DAAA15-91-D-0016/0012	6707200B	10/28/94	11/24/95	943	R LAMBE
	*DAAA15-91-D-0016/0013	6707300B	12/02/94	07/31/97	943	R LAMBE
	DAAA15-91-D-0016/0003	6706300B	01/08/93	05/31/94	943	R LAMBE
ARMY CHAM	DACA88-93-D-0021/D00001	4501100B	08/05/94	12/31/96	923	A BALASCO
	DACA88-94-D-0015	4677000B	05/27/94	05/12/96	961	R PATEL
ARMY DSS		4070100B	01/24/92	10/31/93	552	M ESPOSITO
		4195800B	07/31/92	10/31/93	544	W ULRICH
	DASW01-97-F-1009	3336000B	04/11/97	04/06/98	381	J JONES
	MDA 90388C0064	4070300B	02/07/92	10/31/93	552	M ESPOSITO
	MDA.903-88-C-0064	4070400B	05/29/92	10/31/93	544	W ULRICH
	MDA903-88-C-0064	6089000B	11/20/87	10/31/93	544	W ULRICH
	MDA903-88-C-0064	6456100B	11/24/89	10/31/93	544	W ULRICH
	MDA903-88-C-0064	6456300B	11/24/89	10/31/93	544	W ULRICH
	MDA903-88-C-0064	6672000B	02/15/91	10/31/93	544	W ULRICH
	MDA903-88-C-0064	6672200B	02/15/91	10/31/93	544	W ULRICH
	MDA903-88-C-0064	6672300B	02/15/91	10/31/93	544	W ULRICH
	MDA903-88-C-0064	6672400B	02/15/91	10/31/93	544	W ULRICH
	MDA90388C0064	4070000B	01/17/92	10/31/93	544	W ULRICH
	MDA90388C0064	4070200B	02/07/92	10/31/93	552	M ESPOSITO
ARMY ENG	DACA31-91-P-1512	4026800B	10/18/91	11/30/92	923	A BALASCO
	DACA31-92-P-0065	4131300B	04/24/92	06/09/92	923	A BALASCO
	DACA31-92-P-0665	4148700B	05/29/92	06/04/92	943	R LAMBE
	DACA39-92-D-0014/D.O.008	3133300B	09/27/96	09/15/97	923	A BALASCO
	DACA39-92-D-0014/D.O.07	6393700B	03/03/95	03/31/96	923	A BALASCO
	DACA39-92-D-0014/D005	6393500B	07/29/94	05/31/96	923	A BALASCO
	DACA39-92-D-0014/D006*	6393600B	07/29/94	02/15/95	923	A BALASCO
	DACA39-92-D-0014/04*	6393400B	09/24/93	05/31/96	923	A BALASCO
	DACA39-92-0-0014/03*	6393300B	09/17/93	02/15/94	923	A BALASCO
	D001	6915600B	06/28/96	12/31/96	923	A BALASCO
ARMY MERD	DAAB12-95-C-0018	4892300B	03/31/95	07/31/96	961	S HYNEK
	DAAB12-95-V-0027	4840700B	02/03/95	03/31/95	961	S HYNEK
ARMY NATIK		3350300B	04/25/97	04/21/98	943	R LAMBE
		4113100B	03/20/92	03/31/92	115	A SCHWOPE
		4652000B	04/22/94	03/28/95	977	A CARAGAY
		4861300B	04/12/96	06/30/97	117	A SCHWOPE
		6792100B	09/06/91	03/31/92	115	A SCHWOPE
	DAAK60-33-C-0059	4460100B	08/06/93	04/30/95	115	L PENSOTTI
	DAAK60-88-C-0032	6214300B	08/19/88	07/28/95	117	ADSCHWOPE
	DAAK60-91-D-0005	6792200B	02/28/92	09/24/92	117	A SCHWOPE
	DAAK60-91-D-0005,D.O.5	6792500B	09/09/94	01/31/95	118	P MCTAGGART
	DAAK60-91-D-005-03	6792300B	05/15/92	12/31/92	117	A SCHWOPE
	DAAK60-94-C-0049	4725700B	08/05/94	07/31/97	115	L PENSOTTI

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ARMY NATIK	DAAK60-95-P-8524	5145300B	05/12/95	08/16/95	111	P DRENNAN
	DAAK60-96-P-7037	5877100B	03/29/96	10/25/96	977	L AALMANS
	XXQ444	4744400B	09/09/94	10/31/94	117	A SCHWOPE
	XXQ444	4766600B	10/14/94	03/27/95	117	A SCHWOPE
	XXQ444/PHASE II	4861200B	03/03/95	04/15/96	117	A SCHWOPE
	XXQ444/PHASE IV	4861400B	10/25/96	06/30/98	117	A SCHWOPE
	XXQ444/PHASEV	4861500B	10/25/96	09/30/97	117	A SCHWOPE
ARPA	PO NO 406191	4738500B	09/02/94	05/15/96	885	D FAUTEUX
BABCOCK	PO#C-92-C-36659	4150500B	05/29/92	12/31/92	942	J HARRIS
BAKER		5182600B	07/07/95	12/31/95	923	A BALASCO
BATTELLE	P.O.297189-AF1	6708000B	06/07/96	06/03/96	923	A BALASCO
	SPECAGRMT188-413-A-E1	8899053P	06/26/92	06/19/92	992	J FITCH
	188414-A-E1	8899054P	06/26/92	06/19/92	944	R EARLE III
	297167-AF1	5204500B	08/11/95	08/04/95	942	M DIBERTO
	297170-A-F1	5208000B	08/11/95	02/29/96	923	A BALASCO
	297170-A-F1/WA1	5208100B	08/11/95	10/27/95	942	M DIBERTO
	297170-A-F1/WA2	5208200B	11/03/95	02/29/96	942	M DIBERTO
BECHTEL	P09201167	8899057P	10/16/92	11/06/92	607	R LILLEVICK
BECHTEL N		3079300B	08/09/96	09/30/96	173	A ARROTT
		3079500B	08/09/96	08/31/96	173	A ARROTT
	PO 7188	5876100B	03/29/96	08/31/96	827	R SHELTON
	PO 9763	3071300B	07/26/96	05/31/96	961	R WILSON JR
	P05552/DE-AC08-96NV11718	5808100B	02/02/96	03/22/96	173	A ARROTT
	P05552/DE-AC08-96NV11718	5808200B	02/02/96	08/31/96	961	W TEAGAN
	SUBC.7000/T.O.4	3155400B	10/25/96	09/30/97	194	S BLOCK
	SUBC.7000/T.O.4/TSK1	3161400B	10/25/96	09/30/97	194	S BLOCK
	T.O. No. 1	3044800B	07/19/96	01/31/98	945	S POLTORZYCKI
	TO 4/Subtask 2	3174500B	11/22/96	09/30/97	194	S BLOCK
	TO4/Tsk3	3281000B	02/20/97	09/30/97	194	S BLOCK
	TO4/Tsk4	3326900B	04/04/97	09/30/97	194	S BLOCK
BELL HOWE*	DSD19769	4328000B	02/26/93	06/30/93	110	J MOORE
BERKELEY		3675200B	05/24/96	06/18/96	463	J PIERCE
BIONETICS	C-406-95-007	5159800B	06/23/95	10/15/95	193	J VALENTINE
	C406-95-003	4540800B	11/26/93	11/15/95	961	R WILSON JR
	C406-95-003	4787300B	11/11/94	07/31/97	961	R WILSON JR
	T837-93-12-24	4550200B	12/24/93	12/31/93	173	A ARROTT
BLA	C-32320	3232000B	12/20/96	12/31/97	116	J POWELL

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BMI		4014500B	10/18/91	06/30/92	961	R TOPPING
BMI *		5191600B	07/21/95	05/31/96	115	M SINOFSKY
		5712600B	11/03/95	12/31/96	964	K BENEDEK
	T2303(8978)-1273R	6400000B	08/11/89	11/28/93	186	C O'LEARY
BOOZ ALLEN		3349600B	04/25/97	09/01/97	923	A BALASCO
		6659100B	01/25/91	09/30/92	722	M HEBB
	W.A. 58 (Subtask 10403)	3329500B	04/17/97	05/05/97	923	A BALASCO
	W.A. 58, Subtask 10500	3362600B	05/16/97	05/30/97	923	A BALASCO
	W.A. 58, Subtask 10501	3291200B	03/04/97	12/31/97	923	A BALASCO
	W.A. 58, Subtask 10502	3341700B	04/18/97	12/31/97	923	A BALASCO
	W,A. #33, Subtask 502	3362700B	05/16/97	12/31/97	923	A BALASCO
	09075-0124-P.O.#537*	4437000B	07/23/93	12/31/96	923	A BALASCO
	09075-0124-P.O.#537WA52	3127100B	09/20/96	12/31/96	923	A BALASCO
	09075-0124-PO#537/WA52T21	3101900B	08/23/96	12/31/96	923	A BALASCO
	09075-124-P.O.#537WA52	3073100B	07/26/96	12/31/96	923	A BALASCO
	09075-124-P.O.#537WA52	3073200B	07/26/96	12/31/96	923	A BALASCO
	09075-124-PO#537/WA3031	4439100B	05/17/96	09/30/96	923	A BALASCO
BOOZEALL	W.A.10,TASK 12	4438100B	04/29/94	09/30/94	923	A BALASCO
	W.A.11	4437100B	10/01/93	09/30/94	923	A BALASCO
	09075-0124-PO#537/WA31	4438700B	06/02/95	12/31/95	923	A BALASCO
	09075-091-Q0716-89	6778200B	08/16/91	06/30/92	186	C O'LEARY
	09075-124-P.O.#537/W.A32	4438800B	08/11/95	09/30/95	923	A BALASCO
	09075-124-P.O.#537/WA43	4439000B	10/27/95	12/31/95	923	A BALASCO
	09075-124-PO#537/W.A.32	4438900B	09/29/95	11/09/95	923	A BALASCO
	09075-124-S0625-825	4437400B	09/10/93	09/30/94	923	A BALASCO
	09075-124-S0625-825/WA	4438000B	04/22/94	09/30/94	923	A BALASCO
	09075-124-S0625-825/WA10	4438200B	04/29/94	09/30/94	923	A BALASCO
	09075-124-S0625-825/WA10	4438300B	07/22/94	09/30/94	923	A BALASCO
	09075-124-S0625-825WA#8	4437500B	09/24/93	12/31/94	923	A BALASCO
	09075-124-50625-825	4437600B	10/01/93	09/30/94	923	A BALASCO
	09075-124-50625-825/WA07	4437700B	03/18/94	09/30/94	923	A BALASCO
	09075-124-50625-825/WA08	4438500B	01/27/95	12/31/95	923	A BALASCO
	09075-124-50625-825/WA13	4437800B	04/08/94	08/15/94	923	A BALASCO
	09075-124-50625-825/WA20	4437900B	04/08/94	07/31/94	923	A BALASCO
	09075-124-50625-825/WA26	4438400B	09/30/94	09/30/95	923	A BALASCO
	09075-124-50625-825/WA26	4438600B	01/27/95	09/30/95	923	A BALASCO
	09075-124-50625-825WAN04	4437300B	08/27/93	12/31/93	923	A BALASCO
	09075-124-50625-825WAN64	4437200B	08/13/93	09/01/93	923	A BALASCO
	18625-001-P1777A	4521600B	11/05/93	09/21/95	552	M ESPOSITO
BOTSWANA	623-0253-C-00-2014-00	5207200B	08/11/95	09/05/95	218	S HURLEY
BURNS & RO		4314100B	02/05/93	09/16/93	967	P LOFTUS

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BURNS & RO	PO#8273-1931/DE-AC22..	4381001P	06/18/93	07/02/93	967	C BENSON
	8273-1925/DE-AC22-89C8840	4418400B	06/25/93	10/31/93	967	P LOFTUS
C A UNIVER	OSP-93-10-432-002/DE-FG..	4423700B	07/02/93	09/30/95	964	K BENEDEK
CAI	554-SUB02/674-0309-C-00	4159000B	06/12/92	05/10/96	218	S HURLEY
CARANA COR		4471100B	09/03/93	05/31/96	217	T MOORE
	EPE-0014-1-00-5059-00/TO	5143200B	11/10/95	05/31/96	217	T MOORE
	EPE-0014-1-00-5059-00/TO	5143100B	10/20/95	12/14/95	217	T MOORE
	EPE-0014-1-00-5059/T.O.03	5143300B	06/28/96	12/31/96	218	S HURLEY
	P.O.NO.213-01	5528600B	10/13/95	12/31/95	218	S HURLEY
	PO#KAZ-20028-001/CCN-000	4684300B	06/10/94	07/15/94	218	S HURLEY
	T O #1-0113-CAR	4471400B	03/17/95	09/30/95	217	T MOORE
	T.O.4-0066	4471300B	06/17/94	01/31/95	217	T MOORE
	T.O.5-0070-CARANA	3071100B	07/26/96	08/31/96	217	T MOORE
	T.O.6-0108-CAR	4471500B	03/31/95	05/31/96	217	T MOORE
	USAID#CCN-005-C-00-3083	4471200B	11/19/93	07/15/94	701	B BATTLE
CARNEGIE U	P.O.#150428	5703000B	10/27/95	08/30/96	923	A BALASCO
CECOM	DAAB12-96P-0466	3104200B	08/30/96	09/27/96	961	S HYNEK
CEVCO		4803900B	12/09/94	12/31/94	961	J BENTLEY
CHEMNUC		4012000B	09/27/91	09/27/92	943	R LAMBE
		4026000B	10/18/91	10/09/92	943	R LAMBE
		4026100B	10/18/91	10/09/92	943	R LAMBE
CHESAPEAKE	N00039-91-C-0001	4864100B	03/03/95	02/24/95	172	J FOWLER
CMP	EPRI-RP4810	4818100B	12/30/94	12/31/95	923	A BALASCO
	RP3243	4398300B	05/28/93	03/31/95	923	A BALASCO
CO C-20	93-Y954900-00	4313400B	02/12/93	09/30/93	301	L RAMBO
CO D-18	91-N-312800-000	6754900B	07/05/91	08/31/92	193	R TAYLOR
CO E-19		4128700B	04/17/92	04/30/94	930	M VAN BUREN
CO F-19		6794800B	09/13/91	09/08/92	116	J POWELL
	CONTRACT#C-48430	4843000B	02/03/95	05/31/96	116	J POWELL
CO F-25	CONT#C-58545	5854500B	03/15/96	05/10/96	116	J POWELL
CO J-25		5873300B	03/29/96	03/31/97	114	J MARTIN

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CO L-21	94-N314609-000	4728800B	08/12/94	02/07/95	945	S POLTORZYCKI
CO O-24		5209000B	08/11/95	08/09/96	116	J POWELL
		5240200B	09/15/95	09/11/96	193	D EHNTHOLT
CO S-22		4662100B	05/06/94	03/31/95	114	J MARTIN
CO W-16	90-N302500-000-W07	6582700B	06/28/91	01/31/92	928	C GREENWALD
	90-N302500-000W08	6582800B	10/18/91	10/02/92	928	C GREENWALD
	90-N302500-000W09	6582900B	10/18/91	06/19/92	928	C GREENWALD
COH-19	LIMITED	6786600B	08/30/91	02/28/93	916	A BOGHANI
COMM NOAA		4232200B	09/25/92	09/28/92	949	D LITTLE
	40ABNC103139	4024200B	10/18/91	02/28/92	115	A SCHWOPE
	43ABNC200592	8899052P	12/27/91	01/31/92	194	K FINKELSTEIN
COOPERS&LY	DTRS-57-93-D-0005	4430000B	07/16/93	05/06/97	831	A BOGHANI
	4231-17	3143800B	10/04/96	06/30/97	440	T BURGER
CRDC	DAAA	6706700B	10/02/92	09/30/97	943	R LAMBE
CSA	14-35-0001-30617	4076500B	01/31/92	11/01/93	329	P BOEHM
	1400-TASK-ADL	4180700B	07/10/92	12/23/94	313	M RIGATTI
	1400-TASK-ADL	4424300B	07/02/93	12/23/94	313	G DOUGLAS
CSC *	PO#74735/N66001-94-0090	5844500B	03/22/96	09/15/96	313	G DOUGLAS
CTR MATERS	P.O. NO 158133	3042900B	07/19/96	02/25/97	923	A BALASCO
	RP-3243-1	4241300B	10/16/92	05/01/93	923	A BALASCO
	RP3243-15	4283000B	12/18/92	06/30/93	923	A BALASCO
DAI	SI 001-01	4306000B	01/29/93	07/31/93	217	S HURLEY
DAN HAMBLN		3260600B	01/29/97	05/26/97	967	C BENSON
DAYTON T		4281200B	12/31/92	01/31/93	115	R GOLDMAN
DC EXECOFF	EN-3-5-EX-025	4479200B	09/03/93	08/23/94	552	P MCNAMARA
	LC 3040-AA-NH-7-LH	4265000B	11/27/92	03/23/93	552	P MCNAMARA
DECANALY		3274400B	02/18/97	06/16/97	923	A BALASCO
	DE-AC01-92EI-21946	4161000B	06/12/92	04/29/97	195	D KLEINSCHMIDT
	DE-AC01-92E121946/TA93-0	4161300B	08/20/93	09/20/93	923	C KUSIK
	KAW-3-13458	4760000B	09/30/94	08/17/96	972	L FRANTZIS
	KAW-3-13458-ADL-10	3028900B	07/12/96	10/25/96	972	L FRANTZIS
	KAW-3-13458-ADL-9	4760500B	03/15/96	11/01/96	972	L FRANTZIS

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DECANALY	KAW-3-13458-ADL#3(7)	4760300B	10/27/95	03/31/96	972	L FRANTZIS
	KAW-3-13458-ADL1	4760100B	10/07/94	12/09/94	972	L FRANTZIS
	TASK#94-087	4161400B	07/15/94	07/14/95	923	A BALASCO
	95-124C(DE-AC01-92E121946	6380000B	05/17/96	08/15/96	965	M CROWE
DELOITTE	623-0253-C-00-2014-00	5207300B	08/11/95	09/05/95	218	S HURLEY
DELPHI		3108100B	11/08/96	09/30/97	923	A BALASCO
DETROIT	DE-AC-21-MC90MC27222	6615000B	10/19/90	06/24/92	042	C BOSIO
DHHS	223-91-7076/TASKORDER9	3125500B	09/13/96	05/30/97	193	M MCCOMISH
DISA/ARMY	GS22F0082B,DASW01-95-F-2	4688900B	10/13/95	06/17/96	453	J SCARPIGNATO
DNFE		4617700B	08/12/94	03/31/95	923	A BALASCO
	N47408-89-D-1025/DO#12	6798200B	03/13/92	01/15/93	923	A BALASCO
	N47408-89-D-1025/DO#6	6318600B	09/28/90	09/30/92	923	A BALASCO
	N47408-89-D-1025/DO#7	6318700B	09/28/90	02/14/92	923	A BALASCO
	N47408-89-D-1025/DO#8	6318800B	10/04/91	09/30/93	923	A BALASCO
	N47408-94-D-7410/D 0 000	4617500B	08/12/94	08/31/95	923	A BALASCO
	N47408-94-D-7410/D00008*	4617800B	09/30/94	10/16/95	923	A BALASCO
	N47408-94-D-7410/D00009*	4617900B	09/30/94	07/28/95	923	A BALASCO
	N47408-94-S-7410/D.0.000	4597500B	08/12/94	08/31/95	923	A BALASCO
	N47408-94-S-7410/D.0.000	4597700B	08/12/94	03/31/95	923	A BALASCO
DOD	GS-22F-0082B	4688400B	06/24/94	09/30/97	452	A RADFORD
DOD DNA	DNA001-95-C-0096	5124900B	05/05/95	10/22/97	943	K THRUN
DOE		4710100B	07/15/94	06/30/97	967	C BENSON
		4710200B	07/15/94	06/30/97	967	C BENSON
		4710300B	09/09/94	06/30/97	967	C BENSON
		4710400B	09/09/94	06/30/97	967	C BENSON
		4710500B	09/09/94	06/30/97	967	C BENSON
		4710600B	09/09/94	06/30/97	967	C BENSON
		4710700B	08/11/95	06/30/97	967	C BENSON
	BOAS-03429-G/76-CH03073	4156000B	06/12/92	05/25/97	923	A BALASCO
	COOPAGMT#DE-FC21-94MC31	4385500B	07/15/94	07/11/94	961	R WILSON JR
	DE AC21 88MC25124	6136600B	03/04/88	03/01/93	961	RPWILSON JR
	DE-AC01-92EH89132/T.A.57	4529700B	09/09/94	04/30/95	942	M DIBERTO
	DE-AC01-92EH89132/T.A.57	4533700B	09/09/94	04/30/95	942	M DIBERTO
	DE-AC01-92E121946/TA95-	4161500B	03/10/95	06/19/95	965	J DIECKMANN
	DE-AC01-96CE23798	3144000B	10/04/96	09/29/98	866	R ZOGG
	DE-AC01-96CE23798/TA1	3144100B	10/04/96	08/26/98	866	R ZOGG
	DE-AC08-96CE50384	5847300B	04/05/96	07/31/97	118	P MCTAGGART
	DE-AC21-88MC25124PHASE III	6796000B	09/13/91	06/30/94	961	R WILSON JR

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DOE	DE-AC21-94MC31076	4755100B	09/30/94	11/29/96	195	D KLEINSCHMIDT
	DE-AC21-94MC31076	5442700B	09/29/95	11/29/96	977	M COX
	DE-AC22-89PC89805	6430300B	09/29/89	12/31/92	964	KRBENEDEK
	DE-AC22-929C92151	4124400B	04/10/92	09/30/93	967	P LOFTUS
	DE-AC22-95PC95252	5417700B	09/29/95	09/30/97	967	R WEBER
	DE-FC36-96GO10142	5922500B	04/26/96	06/30/96	961	S HYNEK
	T.A. 3	3183200B	12/06/96	11/28/97	865	C BARBOUR
	TA2	3144200B	10/04/96	02/28/97	865	M RIVEST
	665-52402	3104900B	08/30/96	09/30/97	965	W GOETZLER
	942972401	4875900B	03/17/95	09/30/95	961	J BENTLEY
DOE DC		4451000B	09/24/93	05/30/95	866	R ZOGG
	AE-AC01-91EH89042	4019700B	10/11/91	08/03/92	923	A BALASCO
	DE-AC-0192EH89132/TA34	4217400B	09/24/93	04/29/94	942	M DIBERTO
	DE-AC01-2EH89132/TA35	4217500B	09/24/93	07/15/94	942	M DIBERTO
	DE-AC01-89-CE23821/TA22	4451200B	10/01/93	06/29/95	965	J DIECKMANN
	DE-AC01-89-CE23821/TA23	4451300B	09/24/93	09/27/95	972	L FRANTZIS
	DE-AC01-89-CE3821-TA21	4451100B	10/01/93	09/30/94	977	R CARON
	DE-AC01-89CE23821/T.A.32	4623200B	02/03/95	02/27/96	965	R MERRIAM
	DE-AC01-89CE23821/TA 18	4252800B	05/21/93	06/30/94	965	R MERRIAM
	DE-AC01-89CE23821/TA16	4252600B	03/12/93	07/31/95	965	J DIECKMANN
	DE-AC01-89CE23821/TA19	4252900B	07/23/93	05/30/94	965	J DIECKMANN
	DE-AC01-89CE23821/TA24	4451400B	09/24/93	02/28/94	866	R ZOGG
	DE-AC01-89CE23821/TA31	4623100B	11/18/94	06/30/95	866	R ZOGG
	DE-AC01-89CE23821/TA38	4623800B	11/10/95	06/27/96	865	C BARBOUR
	DE-AC01-90CE-23821/TA15	4252500B	02/12/93	05/29/94	965	J DIECKMANN
	DE-AC01-90CE23821/TA37	4623700B	12/15/95	06/27/96	865	M RIVEST
	DE-AC01-90CE23821/TA39	4623900B	12/29/95	06/27/96	965	D WESTPHALEN
	DE-AC01-90CE23821/TA40	4624000B	01/26/96	03/27/96	965	R MERRIAM
	DE-AC01-90CE23821/TA41	4624100B	02/23/96	06/27/96	866	R ZOGG
	DE-AC01-90CE23821/TA42	4624200B	02/23/96	06/27/96	865	M RIVEST
	DE-AC01-90CE23821/TA43	4624300B	03/29/96	06/27/96	965	D WESTPHALEN
	DE-AC01-90CE23821/TA44	4624400B	07/26/96	08/27/96	866	R ZOGG
	DE-AC01-91EH-89042	4026900B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH-89042	4027000B	10/11/91	08/03/92	942	M DIBERTO
	DE-AC01-91EH-89042	4027100B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH-89042	4027200B	10/11/91	08/03/92	942	M DIBERTO
	DE-AC01-91EH-89042	4027300B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH-89042	4027400B	10/11/91	08/03/92	942	M DIBERTO
	DE-AC01-91EH-89042	4027500B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH-89042	4027700B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH-89042	4027900B	10/11/91	08/03/92	942	M DIBERTO
	DE-AC01-91EH89042	4018900B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019000B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019100B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019200B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019300B	10/11/91	08/03/92	923	A BALASCO

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DOE DC	DE-AC01-91EH89042	4019400B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019500B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019600B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019800B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4019900B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4020000B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	4028000B	10/11/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042	6666000B	02/15/91	08/03/92	923	A BALASCO
	DE-AC01-91EH89042/TO 7	6666700B	04/12/91	08/03/92	923	A BALASCO
	DE-AC01-92-EH89132/TASK	4532100B	12/31/93	12/30/94	942	M DIBERTO
	DE-AC01-92-EH89132/TA22F	4220200B	05/21/93	02/25/94	923	A BALASCO
	DE-AC01-92-EH89132/TA22H	4216200B	05/21/93	02/25/94	942	M DIBERTO
	DE-AC01-92-EH89132/TA22H	4216400B	05/21/93	03/31/94	942	M DIBERTO
	DE-AC01-92-EH89132/TA24F	4220400B	05/21/93	03/31/94	942	M DIBERTO
	DE-AC01-92-EH89132/TA3HOM	4214300B	08/21/92	12/31/92	923	A BALASCO
	DE-AC01-92-EH89132TA3FLD	4218300B	08/21/92	12/31/92	923	A BALASCO
	DE-AC01-92-EH89132TO1BASE	4214100B	08/14/92	07/31/95	942	M DIBERTO
	DE-AC01-92EH132TOBASE	4214200B	08/14/92	03/31/93	923	A BALASCO
	DE-AC01-92EH89132/TA	4529200B	06/24/94	03/31/95	942	M DIBERTO
	DE-AC01-92EH89132/TA	4529500B	06/24/94	07/29/94	942	M DIBERTO
	DE-AC01-92EH89132/TA	4529600B	06/24/94	03/24/95	942	M DIBERTO
	DE-AC01-92EH89132/TA	4533200B	06/24/94	03/31/95	942	M DIBERTO
	DE-AC01-92EH89132/TA	4533500B	06/24/94	07/29/94	923	A BALASCO
	DE-AC01-92EH89132/TA	4533600B	06/24/94	03/24/95	942	M DIBERTO
	DE-AC01-92EH89132/TASK	4528100B	12/31/93	12/30/94	942	M DIBERTO
	DE-AC01-92EH89132/TASK	4528300B	12/31/93	06/30/94	942	M DIBERTO
	DE-AC01-92EH89132/TA2346M	4216300B	05/14/93	09/16/94	942	M DIBERTO
	DE-AC01-92EH89132/TA27	4216700B	08/13/93	02/28/94	942	M DIBERTO
	DE-AC01-92EH89132/TA32	4217200B	09/17/93	12/31/93	923	A BALASCO
	DE-AC01-92EH89132/TA33	4217300B	09/24/93	01/28/95	942	M DIBERTO
	DE-AC01-92EH89132/TA36	4217600B	09/24/93	11/27/94	923	A BALASCO
	DE-AC01-92EH89132/TA37	4217700B	10/29/93	10/31/94	942	M DIBERTO
	DE-AC01-92EH89132/TA38H	4217800B	11/19/93	06/30/94	942	M DIBERTO
	DE-AC01-92EH89132/TA39F	4221900B	01/14/94	09/01/94	942	M DIBERTO
	DE-AC01-92EH89132/TA39H	4217900B	01/14/94	09/01/94	942	M DIBERTO
	DE-AC01-92EH89132/TA40F	4532000B	01/14/94	12/31/94	942	M DIBERTO
	DE-AC01-92EH89132/TA40H	4528000B	01/14/94	12/31/94	942	M DIBERTO
	DE-AC01-92EH89132/TA42F	4532200B	01/14/94	01/20/95	942	M DIBERTO
	DE-AC01-92EH89132/TA42H	4528200B	01/14/94	01/20/95	942	M DIBERTO
	DE-AC01-92EH89132/TA44F	4532400B	01/14/94	08/19/94	942	M DIBERTO
	DE-AC01-92EH89132/TA44H	4528400B	01/14/94	08/19/94	942	M DIBERTO
	DE-AC01-92EH89132/TA45	4528500B	02/25/94	06/23/94	942	M DIBERTO
	DE-AC01-92EH89132/TA45	4532500B	02/25/94	06/23/94	942	M DIBERTO
	DE-AC01-92EH89132/TA46	4528600B	03/04/94	08/19/94	942	M DIBERTO
	DE-AC01-92EH89132/TA46	4532600B	03/04/94	08/19/94	942	M DIBERTO
	DE-AC01-92EH89132/TA47	4528700B	04/01/94	02/24/95	942	M DIBERTO
	DE-AC01-92EH89132/TA47	4532700B	04/01/94	02/24/95	942	M DIBERTO

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DOE DC	DE-AC01-92EH89132/TA48	4532800B	04/15/94	08/19/94	942	M DIBERTO
	DE-AC01-92EH89132/TA49	4528900B	04/15/94	10/01/94	942	M DIBERTO
	DE-AC01-92EH89132/TA49	4532900B	04/15/94	10/01/94	942	M DIBERTO
	DE-AC01-92EH89132/TA7FLD	4218700B	10/23/92	08/31/93	942	M DIBERTO
	DE-AC01-92EH89132/TA7HOME	4214700B	10/23/92	08/31/93	942	M DIBERTO
	DE-AC01-92EH89132TAHOME8	4214800B	10/23/92	08/31/93	942	M DIBERTO
	DE-AC01-92EH89132T01	4218100B	08/14/92	07/31/95	942	M DIBERTO
	DE-AC01-92EH89132T02FIELD	4218200B	08/14/92	03/31/93	942	M DIBERTO
	DE-AC01-92EH9132/T032	4221200B	09/17/93	12/31/93	942	M DIBERTO
	DE-AC0191-91EH89042/TA13	6675300B	06/28/91	08/03/92	942	M DIBERTO
	DE-AC0191-91EH89042/TA15	6675500B	06/28/91	04/15/92	923	A BALASCO
	DE-AC0191-91EH89042/TA16	6675600B	06/28/91	07/15/92	923	A BALASCO
	DE-AC0191-91EH89042/TA18	6675800B	06/28/91	05/15/92	923	A BALASCO
	DE-AC0191EH89042/TA11	6667100B	06/28/91	08/03/92	923	A BALASCO
	DE-AC0191EH89042/TA13	6667300B	06/28/91	08/03/92	923	A BALASCO
	DE-AC0191EH89042/TA14	6667400B	06/28/91	05/15/92	923	A BALASCO
	DE-AC0191EH89042/TA15	6667500B	06/28/91	04/15/92	923	A BALASCO
	DE-AC0191EH89042/TA18	6667800B	06/28/91	05/15/92	923	A BALASCO
	DE-AK01-92EH89132/TA48	4528800B	04/15/94	08/19/94	942	M DIBERTO
	DEAC0192EH89132/TA30HO	4217000B	08/13/93	04/29/94	942	M DIBERTO
	DEAC0192EH89132/TA31FI	4221100B	08/13/93	03/31/94	942	M DIBERTO
	DEAC01-89CE2382/TA25	4451500B	09/24/93	12/31/94	961	R PATEL
	DEAC01-89CE23821/TA26A	4451600B	04/08/94	01/31/95	961	W TEAGAN
	DEAC01-89CE23821/TA27	4451700B	03/25/94	11/30/94	866	R ZOGG
	DEAC01-89CE23821/TA28	4451800B	03/25/94	05/31/95	965	R MERRIAM
	DEAC01-89CE23821/TA29	4451900B	03/25/94	06/30/95	961	R PATEL
	DEAC01-89CE23821/TA30	4623000B	03/25/94	03/27/96	965	D WESTPHALEN
	DEAC01-89CE23821/TA33	4623300B	02/24/95	02/27/96	965	M CROWE
	DEAC01-93EH89132/TASK	4532300B	12/31/93	06/30/94	942	M DIBERTO
	DEAC0191EH89042/TO7FIELD	6674700B	04/19/91	08/03/92	923	A BALASCO
	DEAC0191EH89042TA8	6666800B	06/14/91	03/15/92	923	A BALASCO
	DEAC0191EH89042TA8	6674800B	06/14/91	03/15/92	923	A BALASCO
	DEAC0192EH89132/TA...	4221300B	11/12/93	01/28/95	942	M DIBERTO
	DEAC0192EH89132/TA...	4221400B	11/12/93	04/29/93	942	M DIBERTO
	DEAC0192EH89132/TA...	4221500B	11/12/93	07/15/94	942	M DIBERTO
	DEAC0192EH89132/TA...	4221600B	11/12/93	11/27/94	942	M DIBERTO
	DEAC0192EH89132/TA21FIELD	4220100B	04/02/93	01/30/94	942	M DIBERTO
	DEAC0192EH89132/TA21HOME	4216100B	04/02/93	01/30/94	942	M DIBERTO
	DEAC0192EH89132/TA27FI	4220700B	08/13/93	02/28/94	942	M DIBERTO
	DEAC0192EH89132/TA28FI	4220800B	08/13/93	12/31/93	942	M DIBERTO
	DEAC0192EH89132/TA28HO	4216800B	08/13/93	12/31/93	942	M DIBERTO
	DEAC0192EH89132/TA29FI	4220900B	08/13/93	09/16/94	942	M DIBERTO
	DEAC0192EH89132/TA29HO	4216900B	08/13/93	09/16/94	942	M DIBERTO
	DEAC0192EH89132/TA31HO	4217100B	08/13/93	03/31/94	923	A BALASCO
	DEAC0192EH89132/TA38F	4221800B	11/19/93	06/30/94	923	A BALASCO
	DEAC0192EH891321/TA37F	4221700B	11/19/93	10/31/94	942	M DIBERTO
	DEAC092EH89132/TA23BF	4220300B	11/19/93	09/16/94	942	M DIBERTO

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DOE DC	DE0192EH89132/TA30FIEL	4221000B	08/13/93	04/29/94	923	A BALASCO
	NO NUMBER	5784100B	01/19/96	02/10/96	923	A BALASCO
	92-E121946/TASK93-045	4161200B	04/09/93	04/28/94	923	C KUSIK
DOE EO		4529300B	06/03/94	04/30/95	942	M DIBERTO
		4529400B	06/03/94	08/31/94	942	M DIBERTO
		4533300B	06/03/94	04/30/95	942	M DIBERTO
		4533400B	06/03/94	08/31/94	942	M DIBERTO
		4533800B	09/30/94	12/31/94	942	M DIBERTO
	DE-AC01-89CE23821TA17	4252700B	03/26/93	03/27/96	965	J DIECKMANN
	DE-AC01-9-2EH89132/T.A.60	4534000B	10/21/94	06/09/95	942	M DIBERTO
	DE-AC01-92-EH89132TA4FLD	4218400B	09/11/92	06/15/92	942	M DIBERTO
	DE-AC01-92-EH89132TA5HOME	4214500B	09/11/92	06/15/93	942	M DIBERTO
	DE-AC01-92EH891-2/TA9	4218900B	11/20/92	02/23/93	942	M DIBERTO
	DE-AC01-92EH89132	4214000B	08/14/92	08/02/95	942	M DIBERTO
	DE-AC01-92EH89132/T.A.62	4350200B	02/03/95	12/31/95	942	M DIBERTO
	DE-AC01-92EH89132/T.A.62	4530200B	02/03/95	07/31/95	942	M DIBERTO
	DE-AC01-92EH89132/T.A.62	4534200B	02/03/95	07/31/95	942	M DIBERTO
	DE-AC01-92EH89132/TAGO*	4530000B	10/21/94	06/09/95	942	M DIBERTO
	DE-AC01-92EH89132/TA10	4215000B	11/20/92	09/30/93	942	M DIBERTO
	DE-AC01-92EH89132/TA11	4215100B	11/20/92	12/31/93	942	M DIBERTO
	DE-AC01-92EH89132/TA11	4219100B	11/20/92	12/31/93	923	A BALASCO
	DE-AC01-92EH89132/TA12	4215200B	11/20/92	10/29/93	923	A BALASCO
	DE-AC01-92EH89132/TA12	4219200B	11/20/92	08/18/93	942	M DIBERTO
	DE-AC01-92EH89132/TA13	4215300B	11/20/92	03/31/93	942	M DIBERTO
	DE-AC01-92EH89132/TA19	4215900B	03/26/93	09/30/93	942	M DIBERTO
	DE-AC01-92EH89132/TA19FLD	4219900B	03/26/93	09/30/93	942	M DIBERTO
	DE-AC01-92EH89132/TA26	4216600B	07/16/93	03/31/94	942	M DIBERTO
	DE-AC01-92EH89132/TA51	4529100B	05/27/94	03/31/95	942	M DIBERTO
	DE-AC01-92EH89132/TA59	4529900B	09/30/94	03/31/95	942	M DIBERTO
	DE-AC01-92EH89132/TA59	4533900B	09/30/94	03/31/95	942	M DIBERTO
	DE-AC01-92EH89132/TA61	4530100B	01/13/95	06/30/95	942	M DIBERTO
	DE-AC01-92EH89132/TA61	4534100B	01/13/95	06/30/95	942	M DIBERTO
	DE-AC01-92EH89132/TA9	4214900B	11/20/92	02/23/93	942	M DIBERTO
	DE-AC01-92EH89132/TO6 FLD	4218600B	09/18/92	06/15/93	942	M DIBERTO
	DE-AC01-92EH89132/TO6HM)	4214600B	09/25/92	06/15/93	942	M DIBERTO
	DE-AC01-92EH89132TA20HOME	4216000B	03/26/93	12/31/93	942	M DIBERTO
	DE-AC01-92EH89132TA4HME	4214400B	09/11/92	06/15/93	942	M DIBERTO
	DE-AC01-92EH89132TA5FLD	4218500B	09/11/92	06/15/93	942	M DIBERTO
	DE-AC01-92EH89132TA62A	4530400B	05/05/95	07/31/95	942	M DIBERTO
	DE-AC01-92EH89132TA62A	4530500B	05/05/95	07/31/95	942	M DIBERTO
	DE-AC01-92EH89132TA62A	4534400B	05/05/95	07/31/95	942	M DIBERTO
	DE-AC01-92EH89132TA62A	4534500B	05/05/95	07/31/95	942	M DIBERTO
	DE-AC01-93EH89132/T.A.50	4533000B	05/27/94	03/31/95	942	M DIBERTO
	DE-AC01-93EH89132M.A.50	4529000B	05/27/94	03/31/95	942	M DIBERTO
	DE-AC01-93EH89132TA20FLD	4220000B	03/26/93	12/31/93	923	A BALASCO
	DE-AC01-93EH891321/TA51	4533100B	05/27/94	03/31/95	942	M DIBERTO

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DOE EQ	DEAC01-92EH89132TA10	4219000B	11/20/92	09/30/93	942	M DIBERTO
	DEAC01-92EH89132TA13	4219300B	11/27/92	03/31/93	942	M DIBERTO
DOE SANDIA	AT-8902	3076200B	07/26/96	07/11/96	945	J WILLSON
DOE TRANS	DE-AC02-92CE50343	5379000B	09/29/95	03/31/97	961	J BENTLEY
	DE-AC02-92CE50343/PHIIB	4822600B	12/30/94	12/31/95	961	J BENTLEY
DOE*		4381002P	09/17/93	09/30/93	961	W TEAGAN
	AC01-89CD23821/TA8	6611800B	03/27/92	12/30/93	965	J DIECKMANN
	AL0-89LE23821/TA#1	6611100B	12/07/90	06/30/93	977	D MCFADDEN
	DE-AC01-02EH89132/TA18	4215800B	01/22/93	07/31/93	942	M DIBERTO
	DE-AC01-89CE2381TA#9	6611900B	05/29/92	06/30/94	961	W TEAGAN
	DE-AC01-89CE23821/TA#5	6611500B	09/20/91	06/27/96	866	R ZOGG
	DE-AC01-89CE23821/TA12	4252200B	01/08/93	07/31/93	965	J DIECKMANN
	DE-AC01-89CE23821/TA13	4252300B	01/08/93	06/30/94	866	R ZOGG
	DE-AC01-89CE23821/TA14	4252400B	01/08/93	07/30/94	961	W TEAGAN
	DE-AC01-89CE23821/TA4	6611400B	09/20/91	05/30/92	961	R PATEL
	DE-AC01-89CE23821D0#7	6611700B	03/20/92	10/30/93	977	R CARON
	DE-AC01-89CE23821TA#3	6611300B	03/08/91	06/30/94	977	D MCFADDEN
	DE-AC01-89CE23821TA10	4252000B	11/06/92	02/28/93	961	R PATEL
	DE-AC01-89CE23821TA11	4252100B	11/06/92	08/30/93	965	J DIECKMANN
	DE-AC01-9ZEH89132/TA14FLD	4219400B	11/13/92	09/30/93	942	M DIBERTO
	DE-AC01-90CE23821	6611600B	02/21/92	07/30/94	961	W TEAGAN
	DE-AC01-90CE23821/TA34	4623400B	05/05/95	09/27/95	965	J DIECKMANN
	DE-AC01-90CE23821/TA36	4623600B	06/30/95	12/29/95	866	R ZOGG
	DE-AC01-90CE23821/T02	6611200B	02/22/91	01/31/93	961	R PATEL
	DE-AC01-90LE23821	6611000B	10/12/90	08/27/96	866	R ZOGG
	DE-AC01-91ER30155	6638400B	12/14/90	04/29/92	965	RLMERRIAM
	DE-AC01-92EH132/TA17FLD	4219700B	12/31/92	01/21/94	923	A BALASCO
	DE-AC01-92EH132/TA17HOME	4215700B	12/25/92	01/21/94	942	M DIBERTO
	DE-AC01-92EH89132/TA14HME	4215400B	11/13/92	09/30/93	942	M DIBERTO
	DE-AC01-92EH89132/TA15FLD	4219500B	11/13/92	07/30/93	923	A BALASCO
	DE-AC01-92EH89132/TA15HME	4215500B	11/20/92	07/30/93	942	M DIBERTO
	DE-AC01-92EH89132/TA16FLD	4219600B	11/13/92	01/29/93	942	M DIBERTO
	DE-AC01-92EH89132/TA16HME	4215600B	11/13/92	01/29/93	942	M DIBERTO
	DE-AC01-92EH89132/TA63	4530300B	05/26/95	04/07/95	942	M DIBERTO
	DE-AC01-92EH89132/TA63	4534300B	05/26/95	04/07/95	942	M DIBERTO
	DE-AC02-92-CE50343	4147300B	05/29/92	02/23/93	961	J BENTLEY
	DE-AC02-92CE50343PHASEII	4335300B	03/19/93	12/31/94	961	J BENTLEY
	DE-AC1091EH 89042/TA1	6666100B	02/15/91	08/03/92	923	A BALASCO
	DE-AL01-91EH89042	6674100B	03/08/91	08/03/92	923	A BALASCO
	DEAC01-90CE2382/TA35	4623500B	05/26/95	01/27/96	866	R ZOGG
	DOECONT 92-E121946/DAC	4161100B	07/31/92	04/19/93	923	C KUSIK
	85X-SL889V/DE-AC05-840R21	4283200B	12/31/92	10/30/93	972	D WALLS
DOJ *		4782200B	11/04/94	09/30/95	301	A WECHSLER

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DOJ TAX		4330800B	03/05/93	12/31/93	639	I PLOTKIN
DONOHUE	CONTRACTNO-C-47382	4738200B	09/02/94	03/28/97	193	D EHNTHOLT
DOT	RA2070,WO#3AND4	4435000B	08/06/93	12/31/93	831	A BOGHANI
DOT FAA		3656800B	01/08/93	01/15/93	452	S KAGAN
	AHR-92-0635	3656300B	01/24/92	02/01/92	452	S KAGAN
	AHR-92-0653	3656400B	01/24/92	12/31/92	452	S KAGAN
	AHR-92-1213	3656600B	05/29/92	07/31/92	452	S KAGAN
	AHR-92-17158	3656700B	10/09/92	12/31/92	452	S KAGAN
	DTFA03-92-P-00588/218T362	3656500B	03/27/92	12/31/92	452	S KAGAN
DOT TSC	DTRS-57-89-C-00007	6305100B	02/24/89	02/03/93	925	J NYSTROM
	DTRS-57-89-C-00007	6305300B	11/17/89	02/29/92	146	RAMAYVILLE
	DTRS-57-89-C-00007/VA0014	6305500B	06/22/90	04/30/93	146	R MAYVILLE
	DTRS-57-89-D-00085	6387100B	08/17/90	08/17/93	381	L WHEELER
	DTRS-57-89-D-00085	6387600B	03/15/91	09/30/93	440	T BURGER
	DTRS-57-89-D-00085	6389100B	06/21/91	11/30/92	831	A BOGHANI
	DTRS-57-89-D-00085RA1031	6389400B	01/17/92	05/31/92	831	A BOGHANI
	DTRS-57-89-D-00085RA1031	6389500B	01/17/92	05/31/92	831	A BOGHANI
	DTRS-57-89-D-00085RA2070	4292200B	01/08/93	12/31/93	831	A BOGHANI
	DTRS-57-89-D-00085TTDRBI	4293000B	02/19/93	07/30/93	831	A BOGHANI
	DTRS-57-89-D-00085W013	4293100B	02/19/93	05/31/93	831	A BOGHANI
	DTRS57-88-C-0019/MOD1	6111100B	01/15/88	01/05/92	925	J NYSTROM
	DTRS57-96-P-80075	5710700B	10/20/95	12/31/96	173	S LIPOFF
	DTRS57-96-P-80885	6401000B	05/24/96	07/29/96	146	R MAYVILLE
	DTRS5789D00085	6388700B	06/07/91	05/31/92	831	A BOGHANI
	DTRS5789D00085	6389000B	06/21/91	07/31/92	923	A BALASCO
	RA0020(WO#8)	6389300B	10/11/91	12/31/93	831	A BOGHANI
	RG2049 WO NO 10	4291800B	01/15/93	12/31/93	831	A BOGHANI
	VA 1028	6305700B	04/19/91	07/16/93	961	A BING
	VA6222	3029800B	07/12/96	06/27/98	146	R MAYVILLE
	VA6223	3029900B	07/12/96	07/02/98	146	R MAYVILLE
DOT TSC%		3661200B	08/13/93	07/21/93	459	L PACK JR
		3661400B	08/13/93	09/30/93	459	L PACK JR
		3661500B	03/18/94	03/25/94	459	L PACK JR
		3661600B	04/22/94	12/31/94	459	L PACK JR
		4293500B	06/18/93	12/31/93	831	A BOGHANI
		4435100B	11/26/93	12/31/93	831	A BOGHANI
		4687300B	06/17/94	07/30/94	831	A BOGHANI
	AHR-93-0440	3656900B	04/30/93	05/14/93	452	S KAGAN
	AWIPS-90PMS	3645800B	06/19/92	08/31/92	452	S KAGAN
	DTKS-57-89-D-00085/RA2049	6389700B	04/03/92	12/31/92	831	A BOGHANI
	DTR-57-89-D-00085	4136300B	06/26/92	04/30/93	831	A BOGHANI

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DOT TSC%	DTRS-57-89-D-00085	4136500B	08/21/92	12/31/92	831	A BOGHANI
	DTRS-57-89-D-00085	4293400B	06/18/93	09/01/93	452	A RADFORD
	DTRS-57-89-D-00085	4293700B	07/09/93	07/29/94	831	A BOGHANI
	DTRS-57-89-D-00085	4293800B	07/16/93	06/30/94	831	A BOGHANI
	DTRS-57-89-D-00085,RG	4435800B	05/20/94	12/31/94	831	A BOGHANI
	DTRS-57-89-D-00085RA0016	3645900B	06/19/92	07/09/93	381	L WHEELER
	DTRS-57-89-D-00085RA2049	4136000B	05/01/92	03/31/94	831	A BOGHANI
	DTRS-57-89-D-005RA1031	4136100B	05/29/92	07/31/92	831	A BOGHANI
	DTRS-57-89-D-0085 RE0020	6389600B	02/21/92	12/31/92	831	A BOGHANI
	DTRS-57-89-D-0085-RB2049	6389800B	04/10/92	12/31/92	831	A BOGHANI
	DTRS-57-89-D-0085/RA1031	4136400B	07/31/92	10/31/92	831	A BOGHANI
	DTRS-57-89-D-0085RC2049	6389900B	04/10/92	09/30/92	831	A BOGHANI
	DTRS-57-89-0-00085RH2049-	4293300B	05/28/93	06/20/93	831	A BOGHANI
	DTRS-57-95-P-80434	4849600B	02/17/95	09/01/95	172	J WU
	RA 2049 W O #16	4293900B	07/16/93	12/31/93	831	A BOGHANI
	RA 2049/WO 11	4293200B	05/14/93	01/31/94	831	A BOGHANI
	RA-1031	4435400B	02/04/94	06/01/94	440	T BURGER
	RA-1031,WO#8	4435300B	01/28/94	02/15/94	831	A BOGHANI
	RA0020 W O 11	4136800B	11/20/92	12/31/92	831	A BOGHANI
	RA0020WO#12	4136900B	12/25/92	12/31/92	831	A BOGHANI
	RA1031,W.O.13	4435500B	03/18/94	12/31/94	831	A BOGHANI
	RA1031WO#10	4293600B	07/02/93	12/31/93	831	T PARISH
	RA2049 WO #21	4435200B	11/26/93	12/31/93	831	A BOGHANI
	RA2049/W.O.22	4435600B	04/22/94	07/30/94	831	A BOGHANI
	RA2049WO#6	4136200B	06/19/92	04/30/93	831	A BOGHANI
	RA2049W019	4435700B	04/22/94	07/30/94	831	A BOGHANI
	RE2049	4136700B	11/06/92	12/31/92	831	T PARISH
	RF2049	4136600B	11/06/92	08/03/93	831	A BOGHANI
	TTDNORA2070WO#S3	4448200B	07/30/93	07/01/93	440	S SCHIFF
	VA 1032	6305900B	06/07/91	12/31/92	146	R MAYVILLE
	69-00-1104	3661300B	08/13/93	08/25/93	459	L PACK JR
DRAPERLAB*	P.O.DL-C-493186	3121500B	09/13/96	01/31/97	172	J FOWLER
	P.O.DLC493007	5840600B	03/01/96	04/24/96	172	J FOWLER
	PODLF455223	4183100B	07/10/92	03/31/94	172	J FOWLER
	PO459517	4625900B	03/18/94	10/30/94	172	J FOWLER
DRAPERLABS		6581400B	08/17/90	10/19/92	751	M SHERRY
	P.O.478600	51990008	07/28/95	01/31/96	172	J FOWLER
	PODLH418508	6709800B	04/19/91	04/24/92	751	M SHERRY
DRMS	Q07JHH270121TG	3166100B	11/21/96	11/21/96	942	J OBBAGY
DRMS-DWHO	DWSJHM250397TG	4828300B	01/13/95	02/18/95	942	M DIBERTO
DUKE*		4385400B	05/21/93	05/06/94	961	R WILSON JR

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DYNAM RES	P.O.855054	3087300B	08/16/96	08/07/96	453	J SCARPIGNATO
DYNAMICS	PO 254785	4450900B	07/30/93	07/31/93	182	C MARTEL
	PO 855054	3102700B	08/23/96	08/21/96	453	J SCARPIGNATO
E&G INC	UC3962/UC2961	4074600B	01/24/92	06/12/92	943	R LAMBE
EASTBAYMUD	793-30238-AX	6920900B	07/05/96	06/30/97	607	J PEIRSON JR
EBASCO	260992S3054	4173200B	06/26/92	11/30/92	943	R LAMBE
ECOLOGY	UC-2961	6652300B	01/11/91	06/12/92	943	R LAMBE
EG&G		4235300B	10/02/92	03/29/93	323	S TATE
		8899056P	10/02/92	09/25/92	969	A ARROTT
EG&G ID	C91103441DEAC0776ID01570	6776600B	08/30/91	04/30/92	961	J BENTLEY
	PONO.C93-134006	4426900B	07/02/93	08/31/93	186	C BRIGGS
EIA	95-116(DE-AC01-92E121946	5241400B	09/15/95	12/31/95	923	A BALASCO
ENSR	#96501/PROJ#2586-020-425	3010000B	07/12/96	01/31/97	313	G DOUGLAS
ENVIR SCIE	SUBCONTRACT#0108G	5162900B	06/16/95	12/31/95	943	R LAMBE
EPA		4015100B	10/04/91	09/30/92	117	A SCHWOPE
		4200000B	08/21/92	12/31/92	943	R LAMBE
		4200100B	01/22/93	12/31/93	943	R LAMBE
		4200800B	09/30/94	12/31/94	943	R LAMBE
		4472000B	08/27/93	05/27/96	943	R LAMBE
		6237100B	04/10/92	04/07/92	943	R LAMBE
		6237200B	04/24/92	04/21/92	943	R LAMBE
		6237300B	06/19/92	12/31/92	943	R LAMBE
		6237400B	07/24/92	12/31/92	943	R LAMBE
		6237500B	07/24/92	12/31/92	943	R LAMBE
		6797900B	02/21/92	12/31/92	961	W TEAGAN
	WA#32-1P38	4200700B	09/30/94	12/31/94	943	R LAMBE
	68-W8-0120	6235400B	11/18/88	09/30/92	943	R LAMBE
	68-W8-0120	6236100B	09/07/90	12/30/92	943	R LAMBE
EPA CINCI		5119300B	04/28/95	00/12/95	943	R LAMBE
EPA DC %		4200300B	07/30/93	12/31/93	943	R LAMBE
		4200328P	07/30/93	12/31/93	943	D LANGSETH
		4200400B	04/22/94	12/31/94	923	A BALASCO
		4200500B	05/20/94	12/31/94	943	R LAMBE
		4200900B	02/10/95	12/31/95	943	R LAMBE

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EPA DC %		4203900B	08/14/92	12/31/92	943	R LAMBE
		4693400B	12/01/95	12/31/96	943	R LAMBE
		4693500B	12/01/95	12/31/96	943	R LAMBE
	WA35-IL05	3132900B	09/27/96	12/31/96	943	R LAMBE
	68-W,-0120	4693000B	06/10/94	12/31/94	943	R LAMBE
	68-W8-0120	4693100B	06/10/94	12/31/94	943	R LAMBE
	68-W8-0120	4693200B	06/10/94	12/31/94	943	R LAMBE
	68-W8-0120	4693300B	10/14/94	12/31/94	943	R LAMBE
	68-W8-0120	6236000B	07/27/90	12/31/95	943	R LAMBE
EPA MA	68-D9-0164	6494000B	02/16/90	03/31/93	943	P BOEHM
EPA NC %		6494500B	05/15/92	03/31/93	943	R LAMBE
~~EPRI~~		~~3186300B~~	~~12/12/96~~	~~04/15/97~~	~~593~~	~~J WARNEMENT~~
		3195300B	12/18/96	12/31/96	593	J WARNEMEN
		3379600B	05/30/97	12/31/97	593	M HARRISON
		4195500B	07/31/92	09/30/92	114	P KOFF
	AGREEMENTW03872-01	6903300B	06/21/96	10/31/96	965	J DIECKMANN
	RPCAGT-23	4755500B	09/30/94	02/28/95	972	D WALLS
	RP3243-4	4018300B	10/04/91	02/28/92	923	C KUSIK
	RP8013-06POWERBEAMING	4023100B	10/18/91	06/30/92	961	R WILSON JR
	TOL #14, Amend No. 4	3363400B	05/16/97	12/31/97	593	M HARRISON
	TOL #26	3256200B	01/24/97	06/30/97	593	J WARNEMENT
	TOL #27	3309000B	03/21/97	05/30/97	593	J WARNEMENT
	4CH2519	4523600B	08/26/94	12/31/94	596	R HENSKE
	4CH2519/T.O.21	3072600B	07/26/96	12/31/96	593	J WARNEMENT
	4CH2519/T.O.22	3094700B	08/16/96	12/31/96	827	P METZ
	4CH2519/T.O.23	3147200B	10/11/96	05/30/97	593	J WARNEMENT
	4CH2519/TOL#16	5788600B	01/19/96	02/04/96	012	A MOTTUR
EPRI *		3107900B	11/08/96	01/31/97	593	J WARNEMENT
		3276500B	02/21/97	08/31/97	593	J WARNEMENT
		4096000B	02/28/92	03/15/93	719	J WARNEMENT
		4523500B	01/07/94	12/31/95	593	J WARNEMENT
		4523900B	12/16/94	02/28/97	827	P METZ
		4524000B	06/30/95	07/28/95	593	J WARNEMENT
	EXPENSES(2-2837)	8899058P	12/31/92	11/10/92	944	K LOVING
	MSAN04CH2519/TOLNO1	4422600B	07/02/93	12/31/93	593	J WARNEMENT
	RP-2891-2	6065800B	10/02/87	06/30/93	965	RLMERRIAM
	RP2034-33	6328300B	04/07/89	12/31/92	965	RLMERRIAM
	RP2792-13	6168200B	05/06/88	12/31/94	965	JTDIECKMANN
	RP2861-3	6102700B	12/18/87	12/31/92	961	WPTEAGAN
	RP3273-09	4626500B	03/18/94	08/31/94	593	J WARNEMENT
	RP3872-1	4706000B	07/08/94	01/31/95	977	D MCEADDEN
	TOL # - TBD	3344400B	04/25/97	05/30/97	593	M HARRISON
	~~W03512-10~~	~~5847200B~~	~~04/05/96~~	~~12/31/97~~	~~965~~	~~R MERRIAM~~

CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
EPRI %	4CH2391RP2788-55	4183900B	07/24/92	12/31/92	719	J WARNEMENT
	4CH2519	4523200B	11/19/93	12/31/93	593	J WARNEMENT
	4CH2519/T.O.12	4524200B	08/25/95	06/30/96	593	J WARNEMENT
	4CH2519/T.O.20	5789000B	06/28/96	12/31/97	593	J WARNEMENT
	4CH2519/T.O.3	4523300B	11/19/93	10/15/93	593	J WARNEMENT
	4CH2519/TO17	5788700B	03/22/96	12/31/96	593	J WARNEMENT
	4CH2519/TO4	4523400B	11/19/93	12/31/93	593	M HARRISON
	6424-W04156	4523800B	12/16/94	12/31/96	593	J WARNEMENT
EPRI %		3173200B	11/21/96	12/31/97	593	J WARNEMENT
		4351200B	04/23/93	07/01/94	964	K BENEDEK
		4427700B	07/30/93	07/30/93	593	M HARRISON
		4497900B	10/01/93	12/31/93	596	R HENSKE
	ERRIRP3864-84-ADL92294	4238500B	10/09/92	12/31/93	965	R MERRIAM
	ESPRETRAINING	4266400B	11/20/92	12/31/93	965	R MERRIAM
	LETTER AGREE RP3512-10	4244400B	10/16/92	12/31/95	965	R MERRIAM
	RP2958-16	6579500B	08/17/90	12/31/95	965	R MERRIAM
	RP3273-09	4473000B	08/27/93	08/31/94	593	J WARNEMENT
	RP3412-04	4156800B	06/12/92	12/31/94	965	J DIECKMANN
	RP3436-03	4163500B	06/19/92	12/24/92	729	G WATTLEY
	WO UNDER POCA1042RP3264	4448300B	07/30/93	08/31/93	965	R MERRIAM
	W3512-10	5104900B	04/21/95	12/31/97	965	R MERRIAM
	4CH2519/T.O.13	4524300B	09/29/95	08/31/96	593	J WARNEMENT
	4CH2519/T.O.19	5788800B	05/03/96	08/15/96	593	J WARNEMENT
	4CH2519/TO 15	4524500B	01/12/96	08/16/95	593	J WARNEMENT
	4CH2519/TO 18	5788900B	05/03/96	06/30/96	593	J WARNEMENT
	4CH2519/TO7/CHG#642404	4523700B	12/16/94	06/30/95	593	J WARNEMENT
	4CH2519,TOL#14	4524400B	11/24/95	05/31/96	593	J WARNEMENT
	4CH2929	4358900B	04/09/93	09/15/93	906	A SHERMAN
ET		3232100B	12/23/96	08/31/97	782	M JOYCE
		3232200B	12/23/96	08/31/97	782	M JOYCE
		3232300B	12/23/96	08/31/97	782	M JOYCE
ETC	95S-0087-DC5	5723000B	11/03/95	07/16/97	782	M JOYCE
	95S-0087-DC5	5723400B	01/12/96	06/15/96	923	A BALASCO
	95S-0087-DC5	5723500B	03/08/96	04/30/96	923	A BALASCO
	95S-0087-DC5	5723600B	05/17/96	06/21/96	782	M JOYCE
FAA	DTFA01-92-P-07482/207078	4188400B	07/24/92	08/18/92	382	D SMITH
	DTFA01-93-P-01220	3661100B	06/04/93	08/24/93	459	L PACK JR
	DTFA03-92-P-00587/218T361	4118300B	04/03/92	12/31/92	218	S HURLEY
	DTRA01-88-Y-01090T086	3649400B	10/02/92	09/30/93	453	H GERBER
	3296-007	3649500B	07/30/93	08/15/93	453	J BUNCH
FAA WEATHE	DTFA01-96-F-01170	4689200B	05/10/96	03/31/99	452	S KAGAN
	DTFA01-96-F-01300	3143700B	10/04/96	09/30/97	381	L WHEELER

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FDIC	94-00498-NKF	4586200B	02/11/94	01/31/96	596	R HENSKE
FORD	2CB-4-13032-02	4553300B	12/24/93	04/30/97	961	J BENTLEY
FOS MIL	JOBNOAFK-9333-KIRKLAND	4194000B	08/21/92	11/15/92	930	A MASSUCCO
	P.O.28776	4408600B	06/11/93	12/31/93	115	R GOLDMAN
FTC		5112900B	04/28/95	04/30/95	854	P WEISS
	71926	5118100B	04/28/95	04/08/95	856	E SWANSTROM
GE AEOR	RRMA81001	4386000B	04/09/93	09/30/97	453	H GERBER
GEN TECH	P O 93-2-010	4370600B	04/30/93	06/30/93	115	R GOLDMAN
GEN'L SERV	GS-07F-71300	4649300B	04/22/94	11/30/95	115	L PENSOTTI
GEOMET	DAAAK60-90-C-0079	6674000B	02/22/91	07/01/92	117	A SCHWOPE
	DAAK60-90-C-0079	6581100B	08/24/90	03/15/93	117	A SCHWOPE
	DAAK60-90-C-0079	6581200B	08/24/90	03/15/93	117	A SCHWOPE
	GT-92-626	4127500B	04/10/92	04/10/92	969	D HABLANIAN
	104230-93-D-08479304	6581000B	08/17/90	03/15/93	117	A SCHWOPE
GRA INC	DTFA01-93-C-00066WO#3	4522700B	11/12/93	12/01/93	596	R HENSKE
~~GRI~~		~~3183700B~~	~~12/12/96~~	~~02/28/97~~	~~961~~	~~R PATEL~~
		3260500B	01/29/97	08/31/97	967	J THIJSSEN
		3272700B	02/07/97	03/31/97	961	R TOPPING
		3297100B	03/14/97	04/30/98	965	J DIECKMAN
		3307600B	03/20/97	12/31/97	977	R CARON
		3307700B	03/20/97	12/31/97	961	R TOPPING
		3309800B	03/21/97	08/31/97	961	R TOPPING
		4180500B	07/03/92	12/29/92	977	R CARON
		4279400B	12/11/92	12/31/93	977	W MORGAN
		4280000B	12/11/92	04/30/96	977	R CARON
		4280100B	12/31/92	12/09/95	977	R CARON
		4280200B	12/11/92	12/09/95	977	R CARON
		4280300B	12/11/92	12/09/95	977	R CARON
		4280400B	12/11/92	12/09/95	977	R CARON
		4280500B	12/11/92	12/09/95	977	R CARON
		4280600B	12/11/92	12/10/95	977	R CARON
		4294300B	01/08/93	12/31/96	961	R TOPPING
		4310000B	01/29/93	01/31/93	977	R CARON
		4316800B	02/12/93	04/30/94	011	C LAMANTIA
		4353600B	04/02/93	04/30/93	961	R TOPPING
		4634300B	03/25/94	07/31/99	977	R CARON
		4726500B	08/05/94	12/01/95	961	R WILSON JR

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GRI		4728700B	08/12/94	12/31/99	977	D MCFADDEN
		4791800B	11/18/94	07/31/95	961	W TEAGAN
		4834100B	01/20/95	06/30/97	961	R TOPPING
		5205700B	08/04/95	04/30/96	965	J DIECKMANN
		5210400B	08/11/95	03/31/96	961	R WILSON JR
	BO-ADL-2-8250/GRI5094	5801400B	02/02/96	05/31/96	967	C BENSON
	CONT#5091-243-2412	6401400B	05/24/96	04/30/98	964	P CARBONE
	CONTRACTNO.5094-260-2943	6585400B	06/07/96	12/31/97	961	R TOPPING
	3090-291-1990	4556000B	12/24/93	11/30/96	967	K DROBOT
	47647-N587580	5176500B	06/30/95	12/31/95	162	E CARLSON
	5086-295-1423	4446400B	07/30/93	10/31/97	977	D MCFADDEN
	5089-236-1801	4629100B	03/18/94	05/31/95	977	J SABATINI
	5089-298-1814	4185000B	07/17/92	12/31/96	967	C BENSON
	5090-271-2021	4633400B	03/25/94	12/31/94	961	R TOPPING
	5090-285-2462	4274100B	12/04/92	04/30/96	977	D MCFADDEN
	5091-243-2412	4166700B	06/19/92	06/30/97	964	K BENEDEK
	5091-254-2457	4259000B	11/06/92	10/31/94	967	C BENSON
	5091-281-2259	4026600B	10/18/91	05/31/92	114	K TAYLOR
	5092-241-2375	4127300B	04/10/92	11/30/93	977	J CORLISS
	5092-241-2375	4310100B	01/29/93	09/30/94	977	J CORLISS
	5092-281-2472	5102800B	04/21/95	04/30/96	961	R PATEL
	5092-281-2472	5777000B	01/12/96	04/30/98	977	R CARON
	5092-281-2472	5777100B	01/12/96	04/30/98	977	R CARON
	5092-281-2472	5847100B	04/05/96	04/30/98	965	J DIECKMANN
	5092-281-2505	4335200B	03/12/93	05/31/94	977	J CORLISS
	5092-293-2422	4194100B	08/21/92	01/31/93	965	J DIECKMANN
	5092-810-2448 PROJ2	4239200B	10/09/92	06/30/92	961	J BENTLEY
	5092-810-2448PROJ2	4239300B	10/09/92	12/30/93	961	J BENTLEY
	5092-810-2551/EPG-4	4363900B	05/07/93	08/24/94	972	D WALLS
	5092-810-2551/EPG-5	4377600B	05/21/93	08/24/94	972	D WALLS
	5093-233-2937	4725500B	08/05/94	05/31/98	967	P LOFTUS
	5093-260-2584	4416700B	06/25/93	09/30/95	964	K BENEDEK
	5093-260-2584	5702300B	10/27/95	04/30/98	964	K BENEDEK
	5093-270-2629	4473700B	08/27/93	07/31/96	118	R FARRA
	5093-285-2493/SUBK#93..	4418100B	06/25/93	10/31/93	961	W TEAGAN
	5093-293-2587	4413000B	06/25/93	11/30/95	972	D WALLS
	5093-293-2587	4413100B	06/25/93	11/30/95	972	D WALLS
	5093-293-2587	4413200B	07/02/93	11/30/95	866	R ZOGG
	5093-293-2587	4413300B	07/02/93	11/30/95	972	D WALLS
	5093-293-2587	4413400B	03/11/94	11/30/95	972	D WALLS
	5093-293-2587	4413500B	06/25/93	11/30/95	972	D WALLS
	5093-293-2587	4413600B	06/25/93	11/30/95	972	D WALLS
	5094-230-2812	4641200B	04/01/94	05/31/95	977	J SABATINI
	5094-230-2889	4690700B	06/17/94	04/15/95	923	A BALASCO
	5094-240-2867	4747200B	09/16/94	06/30/96	964	K BENEDEK
	5094-280-2818	4662500B	05/06/94	08/31/96	977	W MORGAN
	5094-280-2943	4746500B	09/16/94	12/31/96	961	R TOPPING

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~~GRY~~	~~5095-230-3413*~~	~~5165800B~~	~~06/16/95~~	~~08/14/95~~	~~923~~	~~A BALASCO~~
	~~5095-240-3415~~	~~5174200B~~	~~06/30/95~~	~~04/30/96~~	~~961~~	~~W TEAGAN~~
	5095-280-3395	~~5159200B~~	~~06/09/95~~	03/31/98	964	J BOWMAN
	~~73-92-00~~	~~4127400B~~	~~04/10/92~~	~~04/30/93~~	~~961~~	~~R TOPPING~~
	~~9303-52/5091-243-2302~~	~~4162000B~~	~~06/19/92~~	~~11/02/92~~	~~961~~	~~W TEAGAN~~
HARDING		4074900B	01/24/92	12/31/92	943	T OLSSON
HHS FDA	223-91-7076	4016000B	10/04/91	09/29/96	193	D EHNTHOLT
	223-91-7076/TO1	4016100B	10/04/91	07/30/92	193	D EHNTHOLT
	223-91-7076/TO2	4016200B	10/04/91	01/31/92	193	D EHNTHOLT
	223-91-7076A03	4016300B	10/01/93	12/27/93	193	D EHNTHOLT
HHS MD	223-91-7076/TASK ORDER8	3109700B	09/06/96	03/14/97	193	M MCCOMISH
	223-91-7076/TASKORDER7	4016700B	09/22/95	05/20/96	193	M MCCOMISH
	223-91-7076,T.O.#4	4016400B	09/23/94	04/30/95	193	D EHNTHOLT
	223-91-7076,T.O.#5	4016500B	09/23/94	01/31/95	193	D EHNTHOLT
HHS NCI		4098100B	02/28/92	11/14/93	301	A WECHSLER
		4098300B	04/16/93	05/31/93	301	A WECHSLER
		6609900B	10/19/90	09/29/95	977	A CARAGAY
	N01-CM-17552	4034000B	11/01/91	09/30/96	178	V BERINATO
	N01-CM-27708	4098200B	04/03/92	01/31/93	301	A WECHSLER
	N01-CM-27708/TO4	4098400B	10/01/93	12/24/93	301	A WECHSLER
	N01-CM-27766	4263000B	11/13/92	10/31/97	116	J POWELL
	N01-CM-85123	6222100B	09/02/88	08/14/93	189	G YOUNG
	N01-CN-05241	6594400B	09/28/90	09/28/95	977	A CARAGAY
	N01-CN-05280	6537000B	05/25/90	05/25/95	193	D EHNTHOLT
HHS NIEH	N01-ES-85215	6117600B	01/29/88	04/30/93	923	A BALASCO
HHS NIEHS	CONTRACT # N01-ES-15330	4010900B	09/27/91	01/13/92	301	A WECHSLER
	N01-ES-85221	6182900B	06/10/88	05/31/93	178	V BERINATO
HHS NIH%	N01-CM-27742	4115000B	03/27/92	04/27/93	116	J POWELL
HHS/FDA	223-91-7076,TO#6	4016600B	07/21/95	10/27/95	193	M MCCOMISH
HOPKINS	DAAK60-91-D-0005,D.O.4	6793400B	09/02/94	12/31/95	118	P MCTAGGART
	PO 517462T	4399500B	05/28/93	08/06/93	176	J FOWLER
	PON0517058T	4301700B	01/22/93	05/31/93	176	J FOWLER
IA		5227600B	09/08/95	08/30/95	882	R GREGG
	NAS1-20498ORDERNOL-D901	3008800B	07/12/96	09/30/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-101	5239500B	09/29/95	10/31/95	915	W CLARKE
	NAS1-20498ORDERNOL-101	5239700B	09/29/95	10/31/95	915	W CLARKE
	NAS1-20498ORDERNOL-201	5603500B	09/29/95	03/31/96	915	W CLARKE

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IA	NAS1-20498ORDERNOL-201	5603800B	09/29/95	03/31/96	915	W CLARKE
	NAS1-20498ORDERNOL101	5239400B	09/29/95	10/31/95	915	W CLARKE
	NAS1-20498ORDERNOL201	5603400B	09/29/95	03/31/96	915	W CLARKE
	NAS1-20498ORDERNOL201	5603700B	09/29/95	03/31/96	915	W CLARKE
	P.O.541-C-57136	5575400B	10/06/95	09/22/95	882	R GREGG
	P.O.589-C51316	5575500B	10/06/95	10/15/95	882	R GREGG
ICF		3169100B	11/21/96	05/27/97	923	A BALASCO
	EPA 2000-CPZ	3087000B	08/16/96	09/30/96	965	R MERRIAM
	EPA 92-CP3	3086600B	08/16/96	09/30/96	965	R MERRIAM
ICF INC		6797500B	10/25/91	09/30/92	965	R MERRIAM
		6797600B	11/22/91	09/29/92	965	J DIECKMANN
		6797700B	11/22/91	09/29/92	183	H OZOG
		6797800B	11/22/91	09/29/92	183	H OZOG
		6798500B	06/05/92	09/30/92	301	A WECHSLER
		6798600B	10/30/92	12/31/92	965	R MERRIAM
		6798700B	10/30/92	12/31/92	183	H OZOG
	EPA-10-08,WAN04-18	5606100B	10/13/95	04/30/96	965	R MERRIAM
	EPA11-CP003	3087100B	08/16/96	09/30/97	965	R MERRIAM
	EPA11-CP003WAN0.1-21	3150800B	10/11/96	12/06/96	965	R MERRIAM
	SUBCONTEPA10-8WA#3-63	4899900B	04/14/95	09/30/95	965	R MERRIAM
	SUBCONTRACT EPA 10-8/WA	4779100B	10/28/94	09/30/95	965	R MERRIAM
	SUBCONTRACT NOEPA 10-8/WA	4770000B	10/21/94	09/30/95	965	R MERRIAM
	WA3-46,EPA10-8	4885700B	03/24/95	04/21/95	965	R MERRIAM
	68-D2-0178/ICF10-8/WA1-45	4405600B	06/04/93	09/01/93	965	R MERRIAM
	68-D2-0178/ICF10-8/WA2-17	4538700B	11/26/93	09/30/94	965	R MERRIAM
	68-D2-0178/ICF10-8/WA2-47	4658700B	04/29/94	07/31/94	965	R MERRIAM
	68-D2-0178/ICF10-8/WA2-49	4684800B	06/10/94	09/30/94	965	R MERRIAM
IEC	50-DGNC-1-00007	4254300B	10/30/92	12/31/92	313	G DOUGLAS
	50-DGNC-1-00007/T050028	4282300B	01/08/93	02/28/93	313	H COSTA
IEI	SO-DGNC-1-00007-470-02	4282500B	12/31/93	09/30/95	313	G DOUGLAS
	50-DGNC-1-00007/T050018	4282400B	07/23/93	12/31/93	313	H COSTA
	50-DGNC-10007/0.0. 4	4282600B	02/11/94	03/31/94	313	H COSTA
IGT		3284900B	02/21/97	05/09/97	967	J THIJSSEN
ILC	PO NO H080153	6448200B	11/03/89	02/01/94	173	A ARROTT
	SUB #HO-80153	6162900B	04/29/88	02/01/94	173	A ARROTT
INNOVATION		5128200B	05/05/95	07/07/95	915	W CLARKE
IRS		6596800B	09/21/90	12/31/92	639	I PLOTKIN
	TIR-93-MA-08	4259100B	11/06/92	12/31/92	545	T ERICKSON

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KMA		4345200B	03/26/93	04/01/94	116	J POWELL
		4578200B	01/28/94	03/24/95	116	J POWELL
		6655200B	01/25/91	04/16/93	906	S RUDOLPH
	CONTRACT # C-58587	5858700B	03/15/96	03/13/98	116	J POWELL
L-21		4488700B	09/24/93	02/28/96	885	D FAUTEUX
		6913500B	06/28/96	06/30/97	945	S POLTORZYCKI
	93*N342700X*000	4326700B	02/26/93	09/30/93	944	K LOVING
	94-N314709-000	4728600B	08/12/94	02/07/95	945	S POLTORZYCKI
	94-Y961900-000	4538000B	12/03/93	09/30/94	301	A WECHSLER
	95-Y967600-00	4822700B	12/30/94	09/30/95	301	A WECHSLER
LA ROCHE	GRICONTRACT 5090-246-1987	4194200B	09/11/92	11/30/93	977	D MCFADDEN
LAWRENCE		4461000B	08/06/93	04/09/94	117	A SCHWOPE
		4517700B	10/29/93	12/30/95	117	A SCHWOPE
		6780000B	08/23/91	02/28/92	115	A SCHWOPE
	B232546	4315200B	02/12/93	03/05/93	928	B BARNETT
	B235268/W-7405-ENG-48	4332900B	03/12/93	11/12/93	928	B BARNETT
	SUBCONB157327	6739300B	06/14/91	04/05/92	115	A MASSUCCO
LMMDS		3236100B	01/03/97	06/30/98	453	H GERBER
		3362200B	05/16/97	12/31/97	453	H GERBER
		3376500B	05/30/97	08/30/97	453	H GERBER
LOCKHEED		3118600B	09/06/96	01/31/97	866	R ZOGG
		3285400B	02/21/97	05/05/97	943	R LAMBE
		3352500B	05/02/97	10/31/97	943	R LAMBE
		3352900B	05/02/97	09/30/97	943	R LAMBE
		3353100B	05/02/97	08/29/97	943	R LAMBE
		3353200B	05/02/97	10/31/97	943	R LAMBE
		3353300B	05/02/97	10/31/97	943	R LAMBE
	HS80E3430N	4095900B	02/28/92	12/31/92	969	A ARROTT
	HS80E3430N	4210300B	09/04/92	12/31/92	114	K TAYLOR
	HS80E3430N	4210400B	09/04/92	12/31/92	114	K TAYLOR
	HS80E3430N	6548000B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548100B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548200B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548300B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548400B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548500B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548600B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548700B	06/29/90	07/16/92	969	A ARROTT
	HS80E3430N	6548800B	06/29/90	07/15/92	969	A ARROTT
	HS80E3430N	6548900B	06/29/90	07/15/92	969	A ARROTT
	P.O.#FFM006121	3154000B	10/18/96	12/20/96	172	J FOWLER
	02C0167502	4177800B	07/03/92	06/30/94	042	C BOSIO

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
MARIETTA		4387100B	12/24/93	12/31/94	453	H GERBER
		4387200B	12/24/93	12/31/94	453	H GERBER
		4387300B	12/24/93	12/31/94	453	H GERBER
		4387400B	12/24/93	12/31/94	453	H GERBER
		4387500B	12/24/93	12/31/94	453	H GERBER
		4387800B	04/08/94	12/31/94	453	H GERBER
		4387900B	04/08/94	12/31/94	453	H GERBER
		4388100B	07/29/94	12/31/94	453	H GERBER
		4388200B	07/29/94	12/31/94	453	H GERBER
		4389400B	05/26/95	12/31/95	453	H GERBER
	FY-95-01-AAF-001	4388400B	12/30/94	12/31/95	453	H GERBER
	FY-95-02-ANE-001	4388800B	12/30/94	12/31/95	453	H GERBER
	FY-95-02-ANM-001	4388700B	12/30/94	12/31/95	453	H GERBER
	FY-95-02-ANS-101	4388500B	12/30/94	12/31/95	453	H GERBER
	FY-95-02-ANS-201	4388900B	12/30/94	12/31/95	453	H GERBER
	FY-95-02-ANS-401	4388600B	12/30/94	12/31/95	453	H GERBER
	FY-95-02-ANS-501	4389500B	06/30/95	12/31/95	453	H GERBER
	FY-95-02-ATZ-001	4389000B	12/30/94	12/31/95	453	H GERBER
	FY-95-06-AFZ-001	4389100B	12/30/94	12/31/95	453	H GERBER
	FY-95-10-PMO-203	4389200B	12/30/94	12/31/95	453	H GERBER
	FY-95-10-PMO-203	4389300B	12/30/94	12/31/95	453	H GERBER
	FY93-02-AMM-001-ADL	4386500B	06/18/93	12/31/93	453	D KORETZ
	FY93-02-ANE-001-ADL	4386600B	07/02/93	12/31/93	453	D KORETZ
	FY93-02-ANS-101-ADL	4386800B	09/03/93	12/31/93	453	H GERBER
	FY93-02-ANS-201-ADL	4386700B	07/16/93	12/31/93	453	H GERBER
	P.O.NO.D40635	4591600B	02/18/94	12/31/94	176	J FOWLER
	RRMA81001	4386300B	06/18/93	12/31/93	453	H GERBER
	RRMA81001	4386400B	06/18/93	12/31/93	453	H GERBER
	RRMA81001/FY-94-03	4387700B	01/07/94	12/31/94	453	H GERBER
	RRM881001	4386900B	10/08/93	11/01/93	453	H GERBER
	RRM881001	4388000B	05/27/94	12/31/94	453	H GERBER
	STO FY93-01-AAF-001-ADL	4386200B	05/21/93	12/31/93	453	H GERBER
	01-AAF-001	4389700B	10/06/95	12/31/95	453	H GERBER
	01-AAF-001	4390800B	01/05/96	12/31/96	453	H GERBER
	02-ANE-001	4390100B	10/06/95	12/31/95	453	H GERBER
	02-ANE-001	4391200B	01/05/96	12/31/96	453	H GERBER
	02-ANM-001	4390000B	10/06/95	12/31/95	453	H GERBER
	02-ANM-001	4391100B	01/05/96	12/31/96	453	H GERBER
	02-ANS-101	4389800B	10/06/95	12/31/95	453	H GERBER
	02-ANS-101	4390900B	01/05/96	12/31/96	453	H GERBER
	02-ANS-201	4390200B	10/06/95	12/31/95	453	H GERBER
	02-ANS-201	4391300B	01/05/96	08/31/96	453	H GERBER
	02-ANS-401	4389900B	10/06/95	12/31/95	453	H GERBER
	02-ANS-401	4391000B	01/05/96	09/30/96	453	H GERBER
	02-ANS-501	4390600B	10/06/95	12/31/95	453	H GERBER
	02-ANS-501	4391700B	01/05/96	12/31/96	453	H GERBER

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
MARIETTA	04-ATR-001	4390500B	10/06/95	12/31/95	453	H GERBER
	04-ATR-001	4391600B	01/05/96	12/31/96	453	H GERBER
	05-ATZ-001	4390300B	10/06/95	12/31/95	453	H GERBER
	05-ATZ-001	4391400B	01/05/96	12/31/96	453	H GERBER
	06-AFZ-001	4390400B	10/06/95	12/31/95	453	H GERBER
	06-AFZ-001	4391500B	01/05/96	11/30/96	453	H GERBER
	10-PMO-204	4389600B	08/04/95	09/30/95	453	H GERBER
	10-PMO-204	4390700B	10/06/95	12/31/96	453	H GERBER
MARIETTA M	RRMA81001	4443600B	07/23/93	12/31/93	172	J FOWLER
MARIETTA*	PO D10146	4240100B	10/09/92	12/31/92	176	J FOWLER
	RRMA81001	4386100B	04/16/93	05/01/93	453	H GERBER
MARINE LAB	PO# 10133247	3272600B	02/07/97	02/14/97	313	G DOUGLAS
	PO#10112627	5853600B	03/08/96	05/31/96	313	G DOUGLAS
	10136629	3339200B	04/18/97	06/30/97	313	G DOUGLAS
MARTIN	P.O.FPM273151	4875800B	03/17/95	04/12/95	172	J FOWLER
MASS PWD	CONTRAC#92431	5805900B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT #92431	5806000B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT #92431	5806100B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT #92431	5806200B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT #92431	5806300B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT #92431	5806400B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT #92431	5806500B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT NO 92431	4070500B	06/19/92	12/31/92	942	M DIBERTO
	CONTRACT NO 92431	4070600B	06/19/92	12/31/92	942	M DIBERTO
	CONTRACT NO 92431	4070700B	06/19/92	12/31/92	942	M DIBERTO
	CONTRACT NO 92431	4070800B	06/19/92	12/31/92	942	M DIBERTO
	CONTRACT NO 92431	4070900B	06/19/92	12/31/92	942	M DIBERTO
	CONTRACT NO 92431	4170100B	06/26/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170200B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170300B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170400B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170500B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170600B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170700B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170800B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4170900B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171000B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171100B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171200B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171300B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171400B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171500B	06/19/92	06/29/95	942	M DIBERTO

CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
MASS PWD	CONTRACT NO 92431	4171600B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171700B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171800B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4171900B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4172000B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4172100B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4172200B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4172300B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4172400B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4172500B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4180000B	06/19/92	12/31/92	942	M DIBERTO
	CONTRACT NO 92431	4180100B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO 92431	4180200B	06/19/92	06/29/95	942	M DIBERTO
	CONTRACT NO.92431	4512000B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT NO.92431	4512100B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT NO.92431	4512200B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT NO.92431	4512300B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT NO.92431	4512400B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT NO.92431	4512500B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT NO.92431	4512600B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4512700B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4512800B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4512900B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513000B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513100B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513200B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513300B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513400B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513500B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513600B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513700B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513800B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4513900B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4514000B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4514100B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4514200B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4514300B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4514400B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT N092431	4514500B	12/31/93	06/30/95	942	M DIBERTO
	CONTRACT#92431	5805000B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5805100B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5805200B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5805300B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5805400B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5805500B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5805600B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5805700B	02/09/96	04/30/96	942	M DIBERTO

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
MASS PWD	CONTRACT#92431	5805800B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5806600B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5806700B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5806800B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACT#92431	5806900B	02/09/96	04/30/96	942	M DIBERTO
	CONTRACTNO.92431	5184800B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTNO.92431	5184900B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTNO.92431	5185000B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTNO.92431	5185100B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTNO.92431	5185400B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTNO.92431	5185500B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTNO.92431	5185600B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTNO.92431	5185700B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTN092431	5185200B	07/21/95	09/30/95	942	M DIBERTO
	CONTRACTN092431	5185300B	07/21/95	09/30/95	942	M DIBERTO
MCDONNELL	MDSSC-SSD-HOUSTON 9T61600	6343800B	05/12/89	04/30/92	193	DJEHNTHOLT
	SK91N074/NAS8-36407	6768100B	08/02/91	01/31/92	193	I BODEK
	922T6134/NAS9-18200	4194500B	09/25/92	08/11/94	193	D EHNTHOLT
MEIASSOCIA	F19628-88-D-0016/K101	3643300B	04/27/90	05/19/92	398	J PUFFER JR
	M103-DON0002	3654200B	04/10/92	12/31/92	453	D KORETZ
MIT LINLAB	BX-6490	3260400B	01/29/97	01/31/97	173	J HUXLEY J
MITCHELL		4385300B	05/21/93	10/31/93	117	R BRECKENRIDGE
MK FERGUSO	3589-1005-11264	4433300B	07/16/93	09/01/93	115	K HOUCHENS
MM		4387000B	12/24/93	12/31/94	453	H GERBER
		4387600B	12/24/93	09/30/95	453	H GERBER
	FPM184778	4442900B	07/23/93	07/31/96	172	G KOGER
	FPM273201	5844400B	03/01/96	12/31/96	172	G KOGER
MODULE		3670000B	03/24/95	05/30/95	463	J MUELLER
		3673200B	08/25/95	11/30/95	463	J MUELLER
	PO#24466	3670300B	04/21/95	05/30/95	463	J MUELLER
MONTGOMERY	1868.1302	4709800B	07/15/94	10/31/94	313	H COSTA
MOTOROLA		3359700B	05/16/97	07/08/97	115	L PENSOTTI
NASA		4820100B	02/17/95	12/31/95	114	J MARTIN
	BOAT-6023T,D02	4820200B	08/18/95	09/30/95	114	J MARTIN
	BOAT-6023T,D03	3095700B	08/16/96	10/12/96	114	J MARTIN
	BOAT-6023T,D03	4820300B	08/25/95	05/31/96	114	J MARTIN
	NASW-96002	6912100B	06/28/96	06/20/97	193	J VALENTIN

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
NASA	NAS1-20498,ORDERNO.L-05	5844300B	03/01/96	05/31/96	915	W BOARDMAN
	P432279	3102100B	08/23/96	06/30/97	977	R HUBBELL
NASA *	BOA NO.T-6023T	4820000B	12/30/94	12/15/99	114	J MARTIN
NASA GDRD	NAS5-32330	4365700B	04/23/93	08/14/95	118	D HABLANIAN
	NAS5-33026	6386700B	08/04/89	06/15/94	173	A ARROTT
NASA LANG		4748800B	09/23/94	12/31/94	827	P METZ
	SUBCONTRACT 915-004	4020900B	10/11/91	03/31/92	183	G MELHEM
NASA LBJSC	BOAT-6023T,D04	4820400B	09/29/95	12/27/95	114	J MARTIN
	NAS 9-18026	6208200B	08/05/88	04/01/94	885	MFVAN BUREN
	NAS9-18023	6208100B	08/05/88	07/31/95	114	J MARTIN
NASA LRC	NAS1-20498	5234000B	09/29/95	09/04/98	881	J YANOWITZ
	NAS1-20498	5799100B	01/26/96	01/26/96	881	J YANOWITZ
	NAS1-20498	5799200B	01/26/96	01/26/96	881	J YANOWITZ
	NAS1-20498	5799300B	01/26/96	01/26/96	881	J YANOWITZ
	NAS1-20498	5799400B	01/26/96	01/26/96	881	J YANOWITZ
	NAS1-20498	5799500B	01/26/96	01/26/96	881	J YANOWITZ
	NAS1-20498	5799600B	01/26/96	01/26/96	881	J YANOWITZ
	NAS1-20498 ORDER NOL-301	5800300B	01/26/96	01/26/96	915	W BOARDMAN
	NAS1-20498,ORDERNO.L-D5	5844200B	03/01/96	05/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL101	5234800B	09/29/95	11/30/95	881	J YANOWITZ
	NAS1-20498,ORDERNOL101	5234900B	09/29/95	11/30/95	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600100B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600200B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600300B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600400B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600500B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600600B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600700B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600800B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5600900B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498,ORDERNOL201	5601000B	09/29/95	03/31/96	881	J YANOWITZ
	NAS1-20498NOL-D601	5865000B	03/22/96	04/15/96	881	J YANOWITZ
	NAS1-20498NOL-D601	5865100B	03/22/96	04/15/96	915	W BOARDMAN
	NAS1-20498ORDER#L-D701	5920900B	04/26/96	07/15/96	881	S OBER
	NAS1-20498ORDERNOL-D401	5825100B	02/16/96	03/15/96	881	S OBER
	NAS1-20498ORDERNOL-D401	5825200B	02/16/96	02/23/96	881	J YANOWITZ
	NAS1-20498ORDERNOL-D401	5825500B	02/16/96	02/23/96	881	J YANOWITZ
	NAS1-20498ORDERNOL-D401	5825600B	02/16/96	02/23/96	881	J YANOWITZ
	NAS1-20498ORDERNOL-D401	5825700B	02/16/96	02/23/96	881	J YANOWITZ
	NAS1-20498ORDERNOL-D401	5826100B	02/16/96	03/15/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-D401	5826200B	02/16/96	02/23/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-D401	5826300B	02/16/96	02/23/96	915	W BOARDMAN

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
NASA LRC	NAS1-20498ORDERNOL-D401	5826400B	02/16/96	02/23/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-D401	5826500B	02/16/96	02/23/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-D401	5826700B	02/16/96	02/23/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-D701	5920800B	04/26/96	07/15/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-D801	5927600B	05/03/96	06/30/97	881	S OBER
	NAS1-20498ORDERNOL-D901	3007800B	07/12/96	09/30/96	881	S OBER
	NAS1-20498ORDERNOL-301	5800200B	01/26/96	01/26/96	915	W BOARDMAN
	NAS1-20498ORDERNOL-301	5800500B	01/26/96	01/26/96	915	W BOARDMAN
	NAS1-20498ORDERNOL101	5234100B	09/29/95	10/31/95	881	J YANOWITZ
	NAS1-20498ORDERNOL101	5234200B	09/29/95	10/31/95	881	J YANOWITZ
	NAS1-20498ORDERNOL101	5234300B	09/29/95	10/31/95	881	J YANOWITZ
	NAS1-20498ORDERNOL101	5234400B	09/29/95	10/31/95	881	J YANOWITZ
	NAS1-20498ORDERNOL101	5234500B	09/29/95	10/31/95	881	J YANOWITZ
	NAS1-20498ORDERNOL101	5234600B	09/29/95	10/31/95	881	J YANOWITZ
	NAS1-20498ORDERNOL101	5234700B	09/29/95	10/31/95	881	J YANOWITZ
	NAS1-20498ORDNOL-D1001	3098100B	08/23/96	12/31/96	881	S OBER
	NAS1-20498ORDNOL-D1001	3098200B	08/23/96	12/31/96	915	W BOARDMAN
	Order No. L-D1101	3234100B	12/24/96	12/31/96	881	S OBER
	Order No. L-D1101	3234400B	12/24/96	03/31/97	881	S OBER
	Order No. L-D1101	3234500B	12/24/96	03/31/97	915	W BOARDMAN
	Order No. L-D1201	3292800B	03/06/97	05/31/97	881	S OBER
	Order No. L-D1201	3292900B	03/07/97	05/31/97	915	W BOARDMAN
	Order No. L-D801	3238300B	01/03/97	03/31/97	881	S OBER
	Order No. 1101	3234200B	12/24/96	12/31/96	915	W BOARDMAN
NATIONS	DAAA15-91-D-00161/0011*	6707100B	10/08/93	03/31/96	943	R LAMBE
NATL OCEAN	43AANC604071	5763500B	12/15/95	12/29/95	313	G DOUGLAS
NATL RENEW		3147500B	10/11/96	01/31/97	865	M RIVEST
		3252700B	01/17/97	04/30/97	865	M RIVEST
		3327600B	04/04/97	04/30/97	972	L FRANTZIS
		4897500B	04/07/95	03/20/96	162	B BARNETT
	KAW-3-13458-ADL-11	3147600B	10/11/96	03/31/97	972	L FRANTZIS
	KAW-3-13458-ADL-8	4760400B	11/17/95	01/19/96	972	L FRANTZIS
NAVAIR	N00019-92-M-4528	3644900B	10/02/92	09/30/93	452	A RADFORD
NAVY		3336500B	04/16/97	09/01/97	972	L FRANTZIS
		4597000B	03/18/94	02/15/99	923	A BALASCO
		4598200B	01/20/95	03/20/95	923	A BALASCO
		5228200B	09/08/95	01/31/96	381	L WHEELER
	D.O. 0001	3336600B	04/18/97	09/26/97	972	L FRANTZIS
	D.O. 0002	3336700B	04/18/97	09/01/97	972	L FRANTZIS
	D.O. 0002	3341500B	04/18/97	09/01/97	972	L FRANTZIS
	D.O. 0013	4598300B	02/17/95	01/31/97	923	A BALASCO
	D.O. 0020	5235000B	09/22/95	05/30/97	923	A BALASCO

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NAVY	D.O. 0020	5237000B	09/22/95	05/30/97	923	A BALASCO
	D.O. 0024	5235400B	12/15/95	12/31/96	923	A BALASCO
	D.O. 0024	5237400B	12/15/95	12/31/96	923	A BALASCO
	D.O. 0026	5235600B	05/17/96	05/14/97	923	A BALASCO
	D.O. 0026	5237600B	05/17/96	05/14/97	923	A BALASCO
	D.O. 0028	3338600B	04/18/97	02/15/99	923	A BALASCO
	D.O. 0028	3338700B	04/18/97	02/15/99	923	A BALASCO
	D.O.0001	4597100B	04/29/94	12/09/94	923	A BALASCO
	D.O.0013	4618300B	02/17/95	01/31/97	923	A BALASCO
	D.O.0017	4598700B	06/30/95	12/30/96	923	A BALASCO
	D.O.0017	4618700B	06/30/95	12/30/96	923	A BALASCO
	D.O.0023	5235300B	10/06/95	04/20/97	923	A BALASCO
	D.O.0023	5237300B	10/06/95	04/20/97	923	A BALASCO
	DTFA01-95-F-01225	4688800B	07/21/95	09/16/96	381	L WHEELER
	DTFA01-96-F-01147	4689100B	03/08/96	08/31/96	418	P BRENNER
	N00039-92-C-0082	3143300B	10/04/96	05/31/97	381	L WHEELER
	N00039-92-C-0082	5889600B	04/26/96	06/30/96	381	L WHEELER
	N00039-92-C-0082	6915100B	06/28/96	09/30/97	381	L WHEELER
	N47408-89-D-1025	6318000B	03/24/89	12/31/93	923	AABALASCO
	N47408-93-M-7349	4408400B	06/11/93	07/26/93	923	A BALASCO
	N47408-94-D-7410/D.O. 001	4618100B	12/30/94	12/01/95	923	A BALASCO
	N47408-94-D-7410/D.O.0019	4618900B	06/16/95	12/31/95	923	A BALASCO
	N47408-94-D-7410/D.O.0027	3094800B	08/16/96	07/01/97	923	A BALASCO
	N47408-94-D-7410/D.O.0027	3094900B	08/16/96	07/01/97	923	A BALASCO
	N47408-94-D-7410/D00010*	4598000B	02/10/95	11/03/95	923	A BALASCO
	N47408-94-D-7410/D00010*	4618000B	02/10/95	11/03/95	923	A BALASCO
	N47408-94-D-7410/D00012*	4618200B	01/20/95	03/20/95	923	A BALASCO
	N47408-94-D-7410/D00014*	4598400B	05/26/95	09/25/96	923	A BALASCO
	N47408-94-D-7410/D00014*	4618400B	05/26/95	09/25/96	923	A BALASCO
	N47408-94-D-7410/D00021*	5237100B	01/12/96	01/31/97	923	A BALASCO
	N47408-94-D-7410/D00025*	5237500B	04/19/96	02/28/97	923	A BALASCO
	N47408-94-D-7410/D00008*	4597800B	09/30/94	10/16/95	923	A BALASCO
	N47408-94-D-7410/D00009*	4597900B	09/30/94	07/28/95	923	A BALASCO
	N47408-94-D-7410/D00025*	5235500B	04/19/96	02/28/97	923	A BALASCO
	N47408-94-D-7410/D00021*	5235100B	01/12/96	01/31/97	923	A BALASCO
	N47408-94-7410/D.O.0019	4598900B	06/16/95	12/31/95	923	A BALASCO
	N62269-91-C-0218	4013600B	10/04/91	05/30/97	115	L PENSOTTI
	N62470-95-C-6000	5125300B	05/05/95	03/21/97	972	L FRANTZIS
	N62470-96-TG-LP025	5915600B	04/19/96	04/26/96	218	K JESSEN
	N62470-96-TG-LP025	6494900B	05/31/96	07/24/96	218	K JESSEN
	N66001-96-D-0050	5866000B	03/22/96	01/31/97	313	G DOUGLAS
	N66001-96-D-0050/0004	3100900B	08/23/96	12/31/97	313	G DOUGLAS
	N66604-96-C-0849	3071400B	07/26/96	06/30/97	162	E CARLSON
	P.O.NO.74405	5185800B	07/21/95	10/31/95	313	G DOUGLAS
	PO#N65236-96-M-3201	3675000B	04/12/96	12/30/96	463	J MUELLER
NAVY CEL	D.O. 0002	4597200B	06/17/94	11/09/94	923	A BALASCO

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
NAVY CEL	NH7408-94-D-741010.0.000	4617200B	06/17/94	11/09/94	923	A BALASCO
	N00039-92-C-0082	5777600B	01/05/96	04/19/96	381	L WHEELER
	N47408-89-D-1025/DO#10	6798000B	10/04/91	12/31/92	923	A BALASCO
	N47408-89-D-1025/DO#11	6798100B	10/04/91	06/30/93	923	A BALASCO
	N47408-89-D-1025/DO#5	6318500B	10/06/89	01/31/92	923	AABALASCO
	N47408-89-D-1025/DO#9	6318900B	10/11/91	06/01/92	923	A BALASCO
	N47408-94-D-7410/D.O. 001	4598100B	12/30/94	12/01/95	923	A BALASCO
	N47408-94-D-7410/D.O.0015	4598500B	06/09/95	08/25/95	923	A BALASCO
	N47408-94-D-7410/D00003	4617300B	07/29/94	07/03/95	923	A BALASCO
	N47408-94-D-7410/D00004	4617400B	09/23/94	07/15/96	923	A BALASCO
	N47408-94-D-7410/D00004*	4597400B	09/23/94	07/15/96	923	A BALASCO
	N47408-94-D-7410/D00006*	4617600B	08/26/94	03/24/95	923	A BALASCO
	N47408-94-D-7410/000001	4617100B	04/29/94	12/09/94	923	A BALASCO
	N47408-94-S-7410/D00003	4597300B	07/29/94	07/03/95	923	A BALASCO
	N47408-94-S-7410/D00006*	4597600B	08/26/94	03/24/95	923	A BALASCO
	N47408-94D-7410/D.O.0015	4618500B	06/09/95	08/25/95	923	A BALASCO
NAVY ESC		3644800B	10/23/92	11/01/92	452	A RADFORD
	N00019-92M-4300&N00421-92	3644600B	05/01/92	06/08/92	452	A RADFORD
NAVY NALC	GS22F-0082B	4688500B	10/07/94	03/03/95	452	A RADFORD
	G522F-0082B	4688600B	10/07/94	02/28/94	452	A RADFORD
	IR-95-NO-0800	4688700B	12/09/94	12/30/96	452	A RADFORD
NAVY NOSC	N66001-94-M-3881	4753500B	09/30/94	02/16/95	172	J FOWLER
NAVY NSSC	N00189-92-A-AA79	4025800B	10/18/91	10/03/92	969	A ARROTT
	N00189-94-M-AP86	4511300B	10/29/93	09/30/96	173	A ARROTT
	N00189-95-M-0145	4763400B	10/14/94	09/30/95	118	R FARRA
	96291-SH18	3101000B	10/31/96	09/30/97	172	P FRANZOSA
NAVY USC	MAGNETOMETIER	4255800B	10/30/92	12/31/92	176	J FOWLER
	NGGG04-94-M-GH52	4676500B	05/27/94	10/31/94	925	E CARLSON
	N66604-92-C-1416	4234000B	10/02/92	12/31/92	176	J FOWLER
	N66604-93-C-2349	4494300B	10/01/93	12/31/93	172	J FOWLER
NCCOSC	N66001-96-D-0050/0001	5866100B	03/29/96	09/30/97	313	G DOUGLAS
	N66001-96-D-0050/0005	3143400B	10/04/96	09/30/97	313	G DOUGLAS
NCI	N01-CN-05241	4248000B	10/23/92	10/20/93	977	A CARAGAY
NE ALTERNA	NAVC1093-PG003.7-(3H)	4673400B	05/20/94	07/31/95	961	J BENTLEY
NG	P.O.87KA-JX-94543	3146700B	10/11/96	02/14/97	172	J FOWLER
NGC	P.O.86CJDH650290	3132700B	09/27/96	10/31/96	977	R HUBBELL
	86CJDH65030	3077000B	08/02/96	07/24/97	977	R HUBBELL

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NICHOLS	NRCCP9000009	6721600B	05/10/91	05/10/94	925	J NYSTROM
NISE EAST	N65236-96-M-4997	3141000B	09/27/96	06/30/97	463	J MUELLER
NIST	43NANB709767	3261800B	01/30/97	01/15/97	782	M JOYCE
NOAADOC	PMA56-SPNNA-2-00010	3661000B	04/30/93	09/30/93	452	S KAGAN
NORTHROP	P.O.86CJDH275350	3127200B	09/20/96	11/16/96	977	R HUBBELL
NREL		3354500B	05/02/97	06/30/97	865	M RIVEST
		3355000B	05/23/97	06/30/97	972	L FRANTZIS
		3362500B	05/16/97	06/30/97	866	R ZOGG
	KAW-3-13458/T.O.2	4760200B	02/17/95	04/10/96	972	L FRANTZIS
	RFPYCC-4-10450-01	5112800B	04/21/95	08/31/97	967	P LOFTUS
	TAT-313256-01/DE-AC02-83C	4452000B	08/06/93	07/01/94	925	J SABATINI
	ZAR-R-13294-03	4578100B	01/28/94	02/25/95	961	S HYNEK
NUWC	N66604-93-C-0981	4380100B	05/14/93	07/08/93	176	J FOWLER
	N66604-96-C-1309	6507600B	05/31/96	10/31/96	172	J FOWLER
	N66604-96-C-1309	6507700B	06/07/96	10/31/96	172	G KOGER
	P.O.N66604-96-M-JC30	3121600B	09/13/96	09/30/96	172	J FOWLER
NUWC/SYSCO	N66604-88-D-0077	4375400B	05/07/93	12/31/93	172	M REED
NUWCD		3178700B	12/06/96	11/30/96	172	J FOWLER
ODELL		4029000B	10/25/91	09/26/92	917	P MCNAMARA
		4029100B	12/13/91	02/28/93	943	R LAMBE
		4029200B	04/03/92	09/01/92	917	P MCNAMARA
		4029300B	06/26/92	09/30/92	917	P MCNAMARA
		4029500B	10/09/92	12/31/93	917	P MCNAMARA
	68-C1-0056-DO#1	4029400B	08/28/92	01/14/92	917	P MCNAMARA
ODGENENVIR		4745700B	09/16/94	03/31/95	313	G DOUGLAS
	BOA 5-32-D2-155540	3188300B	12/18/96	02/21/97	313	G DOUGLAS
	P.O.NO.6-32-P-165930	6908400B	06/21/96	11/30/96	313	G DOUGLAS
OGDEN ENVR	6-32-P2-165930	3339300B	04/18/97	05/31/98	313	G DOUGLAS
OHIO EPA		4002000B	09/20/91	09/30/93	117	A SCHWOPE
		4232000B	10/02/92	12/31/92	117	A SCHWOPE
	CONTRACT68-C9-0037	4015200B	04/09/93	09/30/93	117	A SCHWOPE
PACIFIC		3173600B	11/22/96	07/16/97	782	M JOYCE
	D.O. #1	3177200B	12/05/96	07/16/97	782	M JOYCE

CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
PACIFIC	D.O. #1	3177300B	12/05/96	07/16/97	782	M JOYCE
	F41624-95-D-9017-ADL	5728200B	04/19/96	07/16/96	782	M JOYCE
	F41624-95-D-9017-ADL	5728300B	04/19/96	12/31/96	782	M JOYCE
	F41624-95-D-9017-ADL	5728400B	04/19/96	07/16/96	782	M JOYCE
	F41624-95-D-9017-ADL	5728500B	04/19/96	07/16/97	782	M JOYCE
PANAMA	CRA-085504-JQ-29	4151100B	05/29/92	10/31/92	943	R LAMBE
PCC	GSLP-PO#PAP86518-PL-29	5929800B	05/10/96	04/30/97	766	N ATHANASIOU
PHYSICS		4494400B	10/01/93	01/01/94	172	J FOWLER
PLAN SYST	P.O.#MS9565	5780000B	01/12/96	02/16/96	172	J FOWLER
PRC		4806300B	12/16/94	09/30/97	313	G DOUGLAS
PSR	P.O.#40111941370	5794300B	01/26/96	06/22/96	961	R WILSON JR
QUIM (IQN)	92-N320400-000	4061100B	01/03/92	09/20/92	301	L RAMBO
RADIAN	WA68-D1-0031WA0/033	6770200B	10/11/91	09/30/92	965	J DIECKMANN
RAYTHEON	P053-A154-SA-94000	4132000B	04/24/92	10/31/92	961	P GLASER
RCG/HAGLER	PCE-5559-C-3021-00	4460900B	08/06/93	08/06/98	923	A BALASCO
RESEARCH C	P.O.783002	5813900B	02/09/96	02/09/96	977	R HUBBELL
	PO # 765571-N2	4540700B	11/26/93	01/16/95	173	A ARROTT
	765571-N2	4876000B	03/17/95	03/10/95	173	A ARROTT
	8500485	4898700B	04/14/95	04/30/95	607	J PEIRSON JR
RTI	00050710	4382700B	05/14/93	07/15/93	989	S ALI
RUSSIAN	EPE-0014-I-00-5069-00/T03	5144100B	10/27/95	10/31/96	175	G DUNBAR
RUST	PO182468-030 T00001	4503600B	10/08/93	10/12/93	943	R LAMBE
S CAROLINA	PO#902094-2	3641700B	06/29/90	02/28/92	463	C HOLCOMB
SACO	132982-01	4340700B	03/19/93	05/21/93	146	R MAYVILLE
SAIC		6713200B	12/18/92	12/31/92	923	A BALASCO
	16-9100-99/68-WO-0625	6713100B	07/19/91	06/30/92	923	A BALASCO
	1691001299 68W00025	6713000B	04/26/91	06/30/92	923	A BALASCO
	36-91-0012-99WA#244	4318500B	02/19/93	03/31/93	923	A BALASCO
	36-91-0012-99WA#244	4318600B	02/19/93	03/31/93	945	S POLTORZYCKI
	36-91-0012-99WA#244	4318700B	02/19/93	03/31/93	945	S POLTORZYCKI

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CLIENT CODE	PURCHASE ORDER NO	CONTROL NUMBER	ACCT-DATE MM-DD-YY	FINISH DATE MM-DD-YY	DEPT. NUMBER	EMPLOYEE NAME
SAIC	36-91-0012-99WA#244	4318800B	02/19/93	03/31/93	945	S POLTORZYCKI
	36-91-0012-99WA#244	4318900B	02/19/93	03/30/93	945	S POLTORZYCKI
	36-91-0012-99WA#244	6713300B	01/15/93	01/31/93	923	A BALASCO
	36-910012-99/W4N0203	6713400B	02/26/93	03/09/93	923	A BALASCO
	36-940001-68	4319700B	02/19/93	12/31/93	943	R LAMBE
	36-94001-68	4333400B	03/12/93	12/31/93	943	R LAMBE
SANDIA	AQ-3585	5662900B	10/20/95	01/15/96	977	J SABATINI
	AS-8602	5881400B	04/05/96	04/30/96	945	J WILLSON
SANDIA *	AC-2451	4143100B	05/15/92	12/31/92	915	B THOMPSON
	AC2451	4276900B	12/11/92	10/17/92	915	R BREKUS
	AG8941	4399400B	05/28/93	05/23/93	914	G PSYHOJOS
	AG8941	4406800B	06/04/93	12/15/93	914	G PSYHOJOS
	DOC.NO.AI-5655	4647600B	04/15/94	03/15/96	923	A BALASCO
	POAE-6495	4162900B	10/30/92	10/31/92	944	K LOVING
SANTABABBA	760691-NE/NAS5-32044	8899062P	03/19/93	03/26/93	969	S MATHIAS
SC RA		3042600B	07/19/96	07/31/97	463	P O'HEARN
		3102000B	08/23/96	07/31/97	462	L KARNS
		3125300B	09/13/96	07/31/97	463	D BERES
		3138000B	09/27/96	07/31/97	463	D BERES
		3138100B	09/27/96	07/31/97	463	D BERES
		3138300B	09/27/96	07/31/97	463	D BERES
		3167600B	11/21/96	11/30/99	462	K BUCHANAN
		3322500B	04/04/97	05/31/97	463	C HOLCOMB
		3341800B	04/18/97	06/30/97	463	C HOLCOMB
		3361800B	05/16/97	06/06/97	463	C HOLCOMB
		3652000B	12/28/90	05/31/96	463	C HOLCOMB
		3653600B	07/24/92	06/30/97	462	L KARNS
		3667700B	10/15/93	05/31/96	463	C HOLCOMB
		3668300B	06/17/94	03/31/98	462	L KARNS
		3668900B	11/18/94	09/29/99	462	J WELBORN
		3669100B	12/30/94	07/31/97	463	J SNEED
		3669200B	12/30/94	07/31/97	463	J SNEED
		3669300B	12/30/94	07/31/97	463	C HOLCOMB
		3669400B	12/30/94	07/31/97	463	C HOLCOMB
		3669500B	12/30/94	07/31/97	462	E WAUGH
		3669600B	01/20/95	07/31/97	462	E WAUGH
		3669800B	03/03/95	02/26/98	462	L KARNS
		3669900B	03/24/95	07/31/97	463	J MUELLER
		3670100B	04/07/95	07/31/97	463	J MUELLER
		3670500B	05/12/95	07/31/97	462	T WHITE
		3670600B	05/05/95	07/31/97	463	J MUELLER
		3670700B	05/05/95	07/31/97	463	J SNEED
		3670800B	05/05/95	07/31/97	463	J SNEED

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SC RA		3670900B	05/05/95	07/31/97	463	J SNEED
		3671000B	05/05/95	07/31/97	463	J SNEED
		3671100B	05/05/95	07/31/97	463	J SNEED
		3671200B	05/05/95	07/31/97	462	E WAUGH
		3671300B	05/05/95	07/31/97	463	J SNEED
		3671400B	09/15/95	07/31/97	463	P O'HEARN
		3671500B	05/05/95	07/31/97	463	N WARNER
		3671600B	05/05/95	07/31/97	463	J MUELLER
		3671800B	05/26/95	07/31/97	462	T WHITE
		3671900B	06/02/95	07/31/97	462	T WHITE
		3672000B	06/09/95	07/31/97	463	J NALL
		3672400B	07/21/95	07/31/97	462	T WHITE
		3672500B	07/21/95	07/31/97	462	T WHITE
		3672600B	08/18/95	07/31/97	463	K BOLLINGER
		3672800B	08/25/95	07/31/97	463	P O'HEARN
		3672900B	08/25/95	07/31/97	463	K BOLLINGER
		3673000B	08/25/95	07/31/97	463	K BOLLINGER
		3673100B	08/25/95	07/31/97	462	T WHITE
		3673400B	10/13/95	08/31/97	462	K BUCHANAN
		3673500B	10/13/95	08/31/97	462	P ROSCHE
		3673600B	10/13/95	07/31/97	463	B MCALISTER
		3673800B	11/24/95	07/31/97	463	M LANGENBERG
		3674000B	11/24/95	07/31/97	463	M LANGENBERG
		3674100B	11/24/95	07/31/97	463	K BOLLINGER
		3674200B	01/12/96	07/31/97	463	P O'HEARN
		3674300B	01/12/96	07/31/97	463	K BOLLINGER
		3674400B	01/12/96	07/31/97	463	M LANGENBERG
		3674500B	01/19/96	07/31/97	463	K BOLLINGER
		3674600B	02/16/96	07/31/97	463	J SNEED
		3674700B	02/16/96	07/31/97	463	K BOLLINGER
		3674800B	03/15/96	07/31/97	463	K BOLLINGER
		3674900B	04/05/96	07/31/97	463	K BOLLINGER
		3675100B	05/10/96	07/31/97	463	P O'HEARN
	P.O.#9700065	3028400B	07/12/96	06/30/97	463	P O'HEARN
	001	3342100B	04/18/97	07/03/96	463	C HOLCOMB
	002	3342800B	04/18/97	08/04/96	463	C HOLCOMB
	003	3343300B	04/18/97	06/30/97	463	C HOLCOMB
	004	3343400B	04/18/97	04/30/97	463	C HOLCOMB
	870002-1-V24	3665300B	04/16/93	03/31/97	463	C HOLCOMB
SCRA		3138400B	09/27/96	07/31/97	463	B MCALISTER
		3642200B	10/05/90	07/31/92	463	J MUELLER
		3644400B	06/12/92	06/30/97	462	P ROSCHE
		3644700B	09/04/92	04/30/96	462	P ROSCHE
		3645600B	08/07/92	07/31/94	463	P O'HEARN
		3647600B	10/30/92	11/30/94	463	J MUELLER
		3647700B	10/30/92	12/31/92	463	J NALL

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SCRA		3647800B	10/30/92	03/31/93	463	J PIERCE
		3647900B	03/12/93	04/30/94	463	J MUELLER
		3653800B	08/28/92	12/31/92	940	P DUBOIS
		3653900B	07/10/92	12/31/92	940	P DUBOIS
		3654100B	04/10/92	07/31/92	463	C HOLCOMB
		3657100B	08/14/92	12/31/92	463	P O'HEARN
		3657200B	08/14/92	04/30/94	462	T WHITE
		3666000B	05/07/93	05/31/93	940	P DUBOIS
		3666200B	01/15/93	04/30/93	463	B RAY
		3666400B	07/02/93	06/30/95	463	J MUELLER
		3666500B	07/02/93	06/30/95	463	J MUELLER
		3666600B	07/02/93	06/30/95	463	J MUELLER
		3668000B	03/11/94	03/06/96	462	L KARNS
		3668400B	07/01/94	09/30/94	463	J MUELLER
		3668600B	10/07/94	04/30/95	462	J WELBORN
		3668700B	10/28/94	03/01/95	940	B RAY
		3669700B	01/20/95	12/31/95	463	J MUELLER
		3670400B	05/05/95	12/31/96	462	T WHITE
		3671700B	05/12/95	12/31/96	463	J MUELLER
		3672100B	06/23/95	06/30/96	463	P O'HEARN
		3672200B	06/23/95	06/30/96	463	P O'HEARN
		3672300B	06/23/95	06/30/96	463	P O'HEARN
		3672700B	08/25/95	07/31/96	462	L KARNS
		3673700B	11/17/95	10/31/98	462	L KARNS
		3673900B	11/24/95	07/31/97	463	M LANGENBERG
		5253590P	03/26/93	12/31/93	304	A WECHSLER
	AGR 94-00063/DE-AC09-89..	4443000B	07/23/93	12/31/93	944	D SHOOTER
	LOT VI CALS EXPO	3667600B	10/08/93	11/01/93	463	C HOLCOMB
	P.O.#97-00065	3028500B	07/12/96	06/30/97	463	P O'HEARN
	P.O.#97-00065	3028600B	07/12/96	06/30/97	463	P O'HEARN
	PAS-C-PHASE II	3653500B	07/17/92	06/30/94	462	L KARNS
	PDS EVALUATION PROJECT	3667800B	12/10/93	12/31/94	462	T WHITE
	PO#930262-A/FOCUSHOPE	3657000B	08/21/92	03/31/93	463	P O'HEARN
	PO930289-A	3645700B	09/04/92	12/31/92	463	C HOLCOMB
	SC-0061ADL	6396700B	01/28/94	09/15/94	544	W ULRICH
	SC-0061ADL	6396800B	01/28/94	04/30/94	544	W ULRICH
	SCRA/B&W	3666300B	05/28/93	10/01/93	463	J MUELLER
	SUBCONTRACT#96-00381	3675300B	06/28/96	06/30/97	463	J MUELLER
	SUBCONTRACT#96-00381	3675400B	06/28/96	06/28/96	463	R VASHINA
	SUBK 870002-1/LOT IV	3652500B	12/28/90	09/30/94	463	C HOLCOMB
	SUBK 870002-1/LOT V/TASK6	5254700B	06/05/92	12/31/95	463	J PIERCE
	SUBK 870002-1/LOT V/TSK10	3645300B	10/04/91	12/31/92	463	J MUELLER
	SUBK 870002-1/LOT VI	3645500B	02/28/92	04/02/93	463	P DUBOIS
	SUBK 870002-1/LOT VI/TSK3	3645000B	04/26/91	04/30/93	463	C HOLCOMB
	SUBK 920060-A	3653000B	07/05/91	09/24/95	462	L KARNS
	T.O.0018,C-0-001	3669000B	12/09/94	02/01/96	463	P O'HEARN
	870002-1 LOTII	3667000B	10/01/93	12/31/95	463	C HOLCOMB

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SCRA	870002-1 LOTII	3667200B	10/01/93	09/30/94	463	C HOLCOMB
	870002-1 LOTII	3667300B	10/01/93	09/30/94	463	C HOLCOMB
	870002-1 LOTII	3667400B	10/01/93	09/30/94	463	C HOLCOMB
	870002-1 LOTII	3667500B	10/01/93	09/30/94	463	C HOLCOMB
	870002-1,LOTII	3665700B	05/07/93	12/31/93	463	C HOLCOMB
	870002-1,LOTII	3667900B	02/25/94	07/01/94	463	C HOLCOMB
	870002-1LOTII	3665800B	05/07/93	12/31/93	463	C HOLCOMB
	870002-1LOTII	3665900B	05/07/93	12/31/93	463	C HOLCOMB
	870002-1LOTII	3667100B	10/01/93	09/30/94	463	C HOLCOMB
	870002-1LOTV	3653700B	07/31/92	12/31/92	940	P DUBOIS
	890268-2	3666700B	09/10/93	07/31/95	462	L KARNS
	890268-2	3666800B	09/10/93	07/31/96	462	L KARNS
	8902682	3653300B	09/06/91	07/31/92	462	L KARNS
	890354-2/PHASEII	3644200B	02/22/91	05/31/94	462	J WELBORN
	920147-A	3653200B	09/06/91	02/28/92	463	J MUELLER
	921114-A	3653400B	07/03/92	06/30/93	463	J SNEED
	930289-1	3670200B	04/07/95	04/06/95	463	J MUELLER
	931178-A	3665600B	04/30/93	12/31/94	462	J WELBORN
	94-00283	3666900B	09/10/93	06/03/96	462	L KARNS
	94-01194	3668100B	04/29/94	12/31/94	463	C HOLCOMB
	95-00406	3668200B	06/10/94	11/01/94	462	T WHITE
	95-00407	3668800B	11/04/94	02/28/95	463	P O'HEARN
	95-00413	3638500B	10/07/94	11/15/94	463	J MUELLER
	96-00223	3673300B	10/06/95	09/30/95	463	P O'HEARN
SCT GROUP	27-95202-59	4819000B	01/06/95	08/31/95	452	S KAGAN
SEC DONOHU		4143000B	05/29/92	08/12/92	943	R LAMBE
SENSING		4014800B	10/04/91	01/04/92	961	P GLASER
SFWRENG I	VENDOR TRAINING COURSE	8899061P	02/26/93	02/12/93	394	J PUFFER JR
SOFCO	B&W/CRD-94-1318-2	5707000B	10/27/95	07/30/96	961	S HYNEK
SPAWAR	N000039-92-C-0082	3660000B	12/31/92	09/30/93	381	L WHEELER
	N000039-92-C-0082	3660100B	12/31/92	09/30/93	381	L WHEELER
	N00039-92-C-0082	3647300B	12/20/91	12/31/92	381	L WHEELER
	N00039-92-C-0082	3647400B	12/20/91	12/31/92	381	L WHEELER
	N00039-92-C-0082	4545000B	01/14/94	01/31/94	381	L WHEELER
	N00039-92-C-0082	4576500B	01/28/94	12/31/94	381	L WHEELER
	N00039-92-C-0082,MODP00	4753600B	09/30/94	09/30/95	381	L WHEELER
	N00189-93-P-AS09	4301800B	01/22/93	09/30/93	969	A ARROTT
	N68836-93-M-3042	8899060P	02/12/93	03/11/93	150	C ROSS
	PON042492/N00014-90-C	8899059P	01/22/93	01/31/93	149	E CARLSON
SR&A	CIM-WM-94-177	6396900B	07/08/94	00/23/95	544	W ULRICH

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SR&A	MDA03-91-D-0061/T01	6396100B	08/07/92	01/06/94	544	W ULRICH
	MDA903-91-D-0061	6396000B	08/07/92	09/17/94	544	W ULRICH
SRA	MDA03-91-D-0061/T03	6396300B	11/20/92	09/16/93	544	W ULRICH
	SC-0061-833-04	6396200B	11/06/92	09/15/94	544	W ULRICH
	SC-0061ADL/833-03	6396400B	02/12/93	04/30/94	544	W ULRICH
	SC-0061ADL/833-04	6396600B	02/12/93	02/28/93	544	W ULRICH
SRC	F19628-89-D-0004T061-31-1	3651900B	03/13/92	09/07/93	453	D KORETZ
	F19628-89-D-0004T061-34-1	3651300B	06/05/92	09/07/93	453	D KORETZ
	F19628-89-D-0004T061-30-1	3651200B	02/28/92	09/07/93	453	D KORETZ
	F1962889D0004T061111	3650800B	04/19/91	02/29/92	394	J PUFFER JR
	F1962889D0004T061121	3650700B	04/19/91	02/29/92	398	J PUFFER JR
	F1962889D00041009	3650900B	04/19/91	03/31/92	398	J PUFFER JR
SSI		3648000B	12/08/89	12/31/92	452	J BUNCH
		3654500B	10/04/91	12/31/92	452	S KAGAN
	DTFA-01-88-Y-01090/T081	3654700B	08/14/92	09/30/93	452	S KAGAN
	DTFA01-88-Y-01090 TO 61	3649100B	03/13/92	09/30/92	453	J BUNCH
	DTFA01-88-Y-01090T046	3654600B	10/11/91	06/31/92	452	S KAGAN
	DTFA01-88-Y-01090T047	3648800B	10/11/91	03/31/92	453	J BUNCH
	DTFA01-88-Y-01090T072	3649200B	07/24/92	12/31/92	453	J BUNCH
	DTFA01-88-Y-01090T053	3648900B	01/17/92	04/30/92	453	J BUNCH
	DTFA01-88-Y-01090T053	3649000B	02/07/92	04/30/92	453	J BUNCH
	DTFA01-88-Y-01090T064	3649300B	09/25/92	12/31/92	453	J BUNCH
ST MONICA	NO.7149	3044400B	07/19/96	12/29/96	314	S COONS
STERIMATIC	DAM017-86-C-6198	4065000B	01/10/92	01/31/92	183	M LONG
	DAM017-86-C-6198	4065100B	01/10/92	10/19/92	183	M LONG
STONEWALL		4350600B	04/02/93	04/01/94	114	T GAZDA
SUMARIA		3654300B	04/10/92	03/17/93	398	J PUFFER JR
	SUB1200-91-007D02057	3643200B	12/18/92	06/30/93	453	D KORETZ
	1200-91-0007/D02002	3622700B	11/01/91	09/30/92	394	J PUFFER JR
	1200-91-0007D02018	3651700B	08/21/92	06/30/93	453	D KORETZ
	1200-91-007D01008	3625400B	10/11/91	09/30/92	398	J PUFFER JR
SWALES	P.O.006131	4671700B	05/20/94	05/19/94	969	A ARROTT
	PO 006112	4671800B	05/20/94	06/17/94	969	A ARROTT
SYSCON	D O #5	4061500B	11/13/92	12/31/92	172	M REED
	D.O. #1	3276600B	02/20/97	09/30/97	172	G KOGER
	N6604-91-D-7708/DO#3	4061300B	01/31/92	02/28/93	172	M REED
	N6604-91-D-7708/DO#4	4061400B	06/26/92	09/30/92	172	M REED
	N66604-88-D-0077DO#9	5184700B	07/14/95	12/31/95	172	M REED

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SYSCON	N66604-91-D-7708	4570500B	01/21/94	06/30/95	172	M REED
	SUBCONTRACT NO 91-04 D07	4420800B	06/25/93	03/07/94	172	M REED
SYSTEM RES	P.O.NO.7225	4736500B	08/26/94	01/06/95	172	J WU
TANGIB		6779700B	08/23/91	10/11/94	452	M HANNON
TARATEC	SUBKNO.1056-50	3077400B	08/02/96	05/15/97	967	J THIJSSEN
THOMPSON		5209100B	08/11/95	12/06/96	116	J POWELL
TRB		5250900B	09/22/95	01/31/96	173	S LIPOFF
	C-5	4755000B	09/30/94	12/31/95	173	S LIPOFF
TRES IRS	TIR-SW-91-007	6642800B	12/21/90	05/29/92	740	I PLOTKIN
	TIR-W-88-015	6671700B	02/15/91	12/29/92	639	I PLOTKIN
	TIR-93-NA-83	4492400B	10/01/93	07/31/95	639	I PLOTKIN
TSC		6305800B	05/10/91	07/31/92	961	A BING
TWD		4830700B	01/20/95	03/31/95	381	L WHEELER
US AIR FOR	P09601071 DA	5865200B	03/22/96	06/27/97	782	M JOYCE
US C.G.	DOC#30.96.23.6.P.83.005.0	5719200B	11/10/95	02/16/96	883	J SAGER
US CENSUS	43YABC511478	4689000B	10/13/95	09/30/97	854	P WEISS
US DEVELP	PO CCN-0002-0-00-3143-00	4479000B	09/03/93	11/30/93	961	W TEAGAN
US POST		5662300B	10/20/95	10/06/95	782	M JOYCE
USAF	F41624-91-C-1001	4630000B	03/25/94	12/21/95	118	P MCTAGGART
	F41624-91-C-1001	4644000B	04/01/94	04/21/95	118	P MCTAGGART
USATHAMA	DAAA15-91-D-0016/009	6706900B	10/02/92	10/31/97	943	R LAMBE
	DAAA15-91-D-0016/04	6706400B	12/04/92	06/30/96	943	R LAMBE
USPS		4664000B	05/06/94	06/13/97	942	J OBBAGY
		4664400B	12/01/95	12/31/96	942	J OBBAGY
		4664500B	12/01/95	12/31/96	942	J OBBAGY
		5149100B	05/19/95	05/31/95	456	W LEE
	#104230-91-0-1807	6881300B	08/11/95	12/31/95	012	A MOTTUR
	#104230-91-0-1807/TOTBD	6862400B	07/01/94	02/28/95	737	L JIMENEZ
	ADL-005	3639200B	06/25/93	01/31/94	854	P WEISS
	C#104230-91-0-1807	6851900B	04/28/95	09/14/96	921	G GARCIA
	CONT#089480-94-B-0592	4664600B	02/02/96	05/21/96	942	J OBBAGY

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USPS	CONT#089480-94-B-0592	4664700B	02/02/96	07/11/96	942	J OBBAGY
	CONT#089480-94-B-0592/DO	4664300B	05/05/95	05/25/95	942	J OBBAGY
	CONT#104230-91-0-1807	6801000B	09/22/95	09/30/96	921	G GARCIA
	CONT#104230-91-0-1807	6801100B	11/03/95	09/30/96	921	G GARCIA
	CONT#104230-91-0-1807	6852100B	05/12/95	06/30/96	921	G GARCIA
	CONT#104230-91-0-1807	6852300B	09/22/95	09/13/96	440	R MORRIS
	CONT#104230-91-0-1807	6882000B	02/02/96	06/15/96	921	G GARCIA
	CONT#104230-91-0-1807/TO	6852000B	05/05/95	10/03/95	855	W THETFORD
	CONTRACT #104230-91-0-180	6800700B	12/30/94	09/13/96	921	G GARCIA
	CONT104230-91-0-1807	6809900B	11/06/92	08/13/93	304	P BRENNER
	DO089480-94-P-0592/002*	4664200B	09/09/94	12/31/94	942	J OBBAGY
	DO089480-94-P-0592001	4664100B	05/06/94	12/23/94	942	J OBBAGY
	DO102590-95-D-0503ADL-0	4394000B	12/09/94	12/31/94	854	P WEISS
	DO102590-95-D-0504ADL-0	4394100B	12/09/94	12/31/94	854	P WEISS
	K#104230-91-0-1807/TO	6800600B	07/29/94	09/30/94	921	G GARCIA
	K#104230-91-0-1807/TO	6841300B	07/08/94	12/23/94	440	J POLING
	MODMOSTODO#102590-93	4394400B	12/23/94	12/31/95	854	P WEISS
	MODMOSTODO#102590-95-D	4394700B	12/23/94	07/31/95	854	P WEISS
	MODMOSTODO#104230-93-1	4394200B	12/23/94	12/31/95	854	P WEISS
	MODMOSTOTO#102590-95-D	4394800B	12/23/94	12/31/95	854	P WEISS
	MODMOSTODO#102590-94-D	4394500B	12/30/94	10/31/95	854	P WEISS
	MODMOSTODO#104230-93-D	4394300B	12/30/94	12/31/95	854	P WEISS
	TO #4	6657400B	02/22/91	05/15/92	743	L JIMENEZ
	TO#102590-94-D-2412	6851700B	06/10/94	03/31/95	921	G GARCIA
	TO#102590-94-F-2228	4394600B	01/13/95	03/01/95	854	P WEISS
	TO#104230-93-D-0847	6851600B	06/10/94	09/15/95	921	G GARCIA
	008	3183800B	12/12/96	01/16/97	942	J OBBAGY
	009	3184700B	12/12/96	06/12/97	942	J OBBAGY
	10250-93-D-2941	6871100B	08/06/93	08/31/93	113	T CHAPMAN
	102590-93-D-1716	6870900B	04/16/93	08/31/93	722	B BROWN
	102590-93-D-1810	6810800B	04/23/93	11/12/93	734	F NADER
	102590-93-D-1840	6841000B	04/23/93	12/31/96	440	R MORRIS
	102590-93-D-1925	6831200B	05/07/93	01/31/95	737	L JIMENEZ
	102590-93-D-2138	6841100B	05/14/93	10/29/93	440	R MORRIS
	102590-93-D-2610	6821300B	07/02/93	08/31/93	722	B BROWN
	102590-93-D-2613	6871000B	07/02/93	09/30/93	915	H HAGEDORN
	102590-94-D-2520	6821700B	07/22/94	11/14/94	722	B BROWN
	102590-94-DO515	6851500B	03/25/94	09/16/94	914	A LYNCH
	102590-94-0-0349	6862000B	11/05/93	03/11/94	456	W LEE
	102590-94-0-0372	6800500B	11/05/93	02/28/94	849	S NICHOLS
	102590-95-D-2418	6852200B	06/23/95	11/30/96	937	J MOORE
	102590-95-D-2970	6881400B	08/11/95	12/29/95	440	R MORRIS
	102590-95-D-3451	6881600B	09/15/95	12/31/96	854	P WEISS
	102590-95-Z-2076	5133700B	05/26/95	01/31/97	782	M JOYCE
	102590-96-D-0737	6801200B	12/08/95	04/25/97	921	G GARCIA
	102590-96-D-1167	6831800B	01/05/96	12/27/96	937	J TAN
	102590-96-D-1964	6801400B	04/26/96	11/22/96	937	J TAN

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USPS	102590-96-D-2369	6841700B	06/07/96	08/01/97	855	W THETFORD
	102590-96-D-2566	6801500B	05/31/96	12/31/96	854	P WEISS
	102590-96-D-2567	6801600B	05/31/96	12/31/96	854	P WEISS
	102590-96-D-2828	3071200B	07/26/96	09/12/97	937	P KACHA
	102590-97-D-0099	3128300B	09/20/96	09/12/97	937	J MOORE
	102590-97-D-1305	3186800B	12/13/96	06/15/97	854	J GLOSSON
	102590-97-Z-0770	3259700B	01/24/97	04/30/98	782	M JOYCE
	10259093D1744	6840900B	04/16/93	02/28/94	440	R MORRIS
	104230-91-H-1447/1502	6780200B	12/13/91	02/21/92	741	W LEE
	104230-91-0-1807/TO	6851400B	02/04/94	10/28/94	945	S POLTORZY
	104230-91-0-1807/TO1025	6890500B	10/07/94	08/30/95	945	S POLTORZYCKI
	104230-91-0-1807/TO10259	6821900B	04/07/95	12/29/95	737	L JIMENEZ
	104230-91-0-1807/TO92-21	6870400B	12/13/91	07/31/92	304	A WECHSLER
	104230-91-0-1807TO92-13	6850700B	10/25/91	09/18/92	304	A WECHSLER
	104230-91-0-1807TO92-19	6890200B	10/04/91	09/16/94	440	R MORRIS
	104230-91-0-1807TO92-24	6850800B	01/24/92	09/18/92	304	A WECHSLER
	104230-91-0-1807TO9305	6831100B	11/06/92	09/30/93	937	J TAN
	104230-91-1807TO93-04	6851000B	11/06/92	09/15/95	921	G GARCIA
	104230-92-0-3812	3639300B	04/23/93	09/15/95	854	P WEISS
	104230-92-0-3812*T.O.ADL	3639600B	04/22/94	05/27/94	854	P WEISS
	104230-92-0-3812/ADL007	3639500B	10/22/93	02/01/94	854	P WEISS
	104230-92-0-3812/TOADL006	3639400B	05/28/93	05/27/94	854	P WEISS
	104230-93-D-1457	6821000B	04/09/93	11/30/94	596	R HENSKE
	104230-93-0-1664	6861600B	04/09/93	05/28/93	593	J WARNEMENT
USPS*		3638700B	03/27/92	12/31/92	854	P WEISS
		3639900B	06/03/94	12/31/94	854	P WEISS
		4166600B	06/19/92	12/31/92	733	P ELLIS
		6056000B	09/11/87	02/04/92	933	L JIMENEZ
		6728000B	05/24/91	04/30/92	769	S FLETCHER
		6863000B	10/13/95	05/31/96	734	F NADER
		6863100B	10/13/95	12/30/95	737	L JIMENEZ
		6881500B	08/25/95	12/15/95	440	R MORRIS
	CON #102590-94-F-2228	3646800B	06/03/94	12/31/94	854	P WEISS
	CON#104230-91-0-1807	6862800B	07/07/95	03/01/96	737	L JIMENEZ
	CON#104230-91-0-1807/TO..	6841600B	03/31/95	06/30/95	440	R MORRIS
	CONT# 104230-91-0-1807	6800000B	06/07/91	04/26/99	304	P BRENNER
	CONT#104230-91-0-1807	3003800B	07/05/96	10/31/96	734	F NADER
	CONT#104230-91-0-1807	3128000B	09/20/96	09/12/97	440	R MORRIS
	CONT#104230-91-0-1807	3136000B	09/27/96	09/30/97	737	L JIMENEZ
	CONT#104230-91-0-1807	6852400B	12/22/95	02/20/96	854	P WEISS
	CONT#104230-91-0-1807	6862900B	09/22/95	12/15/95	722	J WEISS
	CONT#104230-91-0-1807	6863300B	02/09/96	04/12/96	722	J WEISS
	CONT#104230-91-0-1807	6881700B	09/22/95	03/29/96	737	L JIMENEZ
	CONT#104230-91-0-1807TO	6831700B	06/02/95	12/01/95	737	L JIMENEZ
	CONTRACT#104230-91-0-1807	6801300B	02/09/96	07/31/96	945	S POLTORZY
	CONTRACT#104230-91-0-1807	6851800B	01/20/95	04/14/95	737	L JIMENEZ

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USPS*	H-0041/104280-92-D-2289	6056400B	02/28/92	12/31/92	741	W LEE
	K#104230-91-0-1807/TO	6821600B	06/24/94	10/14/94	722	B BROWN
	MODM02TO#104230-93-D-1	3639800B	06/03/94	12/31/94	854	P WEISS
	MODM05TO#104230-93-D-1	3639700B	06/03/94	12/31/94	854	P WEISS
	PO#102590-95-X-0714	4814700B	12/23/94	02/28/95	440	R MORRIS
	PO104230-92-F-3995	4134700B	05/01/92	06/26/92	915	H HAGEDORN
	T.O.#102590-95-D-1075	6821800B	02/03/95	07/01/96	722	J WEISS
	TASKORDER#102590-96-D-06	6881900B	12/08/95	03/01/96	440	R MORRIS
	TBD	3305200B	03/18/97	04/25/97	444	J DWYER
	TO# 102590-95-D-0895	6841500B	01/13/95	06/30/95	855	W THETFORD
	TO#102590-95-D-0880	6831600B	01/13/95	12/31/95	737	L JIMENEZ
	TO#102590-95-D-2033	6881100B	05/12/95	03/01/96	722	J WEISS
	TO#102590-95-D-2112	6881200B	05/19/95	05/17/96	440	R MORRIS
	TO#102590-96-D-0122	6800900B	09/22/95	09/13/96	921	G GARCIA
	0041/104230-92-D-2215	6056300B	01/31/92	03/01/93	741	F NADER
	102590-93-D-2137	6821200B	06/18/93	06/15/95	722	J WEISS
	102590-93-D-2272	6861700B	07/23/93	04/30/94	456	W LEE
	102590-93-D-2611	6831300B	08/06/93	11/19/93	734	F NADER
	102590-93-D-3204	6861800B	09/03/93	11/24/93	737	L JIMENEZ
	102590-93-D-3344	6861900B	09/03/93	03/31/94	737	L JIMENEZ
	102590-93-D-3835	6831400B	09/24/93	09/30/94	937	J TAN
	102590-94-D-0350*	6862100B	12/03/93	07/01/94	737	L JIMENEZ
	102590-94-D-0515**	6850300B	11/26/93	09/16/94	914	A LYNCH
	102590-95-D-1463	6881000B	03/17/95	03/31/97	440	R MORRIS
	102590-96-D-0450	6881800B	11/03/95	09/27/96	737	L JIMENEZ
	102590-96-D-1146	6863200B	01/05/96	11/30/96	722	J WEISS
	102590-96-D-1947	6882100B	04/19/96	10/15/96	737	L JIMENEZ
	102590-96-D-2136	6852500B	04/12/96	02/14/97	440	R MORRIS
	102590-96-D-2137	6863500B	05/10/96	11/30/96	737	L JIMENEZ
	102590-96-D-2481	6882200B	05/03/96	09/30/97	854	P WEISS
	102590-96-D-2484	6863400B	03/22/96	08/31/96	440	R MORRIS
	102590-96-D-2485	6852600B	06/21/96	09/12/97	440	R MORRIS
	102590-96-D-2784	3001800B	07/05/96	01/31/97	456	W LEE
	102590-96-D-2786	3042200B	07/19/96	02/28/97	440	R MORRIS
	102590-96-D-2787	3029200B	07/12/96	05/30/97	440	R MORRIS
	102590-96-D-2791	6841800B	06/14/96	09/27/96	440	R MORRIS
	102590-96-D-2848	3043500B	07/19/96	05/30/97	440	R MORRIS
	102590-96-D-2949	3076700B	08/02/96	11/15/96	854	P WEISS
	102590-96-D-3195	3099100B	08/23/96	09/12/97	440	R MORRIS
	102590-96-D-3196	3099400B	08/23/96	07/04/97	734	F NADER
	102590-96-D-3204	3094600B	08/16/96	08/31/97	456	W LEE
	102590-96-D-3600	3127400B	09/20/96	03/14/97	737	L JIMENEZ
	102590-96-D-3604	3127900B	09/20/96	03/14/97	737	L JIMENEZ
	102590-97-D-0380	3049400B	10/31/96	04/21/97	454	K COOK
	102590-97-D-0493	3149900B	10/11/96	09/12/97	849	S NICHOLS
	102590-97-D-0618	3177600B	11/27/96	03/28/97	849	S NICHOLS
	102590-97-D-0627	3161000B	10/25/96	02/09/97	854	P WEISS

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USPS*	102590-97-D-0628	3177700B	11/27/96	06/28/97	849	S NICHOLS
	102590-97-D-0673	3232700B	12/20/96	04/25/97	737	L JIMENEZ
	102590-97-D-0762	3247700B	01/15/97	05/31/97	737	L JIMENEZ
	102590-97-D-1228	3305300B	03/18/97	08/08/97	444	J DWYER
	102590-97-D-1615	3355700B	05/02/97	10/15/97	937	J MOORE
	104230-83-0-1902TO#92-23	6860600B	04/24/92	09/18/92	304	A WECHSLER
	104230-83-0-1902T092-22	6860500B	11/29/91	07/31/92	304	A WECHSLER
	104230-91-D-2291	6657300B	03/15/91	01/22/93	743	L JIMENEZ
	104230-91-H-1447	6657000B	01/25/91	01/17/93	737	L JIMENEZ
	104230-91-H-1447/TO	6657700B	07/05/91	01/31/92	729	A FINDER
	104230-91-H-1447/TO	6780100B	09/06/91	01/31/92	933	L JIMENEZ
	104230-91-H-1447TOTDB	6780300B	01/24/92	12/31/92	741	W LEE
	104230-91-0-0-1807/T0102	6871300B	04/29/94	11/18/94	440	R MORRIS
	104230-91-0-1807	6863600B	06/07/96	06/30/96	737	L JIMENEZ
	104230-91-0-1807	6880800B	05/06/94	03/31/96	440	R MORRIS
	104230-91-0-1807	6880900B	05/06/94	03/31/96	440	R MORRIS.
	104230-91-0-1807/T.O.#10	6841400B	09/09/94	10/14/95	440	R MORRIS
	104230-91-0-1807/T.O.102	6821400B	01/28/94	03/29/94	977	T DOERFLER
	104230-91-0-1807/T.01025	6862200B	03/11/94	09/09/94	456	W LEE
	104230-91-0-1807/TO	6821500B	02/25/94	09/16/94	398	J PUFFER JR
	104230-91-0-1807/TO 10259	6871200B	01/28/94	10/28/94	914	A LYNCH
	104230-91-0-1807/TOTBD	6831500B	10/07/94	09/30/95	937	J TAN
	104230-91-0-1807/T01025	6862500B	10/07/94	05/31/95	456	W LEE
	104230-91-0-1807/T010259	6862600B	11/04/94	05/31/95	456	W LEE
	104230-91-0-1807/T010259	6871400B	06/10/94	09/30/94	734	F NADER
	104230-91-0-1807/93-09	6860900B	12/31/92	12/31/93	849	S NICHOLS
	104230-91-0-1807T092-01	6800200B	09/27/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-03	6810300B	09/27/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-09	6830700B	09/27/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-10	6830800B	09/27/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-14	6860400B	09/27/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-15	6870300B	09/27/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-16	6880500B	09/27/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-17	6810400B	10/04/91	12/31/92	304	A WECHSLER
	104230-91-0-1807T092-18	6830900B	12/06/91	04/15/92	304	A WECHSLER
	104230-91-0-1807T09220	6890300B	11/22/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T093-01	6800400B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6810500B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6820800B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6831000B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6840600B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6850900B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6860700B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6860800B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6870500B	10/02/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-01	6880600B	09/25/92	10/31/92	304	A WECHSLER
	104230-91-0-1807T093-02	6810600B	10/09/92	10/30/92	304	A WECHSLER

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USPS*	104230-91-0-1807T092-04	6820300B	10/04/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-05	6820400B	10/04/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-06	6820500B	10/04/91	09/18/92	304	A WECHSLER
	104230-91-0-1807T092-12	6850600B	10/04/91	09/18/92	304	A WECHSLER
	104230-91-0179	3638600B	01/31/92	12/31/92	854	P WEISS
	104230-91-1807/T092-11	6840500B	10/11/91	09/18/92	304	A WECHSLER
	104230-91-1807T092-08	6820700B	10/04/91	09/18/92	304	A WECHSLER
	104230-91-9-1807T092-07	6820600B	10/04/91	09/18/92	304	A WECHSLER
	104230-92-D-2271	6780400B	05/01/92	09/09/92	722	A FINDER
	104230-92-F-399	4139400B	05/08/92	06/26/92	915	H HAGEDORN
	104230-92-Z-5490	4198700B	08/14/92	09/30/92	733	P ELLIS
	104230-92-0-3812	3638800B	01/08/93	12/31/93	854	P WEISS
	104230-92-0-3812	3638900B	01/08/93	05/27/94	854	P WEISS
	104230-92-0-3812TOADL003	3639000B	01/22/93	09/30/93	854	P WEISS
	104230-92-0-3812TOADL004	3639100B	01/22/93	01/31/94	854	P WEISS
	104230-93-D-0779T093-18	6890400B	01/22/93	01/31/94	923	A BALASCO
	104230-93-D-0877T093-10	6851100B	01/22/93	10/08/93	304	T ERICKSON
	104230-93-D-0941	6880700B	12/04/92	07/31/96	440	R MORRIS
	104230-93-D-0994	6870600B	02/05/93	09/30/94	722	B BROWN
	104230-93-D-0995	6861000B	02/05/93	04/30/93	734	F NADER
	104230-93-D-1040	6861100B	02/12/93	11/30/93	734	D KOLJONEN
	104230-93-D-1099	6861400B	04/02/93	08/31/93	831	A BOGHANI
	104230-93-D-1107	6870700B	02/26/93	11/30/93	340	J COLLINS
	104230-93-D-1159	6861300B	02/19/93	07/19/93	734	F NADER
	104230-93-D-1160	6840700B	02/19/93	12/31/93	753	K PASTERNAK
	104230-93-D-1315	6870800B	03/12/93	09/17/93	849	S NICHOLS
	104230-93-D-1454	6821100B	05/07/93	11/30/93	722	B BROWN
	104230-93-D-1534	6851300B	04/02/93	12/31/96	942	J OBBAGY
	104230-93-D-156	6861500B	04/02/93	09/13/93	734	F NADER
	104230-93-D-1608	6820900B	04/02/93	08/13/93	452	D SMITH
	104230-93-D-1703	6841200B	05/28/93	02/17/95	831	A BOGHANI
	104230191-0-1807/T01025	6862300B	04/01/94	12/30/94	737	L JIMENEZ
	1042309-91-0-1807/TO#TBD	6862700B	03/17/95	06/16/96	737	L JIMENEZ
	1042309101807T09002	6820100B	04/26/91	03/31/92	304	P BRENNER
	1042309101807T09030	6850200B	04/26/91	01/31/92	113	J KAPLAN
	1042309301611	6810700B	04/09/93	06/09/93	737	L JIMENEZ
	104239-91-0-1807	6861200B	02/12/93	07/19/93	456	W LEE
USSALEP	USAID/S.AFRICA	4877200B	03/17/95	11/10/95	218	S HURLEY
UTC UNRC	DE-AC05-84OR21400	5718900B	11/10/95	07/01/96	965	J DIECKMANN
VA HOSPITA		5344500B	09/29/95	09/20/95	882	R GREGG
VARO*	OSO704717	4737200B	08/26/94	12/31/94	172	J FOWLER
VERSAR		6458000B	02/09/90	09/30/92	942	M DIBERTO

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VERSAR	PONO554	4148600B	05/29/92	06/15/92	943	R LAMBE
VITRO		4457000B	02/03/95	07/11/95	459	L PACK JR
	TOD#406-4-03,TA74473-25	3040800B	07/19/96	07/11/97	459	L PACK JR
	TOD#410-01,TA74473-26	3040900B	07/19/96	07/11/97	459	L PACK JR
	TOD#410-3-01TA74473-21	4457600B	03/29/96	07/11/96	459	L PACK JR
	TOD#410-4-01,TA74473-27	3041000B	07/19/96	07/11/97	459	L PACK JR
	TOD#420-4-01,TA74473-28	3041100B	07/19/96	07/11/97	459	L PACK JR
	TOD#440-4-01,TA74473-29	3041200B	07/26/96	07/11/97	459	L PACK JR
	TODNO406-3-03TA74473-	4457400B	07/14/95	07/11/96	459	L PACK JR
	TODNO410-3-01	4457100B	07/14/95	07/11/96	459	L PACK JR
	TODNO420-3-01TA74473-	4457300B	07/14/95	07/11/96	459	L PACK JR
	TODNO430-3-01TA74473-	4457500B	07/14/95	07/11/96	459	L PACK JR
	TODNO440-3-01TA74473-	4457200B	07/14/95	07/11/96	459	L PACK JR
	VC-SC-74473	4455000B	08/20/93	07/11/98	459	L PACK JR
	VC-SC-74473	4455600B	12/03/93	07/11/94	459	L PACK JR
	VC-SC-74473-05	4455700B	01/07/94	07/11/94	459	L PACK JR
	VC-SC-74473-06	4455800B	01/07/94	07/11/94	459	L PACK JR
	VC-SC-74473-07	4455900B	01/07/94	07/11/94	459	L PACK JR
	VC-SC-74473-08/TOD#700-1	4456000B	01/14/94	07/11/94	459	L PACK JR
	VC-SC-74473-09	4456100B	01/07/94	07/11/94	459	L PACK JR
	VC-SC-74473-10	4456200B	01/07/94	07/11/94	459	L PACK JR
	VC-SC-74473-11	4456300B	01/07/94	07/11/94	459	L PACK JR
	VC-SC-74473-12	4456400B	01/14/94	07/11/94	459	L PACK JR
	VC-SC-74473/TODNO400-2	4456600B	07/15/94	07/11/95	459	L PACK JR
	VC-SC-74473/TONO2	4455200B	09/17/93	12/31/94	459	L PACK JR
	VC-SC-74473/TONO3	4455300B	09/17/93	10/31/93	459	L PACK JR
	VC-SC-74473,TODNO.001	4456700B	07/15/94	07/11/95	459	L PACK JR
	VC-SC-74473,TODNO001	4456800B	07/22/94	07/11/95	459	L PACK JR
	VC-SC-74473,800-T-1,..	4455500B	11/05/93	12/31/93	459	L PACK JR
	VS-SC-77473,TODNO.200-2	4456500B	07/15/94	07/11/95	459	L PACK JR
	74473-01	4455100B	09/03/93	12/31/93	459	L PACK JR
	74473-17,TODNO.001-2-10	4456900B	09/09/94	12/31/94	459	L PACK JR
VNTSC		6306300B	09/24/93	06/24/94	961	A BING
		6306400B	10/01/93	02/28/95	146	R MAYVILLE
	DTRS-57-93-D-00094	4466000B	08/27/93	08/18/97	943	B METZGER
	DTRS-57-93-D-00094	4466200B	10/21/94	10/15/96	943	B METZGER
	DTRS-57-93-D-00094,TTD	4466100B	09/30/94	01/30/96	943	B METZGER
	DTRS57-94-P-81265	4770100B	10/21/94	01/06/96	949	J CATMUR
	DTRS57-95-P-80795	5217700B	08/25/95	11/03/95	949	R HILL
	DTRS57-96-P-81171	5724800B	09/13/96	10/20/96	172	J WU
	DTRS57-97-P80111	3029100B	10/31/96	10/25/96	172	J WU
	DTR557-96-P-81171	3118300B	09/06/96	09/20/96	172	J WU
	OTRS-57-93-D-00026	6306500B	12/24/93	06/30/95	146	R MAYVILLE
	RA-1031,WONO.14	4435900B	06/10/94	07/29/94	831	T PARISH

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VOLPE NATL	DTRS-57-93-D-00026VA3209	6306200B	08/27/93	05/31/95	193	K BELTIS
VOLPE TRAN	DTRS-57-89-D-00085RA-3076	4333300B	03/05/93	07/30/94	440	T BURGER
	DTRS-57-93-D-00026*	6306100B	02/12/93	02/03/98	146	R MAYVILLE
WCG		3233600B	01/03/97	05/31/97	453	P RICHARDS
		3260700B	01/30/97	12/31/97	453	H GERBER
	TBD	3141600B	09/27/96	12/31/96	453	P RICHARDSON
WEHRAN		6757400B	01/31/92	04/30/92	923	A BALASCO
		6757500B	02/28/92	04/30/92	923	A BALASCO
		6757600B	04/24/92	01/15/93	923	A BALASCO
		6757700B	07/31/92	06/30/93	923	A BALASCO
	52097.05	4805300B	12/09/94	02/15/95	923	A BALASCO
WESTINGH	P086AG-SA-01768-OW	6771300B	08/23/91	11/15/93	969	A ARROTT
WESTINGHOU	AB23517N/DEAC0989SR18035	4832500B	01/20/95	01/30/95	183	G MELHEM
	864900/DEAC2193MC30247	4824000B	01/06/95	02/19/96	972	D WALLS
	PO NO AB34174	6495571P	05/14/93	06/14/93	183	G MELHEM
	SUBAB50649-N/DOEDEAC09	4591800B	02/25/94	03/16/94	183	G MELHEM
	86A868340V(BVS2700)	4138800B	05/01/92	05/20/92	969	S MATHIAS
	868G-DD-26822	4755400B	09/30/94	12/31/94	173	A ARROTT
WESTINGHS*		4182100B	07/10/92	07/21/92	969	S MATHIAS
WESTINGHSE		6574200B	07/27/90	07/15/92	969	S MATHIAS
WESTON	DAAA15-88-D-0023	6357900B	06/23/89	06/02/92	195	A GRAFFEO
WESTON *	LL-0621	6501100B	02/23/90	08/23/92	195	A GRAFFEO
WESTON, RF		6379200B	07/21/89	06/02/92	195	H DOUGLAS
WOODWARD		6784100B	08/23/91	07/15/92	943	T OLSSON
WOODWARD*		4105600B	03/06/92	09/05/92	943	T OLSSON

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Mr. HORN. What got me started in all this is the Internal Revenue Service having over $100 billion in uncollected debt, and which I regard as a national scandal, as you all know I regard it. And a lot of that is obviously based on bankruptcy of small businesses, individuals, so forth and so on.

But that's half the budget of Lyndon Johnson when he was conducting the Vietnam War, so it's not to be sneezed at. A hundred billion is sitting out there, and it's mounting still, shall we say.

My last question to you and my question to Mr. Wall is given the active role that Governors from South Carolina have played in the National Governors Association, have some of these success stories ever been on the panel of the National Governors Association? And has the South Carolina experience and the Ohio experience been part of that panel? I'm just curious how Governors are getting excited in the TQM approach.

Mr. FRAMPTON. I think Mr. Wall has a good answer for what's going to happen in that.

Mr. HORN. But South Carolina hasn't been on a panel then, I take it, to share the good news.

Mr. FRAMPTON. We've been on various panels, but none of that level.

Mr. HORN. OK.

Mr. WALL. Yes, Governor Voinovich is going to take over the chair in July, and one of the things he's promised to——

Mr. HORN. He's got to bring this with him.

Mr. WALL. Well, he'll bring the newest version with him, which should be twice as big again, I hope. But he's promised that that's going to be one of his major initiatives. And we're already working with the NG on how we're going to do that.

We hosted the National All States Conference on Quality where he spoke to the quality coordinators of all the other States, and they gave him a standing ovation when he said that he was going to try to do that. He got kind of excited about that. I'm not sure what kind of events and presentations are planned, but I know I'm going to be real busy at that kind of thing. It's going to happen.

Mr. HORN. Well, that's great, because I think the States are in the lead here. Justice Brandeis was right when he talked about the States as learning laboratories in our representative system.

Let me just take a look at a couple of things here in terms of your testimony and clarify those, then we'll get to more general questions.

I take it in Ohio you mentioned the degree of union cooperation, and you're heavily organized with employee unions——

Mr. WALL. Right.

Mr. HORN [continuing]. I assume, just as the California and the Federal Government is. What's the best way to get union cooperation, in your judgment, after looking at all of these different situations? Does something come to you on that?

Mr. WALL. Well, sir, we started out thinking that we were going to get everything planned out and then present it to them, and that wasn't the best way to do it. Learning and working together, I think, is the best way to do it. They're very sensitive to us having a virtual partnership versus a real partnership. And we went right

off the bat, made sure that they had equal representation to our process improvement teams.

One of the unions' chief concerns is that we're going to go out and make things simpler, faster, better, less costly, take less people, they're going to lose membership. We put a contract provision right in all the contracts which said that you can't think yourself out of a job. If you're on a process improvement team, and it used to take eight people 15 days to do, and now it takes five people 3 days to do, we're not going to get rid of everybody else. You're not going to have the same job, but you probably wouldn't anyway. We guarantee you a job, same kind of a thing. And our commitment is to retrain, move people around, deploy them where they're needed. So dealing with some of those kind of fears, I think, is the most important thing that we did.

Mr. HORN. I notice on page 6 of your testimony, you noted that 85 percent of the work force was taking basic training, up from 66 percent a year ago. And I remember you mentioned 3-day sessions, I believe?

Mr. WALL. Correct.

Mr. HORN. So I'm curious, how long is the typical session? Is it 3 days for the average State employee in Ohio?

Mr. WALL. Or longer, 3 to 3½. Some even go out to 4 days, depending on how they make it specific for their agency. But it is the full 3 days, and the Governor and Lieutenant Governor and all the cabinet members, all the union officials, everyone goes through 3 days.

Mr. HORN. Just once a year, or once——

Mr. WALL. It's the basic training. You're never done learning. You move into other kinds of just-in-time training. It's ground school, basically.

Mr. HORN. Now, does your office administer that training program, or does your personnel group in this——

Mr. WALL. Our office administers it, but we've developed a cadre of trainers within the agency, so they develop their own training plans. We have one centralized training so we all have the same jargon, same examples, so that we can all work together. And our trainers are made up of both union and management people. And we do a lot of cross-training, but we don't do that much of the training. We build capacity for the agencies to do it.

Mr. HORN. What is the typical curriculum for the basic 3-day——

Mr. WALL. There's three things. One of them is how to work on a team and use interpersonal communication skills to get along with each other. That sounds so simple, but that's one of the biggest things teams say is that they've never learned to work—in school, teamwork was called cheating—and so they're not all that good at that kind of a thing.

No. 2, we spent a lot of time on the actual problem-solving process, not skipping steps, starting out identify what you're currently doing, what do the customers want, what are the causes of the problems, collecting the data.

And the last thing is that giving them some skills and using some of the basic tools, how to use a flowchart, histogram, parameter. And then when they end, they go through a ready-set-go mod-

ule where they define a process improvement project that has a good likelihood of success.

Mr. HORN. I notice on the later page on TEAMS chart 1 that you moved from the number of team essentially in 1992 to 1993, you had 25, and now you have 1,558. I guess I'm curious in terms of teams, does a self-selection occur in the sense of a really eager State employee who volunteers? Do you put that kind of person to work? And how does that person get the message up the hierarchy when they're down there maybe at the entry level and have a million good ideas after a month——

Mr. WALL. Right.

Mr. HORN [continuing]. Six months or a year? How do you bring that person into the network and take account of that energy and talent and commitment?

Mr. WALL. And I'm not sure we do it as well as we should. But the way the process works is the people on the teams aren't just the nice people, aren't the people we like, aren't the most interjective people. The people are who does the work and who represents the whole system.

So the first thing you do is you figure out what the process is that you want to improve, and then you kind of look around and say, how do we make sure that the whole system is represented; and then you look around and you say, and who should we have on it? And we're careful to make sure that we have union representation on it and want to make sure that there's equal numbers of different kinds of people on it. But the key thing is who does the work. There's two ways that teams get formed.

Mr. HORN. Well, are you saying management, except for the union, you're getting in at the beginning is what I'm hearing.

Mr. WALL. Sometimes it's an all-union team.

Mr. HORN. Yes.

Mr. WALL. It would be possible to be an all-management team, depending on what the process was. But there's really two ways that form the teams.

Mr. HORN. Are there people right down there on the—let's say, with the plant analogy, the people that are on the floor that know what people really do and don't do, do they know who's conning the boss and——

Mr. WALL. They would be—85 percent of the teams that are representing here are the frontline people.

Mr. HORN. Right.

Mr. WALL. Yes.

Mr. HORN. So how do you get those frontline people on? Does management pick those in the initial stage?

Mr. WALL. It works two ways. Sometimes the steering committee, which, remember, is part labor, part management, charters these teams and prioritizes them depending on what they want to do, and even sometimes have a role in selecting who the people are. As we evolve and get smarter and trust each other more, they just bubble up from the surface. Someone says I was on a team last year that did this, and here's another problem. We want to form a team to figure it out. It's just a way of doing business rather than a special event.

Mr. HORN. How much help do you get from the union on picking people, then? Do you get quite a bit of help?

Mr. WALL. Yes. And sometimes we put help in parentheses, too, because sometimes we get involved in who has power and control versus how to serve our customers better. That's one of the chief things we are learning to overcome and is sometimes we have what's called fair share people that are people who benefit from the union's services but have not elected to pay the union dues completely, and that causes some problems.

Mr. HORN. That is the agency shop individual.

Mr. WALL. Right. Right. So we try to work together on that. But it's not an exclusionary process in any way. It's the people who do the work.

Mr. HORN. In other words, the union steward who is on the team from the beginning in relation to a particular process doesn't have a veto power of who goes——

Mr. WALL. Doesn't have a veto power. But here's what would happen. If I had a history of all the teams that I put together only having certain kinds of folks on it, the union would go to the steering committee and say, here is a pattern that we really don't like. We need to do something about it. And then it would change. There is veto power for the steering committees, though, by the way.

Mr. HORN. I see. On the 25 attempts that you had in 1992, 1993, they are essentially nonexistent now. They solved the problem. They were appointed to do something about crawl.

Mr. WALL. Correct.

Mr. HORN. They could be on other teams, but not that team.

Mr. WALL. Hopefully they're on other teams. Hopefully they're still monitoring the process and maybe improving it in another area with another team.

Mr. HORN. OK. Were there suggestion boxes in State agencies prior to this team effort?

Mr. WALL. Yeah, there were suggestion boxes, but frankly, we looked at the suggestion box as kind of a way of controlling suggestions versus encouraging them. And suggestion boxes also encourage people to jump to solutions where the improvement process asks you to first take a look at the process, define what the customers want, define what you're trying to do, look for the causes, and then fix what needs to be fixed; not the first thing you come up with.

So we have suggestion boxes. We also have an improvement process where we pay people for the amount they saved, and then we have the process improvement project, and they all kind of work together.

Mr. HORN. How does an idea get into the system now? Do they write you a letter? Where can it be cutoff, I guess is what I'm interested in.

Mr. WALL. Oh, yes. Well, the most common place for it to get cutoff would be the frontline supervisor who just doesn't want anything to do with it. And that's incredibly frustrating to an employee who's got a great idea and new tools and knowledge they want to do with. That's one of the advantages of having our unions there is they serve as the conscience for us sometimes and almost an appeals process, and if something can't get done—but it goes to the

statewide steering committee. I get involved rarely. But the agencies pretty much take care of that stuff themselves.

The other way that it gets cutoff, I guess I would say, would be the steering committee can do only so many things, so they have a process for prioritizing what they're going to do and what they're not going to do. So hopefully a lot of the things aren't cutoff, they're just put into the appropriate holding pattern sometimes.

Mr. HORN. Well, does the plane eventually land?

Mr. WALL. I hope so. And they're landing faster and faster all the time.

One of the things that I'm proud of, and you look at the statistics, is that over half of the teams that have ever been formed were formed in the last year. We're really making progress on getting that rolled out. And the goal wasn't how many teams we could do, but how to do it with it well. And to begin with, you just start off slowly with limited resources.

Mr. HORN. And what's the turnover on a process improvement team or just leaving in frustration factor, whatever you want to call it?

Mr. WALL. I wouldn't have specific suggestions to that. I do know that chartering of the teams takes away a lot of that turnover; that having a good facilitator takes away a lot of the turnover. I'm only aware personally of 3 formal teams where the people just disbanded out of frustration, out of 1,600. Now there may be more, but I'm only aware of that.

Mr. HORN. Is there a time set for a team to finish its task?

Mr. WALL. Usually there's a charter developed with a general outline of how long it's going to take, but that's negotiable depending on when they start draining the swamp, what do they uncover. It might take a little more time.

Mr. HORN. I found, in doing the reform business, we usually underestimate how long it's going to take.

Mr. WALL. And we underestimate how complicated the project we started on was, too.

Mr. HORN. One of the examples I've got to read on your last page, it just was unbelievable to me. And I wondered even under the old system, this should have been collected, you said teams are doing right by their customers. And at the—and tell me how to pronounce it—Massillon Psychiatric Center. M-A-S-S-I-L-L-O-N.

Mr. WALL. That's pretty close.

Mr. HORN. OK. A team looked into the process for getting new clothes to patients. When the team started, 55 days passed from when a clothing order was placed and the patient received new clothes to wear. Now it all happens in the same day. What did they do with the poor soul that's wearing the same clothes for 55 days?

Mr. WALL. It's really scary when you start uncovering these kinds of things. And, in fact, what you almost want to do is you almost want to try to blame people for bad things that happen, and that's one of the things you can't do.

We had another process that got rid of carbon paper, if you can imagine that. And my first reaction is why do we have that in the first place rather than good process improvement? I'm glad we're moving forward.

Mr. HORN. So you looked in the warehouses of Ohio that several tons of carbon paper were still being ordered.

Mr. WALL. Three different colors.

Mr. HORN. Three different colors. Great. Great.

Mr. WALL. Not anymore.

Mr. HORN. This is like when we took over for the first time in 40 years, we found a warehouse of agricultural yearbooks that had never been distributed. Plus the ice. I mean, you have all heard about that. We don't have ice delivered automatically every morning when a lot of us didn't know what to do with it and wondered why the ice bucket showed up. Sort of like the iceman cometh, to say the least.

You mentioned, Mr. Wall, a focus on the champions, those who embrace change and quality.

Mr. WALL. Right.

Mr. HORN. How can you shepherd along those organizations or teams so the disease spreads?

Mr. WALL. Well, I think that's probably one of the most important parts of our strategic plan is that we elected to really focus on the champions and figure out every way we can. I think this results book is a prime example of that. This goes to the press. This goes to the legislature. This goes to other States. We give it everywhere we possibly can. And people, the first thing they do is they look for their team.

Mr. HORN. Sure.

Mr. WALL. They look for how many they've got on their team. They brag about the whole thing, our Team Up Ohio events, our team competitions, our work with the private sectors. What we're really trying to do is find the people who want to make this work and then encourage them and reward them.

I just got a call from another State about someone from our State who was interested in applying. And they said what made them stand out head and shoulders was that they talked about their QStP efforts and how they had gotten everybody involved in it. And that to me is where we're really going to make some progress is where people are hired because of not their crisis management skills, but their ability to develop people.

Mr. HORN. Let me ask you both some of these questions. What's the best way to get down to the nitty-gritty as top leadership has to run around and do other things and isn't always there? How do you structure the agency when the Secretary of the Cabinet Department, or whatever, I don't know what you call them in Ohio, is off somewhere else? He can't be around. Now, there's often a deputy secretary that's supposed to worry about the nitty-gritty of the nut and bolts. Where do you see these teams reporting? Are they at a much lower level, or do they report directly to the chief executive of the agency?

Mr. WALL. I think that frequently the teams ought to report right to their direct supervisor, who, instead of being a traditional manager, becomes a leader, and their job is to make them successful. A lot of the teams, it just gets reported one step up.

Frequently teams also report to the steering committee just to educate people to know what's going on, which is kind of a cross-section of folks. But regarding your question about where it has to

go, we've got something we call—a lot of people do—they call the "Be" team. You know, they were there when you came, and they'll be there after you left. And the political people will come and go. It's those career civil servants that have to be the champions and that we have to keep involved in it and that are usually considered the guidance teams or the sponsors. And if something just isn't going well, that's where you need the champions, and that's where you need to build it into your legacy almost, so that when you're gone, it will continue.

Mr. HORN. Mr. Frampton.

Mr. FRAMPTON. One of the ways that we dealt with that was that we assign a member of our senior management team to act as a liaison to each team, serve several functions. The senior member of the management team can clear a lot of brush out of the way if the team is having trouble. He can keep them on track, and it also keeps that connection into our senior management team. We like our teams to report up to the top-level management.

Mr. HORN. Would the supervisor involved with the process that that team is reviewing and thinks they could do it a different way, would he be or she be in the meetings? And would that senior management liaison sit in on any of the meetings; does she sort of wander around and drop by sometimes when the team is meeting? How do they get the communication, what I'm after, from presence or from memos?

Mr. FRAMPTON. The manager of the process is always involved in the team. The person responsible for the process is involved. The senior management team member assigned to that would serve on an as-needed basis. They would come to meetings and spot—attend meetings, or if they were requested or needed by the team, they would be brought in.

Mr. HORN. We heard this morning on the Cadillac experience, the special office was created reporting directly to the chairman CEO. Have you created in some of these cabinet departments special offices in South Carolina and in Ohio?

Mr. WALL. Yes, I guess I would be considered a special office, reporting directly to the Governor and serving on the cabinet, and then each agency has their own quality coordinator. The vast majority of them report directly to the director. And I think you can just see which agencies are progressing the most versus what kind of champion that person is. It makes a huge difference.

Mr. HORN. What does the actual point in the hierarchy of the management connection—have you seen that make a difference in Ohio? Or was it strictly the personal skills of the individual who was committed to this rather than the hierarchial location?

Mr. WALL. Well, I believe the skill is always critical, but it sends a huge message to people that this is important when they are in the hierarchy at the level where they're—correct. We sort of learn from Xerox that you have to have a vice president in charge of quality, so to speak, to really make people sit up and take notice.

Mr. HORN. So who are typically the people in your various State agencies that would get this assignment to quality control that would report to the Secretary of the Department?

Mr. WALL. Now they are actually called the agency quality directors. They would be people who would serve on the senior manage-

ment team, people who would be at at least bureau chief level, probably the division chief level. They would be the folks who sit in and have the direct ear of the director.

Mr. HORN. But they are in the direct hierarchy prior to being picked for this assignment. Do you think this is an overload assignment or what?

Mr. WALL. In many times, it was a brand new position that got created and people went outside looking for quality experts, frequently from the private sector, to come in and fill that new role.

Mr. HORN. What series of characteristics do you think is needed to have a potentially effective quality coordinator? What type of past experience do they need?

Mr. WALL. I think that the skills themselves are relatively easy to learn. However, it is important to have some experience working with change, primarily. Anyone can learn, I think, how to use the charts and graphs, and you can get other people to be facilitators. But to understand how long organizational takes and to have the perseverance and persistence to overcome some of the natural frustrations that are going to take place, I think that is really critical, someone who has tried to shepherd something controversial through the ranks, that is the main skill.

Mr. HORN. Mr. Frampton, do you want to add anything to that?

Mr. FRAMPTON. I would, Mr. Chairman. One of the two main traits an individual has to have is basic professional knowledge of the skill and process and how to utilize the tools; they have to know how to bring that to the table. Social skills need to be very, very good, and I think those are a risk, if you rely on the power of the position, rather than the social skills, it is just terribly important. They need to have an appreciation for the problems that senior management has to deal with in an organization, and sometimes it is a bit easy to say, well, why aren't these folks doing this right now, without a real appreciation for some of the problems they may have to prevent them from bringing the process forward, like bad information systems or other things that could actually be tremendous barriers to an agency. So they need an appreciation for what top-level management has to deal with.

Mr. HORN. One underlying assumption of total quality management is the usefulness of teams, yet teams are not appropriate for every problem and every process. How have you handled that? Have you always used teams, or have you gone down to the individual taking a look at this thing, making a report and changing it?

Mr. WALL. You are absolutely right, you don't need teams for everything. Individuals can use the tools very effectively as well, and we have example after example of where a person took a look at what they were doing and figured out how to do customer expectations and a checklist and figure out how to do things better.

I think a team is used when you have a very complex issue or an issue that covers a bigger part of the system. But I would guess that most times you don't find a project that runs through one person, and if you only have an individual do it, they tend to rob Peter to pay Paul rather than fix the whole system.

Mr. FRAMPTON. What we try to emphasize is, the natural team is where we want to see most of the progress go on in evaluating the systems and using the tools.

One issue of surface that crossed jurisdictional boundaries into another organization or three or four across the entire organization, that is when it is brought to the management team, the charter group to deal with that and, during that chartering process, to evaluate or set the team up for success, sometimes it becomes very clear that it just needs to be done, and it is through that evaluation.

Mr. HORN. Is there anything, looking at the reverse, that you should be aware of to not appoint a team? What conditions have you ever had in that situation where you thought, the less we get into this one, the better off we are?

Mr. WALL. For us, that includes collective bargaining issues, that is one of the things we decided right off the bat. Hours of pay, wages, those kinds of things aren't going to be included in our process improvement projects. And sometimes we have taken a look at projects and said what, that is way, way too big; let's drop them down into bite-size kind of margins. But I don't think we have ever found anything that didn't lend itself to this kind of process. We stay away from morale, communication, and world hunger, things that are just—you know, you just can't deal with.

Mr. HORN. Is world hunger above or below communications in your priority list in Ohio?

Mr. WALL. They are policies that——

Mr. HORN. Well, the world hunger threw me for a minute, sorry.

Has the size of the organization affected the implementation of quality management? Are there some things you just have to either divide it into a lot of pieces to get at it, or can someone get a global team for a total large agency?

Mr. WALL. I guess it would depend on how much time and resources and commitment you wanted to put into it. I have seen examples; South Carolina has good ones; people have dropped everything and trained people for 3 weeks and really done a bang up job of things like your Motor Vehicle Bureau. If you are willing to put that kind of resources in, you can do it. Frequently we don't have time to do those kinds of things to divide things up.

Mr. HORN. Have either one of you had a chance to look at how much the average time is between the formation of a team to look at a process and when the results are in from the team, and when they are finally implemented, and to what degree have they not been implemented, even though the team might agree that this is the solution that management might have had another view and can you give us a sort of feel? Is it a 5-month gap, or 6-month gap, or 1-year gap, or 24-hour gap?

Mr. WALL. We actually have studied some of that stuff, and for a brand new team that has never done it before and has to learn, it's about 8 or 9 months.

Mr. HORN. For the team to do its work.

Mr. WALL. But that includes a do phase, where they have studied it to some degree, tried it to a small scale, and have the data to show whether it is better or worse than what we used to be doing.

As teams get more and more skilled, it goes down, and a number of things are done in 3 months routinely. So if I had to give you a number, I would say 6 months.

In terms of what gets implemented, it is kind of hard to answer that, because we tell them not to form a team if you are not going to implement something. But sometimes they have 37 different suggestions, and 29 of them were implemented. Did they get implemented or not? It is kind of a tough thing to call.

Mr. HORN. Do you want to add anything, Mr. Frampton?

Mr. FRAMPTON. I do. One of the things that we ran into early on is, the team would make recommendations, but senior management wouldn't write and implement those recommendations, and that became quite a sore spot for us, organizationally. So that was part of the reasoning for the liaison function we had with senior management participating with the teams.

Our expectation is, when the team brings a recommendation to senior management, it is ready for implementation, consensus has been built, that senior management is part of the team in the system to this and it is necessary to implement these issues.

So we work toward everything being implemented and working that out in the process. It is not a, "Here, you all, let's see what you do."

Mr. HORN. Let me ask you one last question. People talk about stakeholders. Let me name you five possible groups, and tell me if there are more. Taxpayers generally; the employees; the actual customers of the agency, who could be taxpayers or particular clientele among the citizens; unions; and perhaps the media.

Am I missing something there, as a stakeholder, that you look to? And if these are the five groups that have the broader constituency, the media through its communication skills, to what taxpayers, employers, employees, customers, unions, how do you prioritize your efforts, and how do you get them involved with your teams? Are most of these teams strictly employee teams, which include unions, or do we ever reach out and try to get some customer off the street or taxpayer?

They are all taxpayers, I realize, within the agency, but do we ever get other people from the broader world of Ohio and the broader world of South Carolina to sit in and provide a grass roots, what I would call a farmer that came to the legislature and they were held spellbound as he told them what was really happening out there?

Mr. FRAMPTON. We think that the definition really could be expanded somewhat to include, in our case, we see the Federal Government, or the IRS, as a stakeholder, as well as county and city government, and we do frequently involve outside folks in our teams. A good example was the trucking community, on an evaluation of our taxation system of the trucking industry, and they were involved with us in a 12-months analysis, with strong legislative recommendations to improve that process, which gave them a real appreciation of what we have to deal with, as well as us, about our appreciation of what the issues were.

But we frequently have those folks involved with us to evaluate whether it is the county association, municipal association, all

those people who have some say, and whether or not we can effectively simplify a system. We bring them to the table, gladly.

Mr. HORN. Mr. Wall.

Mr. WALL. The only other stakeholders are executive or legislative branches of Government are considered to be stakeholders, depending on what we are doing, and bringing the customers to the table is important.

Frequently we do have people who are just parents, for instance, being on a team dealing with how we are going to deal with children and those kinds of things. But probably more frequently is when we invite our customers in for portions of the team meeting. Rather than being there every Tuesday for 6 months, they come in when we are really looking at customer requirements or we have an idea and want to bounce it off people to see if we are on the right track or not.

Mr. HORN. In the Federal Government, we have a law that relates to the degree to which one can close a meeting on advisory councils, advisory boards, that many agencies and programs have. Do South Carolina and Ohio have a comparable law, and do these teams fall under it, where maybe an advisory board would fall under it? But to what extent has that been a problem?

I am assuming the teams sort of work without any posted agenda, and a lot of people could say, gee, I want to see what you are doing, and so forth.

So has that been a problem?

Mr. WALL. Actually, the teams are probably the most structured meetings I have been to. It doesn't follow Robert's Rule of Order, but it does follow very effective rules. They have ground rules right off the bat on what gets posted and where it goes. It hasn't been a problem. The teams themselves determine when they are going to be done and how they are going to move forward.

Mr. HORN. Any problems in South Carolina?

Mr. FRAMPTON. No problems in South Carolina.

Mr. HORN. I thank both you gentlemen. It has been helpful. You have lived on the firing line with doing an effective, impressive job.

If you have a few of these more to spare, Mr. Wall.

Mr. WALL. I gave her about 36 of them.

Mr. HORN. OK. Thank you. We are going to spread that around in a few places in this town.

Mr. WALL. Let me know if you need any more.

Mr. HORN. We want the new edition when it comes out. How many of these did you print?

Mr. WALL. It is interesting, because we printed about 5,000, I think. What we do is, our general service agency has the orders there, and we let the agencies buy them themselves rather than come out of one particular budget, and I know some agencies want everyone to have one, so I am not sure how many have been printed.

Mr. HORN. That is a good idea. It spreads the disease. This is a good disease. Thanks so much for coming.

We now have panel four, and that will be Mr. Thomas Carroll, National Director for Quality, IRS; David Cooke, Director of Administration and Management, Department of Defense, who is accompanied by Anne O'Connor, Director of Quality Management;

Dr. Gerald Kauvar, U.S. Air Force; General James Boddie, Jr., U.S. Army, Captain Scott T. Cantfil, U.S. Navy; Lieutenant Colonel Tom Sawner, Air National Guard.

If all those witnesses would come forward, we would appreciate it. And as I think a lot of you know, we have a tradition here of swearing in the witnesses, so if you would rise and raise your right hands.

[Witnesses sworn.]

Mr. HORN. Right down the line, I take it everybody is affirming.

We will start, Mr. Carroll, with you, as National Director for Quality, Internal Revenue Service. Thank you for coming.

STATEMENTS OF THOMAS CARROLL, NATIONAL DIRECTOR FOR QUALITY, INTERNAL REVENUE SERVICE; DAVID COOKE, DIRECTOR OF ADMINISTRATION AND MANAGEMENT, DEPARTMENT OF DEFENSE, ACCOMPANIED BY ANNE O'CONNOR, DIRECTOR, QUALITY MANAGEMENT; GERALD KAUVAR, U.S. AIR FORCE; BRIGADIER GENERAL JAMES BODDIE, JR., U.S. ARMY; CAPTAIN SCOTT T. CANTFIL, U.S. NAVY; AND LIEUTENANT COLONEL TOM SAWNER, AIR NATIONAL GUARD

Mr. CARROLL. Thank you, Mr. Chairman.

Mr. HORN. We can't even give you a decent seat there. You are next to distinguished company, but you are almost out the door.

Mr. CARROLL. It won't be long.

Mr. HORN. One of these days, if Congress ever has a total quality leadership or management team, it is redoing the hearing room and the idiocy with which this room was designed. But I am not the chairman, so be it.

Mr. CARROLL. Thank you, Mr. Chairman. I am pleased to be here today to testify on IRS's total quality management approach to the way we deliver products and services to taxpayers.

I would like to summarize my statement in light of the number of witnesses that you have, and so just for the sake of history, to let you know we have been involved in the business improvement process since 1985, when we recognized that in order to have sustainable improvements, we needed to have a structured approach to those improvements. And we found, for us, the structure in the teachings of Dr. Juran. After working with him for sometime, we trained about 100,000 employees from the front lines to executives in continuous improvement techniques.

One of the issues around that training, just for your information, was at that time, in 1985, we did not understand that the taxpayers were our customers, and it was a cultural shock for us, I think, to go through a learning experience about who our customers were and what were our obligations to them, and it was in that regard that the training was very successful. I believe everybody now recognizes the taxpayer is our customer. How well we are servicing them is another question, but at least we have gotten over that hurdle.

In 1992, we created a plan for improving customer satisfaction and organizational performance, which is the basis for our TQM effort today, and it is focused on a system of partnership councils in each of our offices, one a national partnership council, and regional

and district and local councils. Those councils are comprised both of IRS executives and the National Treasury Employees Union [NTEU], representatives and officials.

On our journey so far, we have learned some—several—lessons that I would like to share with you. One is that in order for this to succeed, you have to encourage an environment, a great environment where improvement can take place and ensure that the organization has the tools or the infrastructure and the capacity to, in fact, practice quality improvement on a regular basis.

The second lesson we learned was that the management needed to have accountability, through establishing appropriate outcome measures, along with recognition programs, and just as the last panel showed you some books on how they publicize good things that are going on, that kind of activity is critical to sustain these kinds of efforts.

I just want to talk about a couple of our efforts here. There are many in the testimony, but a couple of them, I believe, are particularly significant. One is our TeleFile program where we now have 26 million taxpayers able to file Form 1040 EZ over the telephone. This year, 5 million of the 26 million in fact did that, resulting in greater satisfaction on their part and significant savings and accuracy in taxpayer hours. In takes about 10 minutes for a taxpayer to file their return that way.

The other significant thing that I believe we have done through this effort is create our Internet Web site. We used a process of actually going out and benchmarking against other organizations to see what a good Web site would look like.

As it turns out, folks are now coming to us to benchmark against us, and our Web site, because of the way it gets recognized, we have received over 40 industry awards. Last year, we had 117 million hits on our Web site, 4 million of which occurred April 15th. Taxpayers can get tax returns delivered to their home or their office directly through the Internet and answers to frequently asked questions.

Another one of the programs that I just wanted to share with you because of its crosscutting nature is, we have been concerned for some time with our inability to answer the telephone as frequently as taxpayers would like us to, and as we, in fact, we would like to answer it. And in looking at the problem, what we really found is, to some extent we were creating part of that problem ourselves by the notices we were sending to taxpayers inviting them to call us.

And looking through an entirely different process at the notice process, and revisiting the actual value that we were getting out of them, we were able to eliminate 21 million notices to individual taxpayers, with the potential for eliminating another 23 million. A fair number of those notices would have resulted in calls and other demands for services.

The third lesson we learned was that you have to have alignment around a common management value. We are currently opening dialog within the Service, talking about using the Baldrige criteria, which you have heard quite a bit about today, as a tool to help us assess our becoming a TQM organization.

In the past, we spent quite a bit of time focusing on our business results. We spent less time focusing on those other aspects of the Baldrige Award—leadership, strategic planning, customer focus, information analysis, human resource development, and systems management. We believed these would be a much more powerful tool for us to be focusing on.

And the fourth lesson that we learned, and as simple as it sounds, is you can't delegate process ownership to somebody else and systems improvement to somebody else. If you are responsible for the system, you in fact have to be the one that is accountable for it and you are the one that has to be the leader who can lead the effort.

In conclusion, I would just like to say that we have had a fair number of false starts, and just as private sector companies have, we viewed these false starts as opportunities. We still have a lot of work to do before the quality principles are practiced by all of our employees and all of our offices on a daily basis. However, we do believe we are on the road to that goal, and we appreciate the opportunity to be here with you today.

Thank you.

[The prepared statement of Mr. Carroll follows:]

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Statement of Thomas J. Carroll
National Director of Quality
Internal Revenue Service

Before the
Subcommittee on Government Management, Information and Technology
House Committee on Government Reform and Oversight

IRS' Total Quality Management (TQM) Approach
June 9, 1997

Mr. Chairman and distinguished Members of the Subcommittee, I am pleased to be here today to testify on the subject of IRS' Total Quality Management (TQM) approach to improving the way we deliver services to taxpayers. As you may know, IRS has been involved in Total Quality since 1985, and we have made important strides in ensuring that IRS business activities are focused on customers and that continuous improvement is an organizational priority.

Background

We, at the IRS, realized that for our improvement efforts to be successful, we would need to enlist the support and ideas of front-line employees. So that we could involve all employees, we developed one of the first cooperative agreements with the National Treasury Employees Union, NTEU, to create a partnership relationship. Joint union and management Quality Councils were formed at both the national and local levels, about 100 Councils in all. We provided two days of Quality Leadership Training to all 15,000 managers and union leaders in the organization, and all employees -- about 100,000 people -- were fully trained. Over the past ten years, this group has evolved into what we call the National Partnership Council, or NPC, and is made up of equal members of IRS and NTEU top management, including Bob Tobias, NTEU

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National President. There are also local Partnership Councils in each of our Regions, Districts, and Centers, about 45 Councils total.

Lessons Learned

Over time, we have learned several important lessons. I would like to summarize these points, then expand on them in my remarks. (1) First, you cannot mandate quality. You cannot achieve your goals if they are set arbitrarily, and unless adequate resources (staffing, dollars, training) are provided. You must create an environment that encourages continuous improvement, and ensure that the organization has the tools and capability to practice quality improvement on a regular basis. (2) Second, top management must be accountable for improvement. They must establish appropriate outcome measures consistent with the Government Performance and Results Act (GPRA), and establish reward and recognition systems that will stimulate appropriate behavior as the way of doing business. (3) Third, you must establish and stick to a common set of management values throughout the organization. (4) And fourth, in order to succeed, the entire business must have a stake in it, or have a sense of ownership.

Let me expand on these lessons learned. **First, you must create an environment that encourages continuous improvement, and ensure that the organization has the tools and capability to practice quality improvement on a regular basis.**

The role of the National Director of Quality has evolved along with the entire organization. Today I see my role as a catalyst to create an improvement-focused IRS

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by coaching line officials in the application of systems management techniques. The Service is creating an environment that encourages business improvement in several ways. Our National Partnership Council has recently reconfirmed its commitment to using the principles of TQM. This calls for officials who manage work processes (a set of linked activities that delivers products and services to taxpayers), and employees who work in those processes, to understand the work for which they are accountable. They must have data to know how well their processes are performing, and make sustainable improvements based upon the data. The commitment of the National Partnership Council to continue deploying systems management throughout the organization ensures that our quality efforts are supported at the highest level of the organization, and ensures that we continue to pursue improvements to our business processes in partnership with NTEU and the bargaining unit employees who work in these processes every day.

The National Partnership Council has established additional FY-97 goals to move us towards an improvement-focused organization. These include ensuring that local Partnership Councils use self-assessments against TQM criteria, developing measures of success for TQM deployment, and publicizing positive achievements within partnership arenas. The NPC goals also include using an internal all-employee survey as an instrument of organizational assessment and development, and holding meetings in all work units around the results of the survey, with the goal of improving organizational performance.

To support the commitment to using systems management, we have tools in

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place (e.g., training and improvement methodologies) to ensure that IRS employees have the capability to apply TQM principles. For example, we recently moved from in-house development of IRS-specific quality management courses, to the acquisition of more than 40 modules of off-the-shelf courseware that will be made available to all employees through several media, including our Intranet site. The research that led up to the acquisition of this courseware was done in a partnership environment, working jointly with NTEU.

We also provide consistent improvement methodologies reflecting the scope of our improvement efforts which range from simple process improvements to reengineering. In addition to these sanctioned methodologies, we have published other resources, such as an investment justification handbook, which includes guidance on preparing business cases for corporate investments like information technology.

Our second lesson learned dealt with top management accountability. They must establish appropriate outcome measures, and establish reward and recognition systems that will stimulate appropriate behavior as the way of doing business.

While we continue to improve our measurement systems to encourage the use of a systems approach to improvement, we are also encouraging our business units to seek both internal and external recognition for their successes. Recognition is a strong motivator to stimulate appropriate behavior. As early as 1992, the IRS Ogden Service Center received the Presidential Award. Here are more recent examples of recognition-winning improvement efforts:

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The TeleFile program was the recipient of the Public Employees Roundtable 1997 Public Service Excellence Award in the federal category. They are also a semi-finalist for the Ford Foundation Innovations in American Government Award. Thanks to TeleFile, taxpayers can use a touch-tone telephone to file tax returns. TeleFile is the first totally automated way of filing a federal individual income tax return, and is the IRS' most aggressive effort to cut paperwork. Millions of Americans are now able to file Forms 1040EZ by making a short telephone call (about ten minutes) to a toll-free number. Taxpayers use a personal customer service number which substitutes for the signature required on paper tax returns. Because this filing method is so much easier, it takes taxpayers about two hours less time to prepare and file a return than to prepare a paper tax return. The benefits (time savings for taxpayers) for FY 1995 were 682,000 hours and 5.8 million hours in FY 1996. The TeleFile returns were processed with an accuracy rate of 99.5% compared to 86.5% with paper (Form 1040EZ) returns.

The IRS has developed a world-class Web Site on the Internet that provides access to virtually all IRS forms and publications, plain language summaries of tax regulations, the Internal Revenue Bulletin, answers to the most frequently asked questions, and an array of other self-help tools. This service is available world-wide, 24 hours a day to anyone with a personal computer and access to the Internet. Three years ago, taxpayers requesting a publication or form either had to call the IRS to have the material mailed or they had to go to one of the

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IRS offices, their local post office, or library. This is an example where we began by benchmarking external best practices, and ended by being recognized as world-class, benchmarked by other organizations, and the recipient of over forty industry awards.

Brookhaven Service Center revised their procedure for processing large dollar and manual refunds, saving the taxpayers $19 million dollars in incorrect interest calculations during a 15 month period, and decreasing manual refund errors by 15%.

The Notices Reengineering team also had significant success in their partnership effort. This team has realized $17.5 million in savings from printing, postage and other costs associated with issuing taxpayer notices. (Notices are computer-generated letters to taxpayers about a variety of outstanding issues, e.g., miscalculations, missing signatures, missing Schedules, etc.) They eliminated 21.8 million individual notices, and they still have the potential for eliminating 23 million more. And the calculated savings don't even reflect the decreased frustration for taxpayers receiving erroneous notices or the decreased volume of calls we receive from taxpayers.

The Western Region centralized all district audit reconsideration requests in the Fresno Service Center which pre-screens and resolves many cases. Since implementing the new process, LA District Exam has received 59% fewer problem-resolution cases from taxpayers.

In the area of administrative systems, we have other examples that have

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resulted in significant savings to the taxpayer:

- The Employee Accounts Reengineering team was the result of a government-wide initiative involving 20 to 25 other Agencies. The effort has enabled individuals and their managers to update their own personnel and payroll data. The project included Employee Express, which allows employees to inquire and directly update discretionary payroll changes, such as Federal and state withholding allowances, direct deposits, savings allotments, and home addresses. By the end of FY 1996, employees were able to change health benefit enrollments, contribute to the Combined Federal Campaign (CFC), and make changes to their thrift savings plans through this system. Employee Express has been adopted by other Treasury Bureaus, including Customs and the Comptroller of the Currency. Other improvements included a direct flow of personnel actions from the initiator to records without Personnel intervention. Work Number for Everyone, an automated interactive voice response system for employment verification, as well as a human link between the customer and the new automated systems.
- A Supplies Reengineering Project streamlined the process of acquiring supplies so they can be ordered by and directly delivered to the customer normally within 24 hours from initiation of order, using a single approved supplier. Estimated savings are $6-$8 million per year.

Employees have been quite enthusiastic. The project leader for Employee Accounts Reengineering says her team members had never been in a position to have

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this big of an impact on the Service before, and they are very excited about seeing the results. The project leader cites this as "the most rewarding experience I've had in 30 years of government service." She felt that the other big plus was that "this was done in true partnership. NTEU representatives were full, active partners on the team and made major contributions to the success of the project."

Our third lesson learned was that you must establish alignment throughout the organization around a common set of management values. This lesson actually provides a glimpse into our future. The National Partnership Council has recently opened a dialogue within the IRS about using the Malcolm Baldrige National Quality Award criteria (also used in the President's award) as a self-assessment tool. I would wholeheartedly support this approach. These are widely accepted criteria by which to measure whether our business operations are moving toward total quality management. The value of a Baldrige-based assessment is not in the application for the award, but in better understanding your organization, and in improvement to management processes that can evolve from it. Although we have not focused on the seven Baldrige areas in the past as a framework for managing the organization, the use of Baldrige would help us focus not only on business results, but on leadership, strategic planning, customer and market focus, information and analysis, human resource development and management, and systems management.

We also need to ensure the organization is prepared for the kind of rigorous assessment the Baldrige criteria requires. This includes ensuring our leadership continues to work together toward a common business vision, that our strategic

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planning process is fully integrated with our budget activities, and that we continue to work on improving our measurement systems. All these activities are part of GPRA compliance and serve to align the organization's leaders and management systems.

Our final lesson learned dealt with process ownership. As simple as it sounds, you cannot delegate process ownership. In some of our prior efforts we established separate organizational structures to create the improvements. Based on those experiences, we are now focusing on the true business leaders as the champions needed to ensure sustained organizational improvements. This is true at the corporate as well as the local level, where we are moving toward an environment where the people who control the system at a local level are the ones responsible for improving it.

Conclusion

In these remarks, I have given you many examples of successes. In arriving at our successes, we have had a number of false starts, but just as in private sector companies, we have viewed these as learning opportunities in moving toward becoming an improvement focused organization. We still have work to do before quality principles are practiced on a daily basis by all of our employees. We are however on the road to that goal. We appreciate the opportunity to describe for you what a challenge we are undertaking.

Thank you very much.

Mr. HORN. Well, I thank you very much, Mr. Carroll, and I am going to question you now on IRS. There are only a few questions I have here. You did a very fine paper, and I enjoyed reading it last night.

If we might, I would like you to stick around though, because some of the discussion on defense, I might want your perspective as a Federal agency on that. Let's start with one.

You mentioned the need for an open environment to implement quality programs. How have you created an open environment in IRS? And I don't say that cynically, but you have, as I mentioned earlier, a law on confidentiality, privacy of taxpayer returns, and so forth, and various advisory committee laws of the Federal Government. So I am just curious, what did you do to create the open environment?

Mr. CARROLL. I don't believe it is open enough, and I think we need your help. The question you asked of the last group about their views of stakeholders and outsiders. Internal Revenue has operated in a rather insular way in looking at its processes specifically because of the concern about disclosure and other things.

However, I feel very strongly, and I believe the organization does as well, that many of our solutions exist outside the walls of Internal Revenue, not inside our walls, and that is only if we can reach out and participate with other parties and other folks about those solutions that we can readily deal with the problems and come up with the right solutions. So there is a fair amount of openness within Internal Revenue.

But I think that you have hit on a legitimate problem and barrier we do have, that we do need more help and advice. We are working with many of the States, we are working with the different representatives of taxpayers, the ALCPA, the AARP, the environmental association, and the like. But getting them to commit to full-time participation on a work effort is something that we haven't been successful enough at.

Mr. HORN. OK. I note on page 1 that it says, in the case of IRS, you had 2 days of training for about 1,000 people. Is that correct? It was 2 days of quality leadership training to all 15,000 managers and union leaders in the organization and all employees, about 100,000 people were fully trained?

Mr. CARROLL. That is correct.

Mr. HORN. So each was a 2-day training period.

Mr. CARROLL. It was a 2-day training period for all of those folks around who is your customer, understanding what your customer values, and it was a basic introduction to what is TQM and how is it that we want to operate in the future.

Mr. HORN. This was done at one time the 2 days, or was it spread over a long period?

Mr. CARROLL. It was done at one time. Subsequent to that though, about training, we have many targeted courses for practitioners of quality activities, leadership training activities, facilitation training, et cetera, for people using the tools.

Mr. HORN. Did the 15,000 managers and union leaders you trained—did they go back and do the training of 100,000, or did the same team that did the managers and union leaders do the training of the 100,000?

Mr. CARROLL. I can't remember.

Mr. HORN. Could we put it in the record?

Mr. CARROLL. Yes.

Mr. HORN. Check with the powers that be at the time. When did this training occur, roughly? What year are we talking about?

Mr. CARROLL. 1988.

Mr. HORN. Has anything happened since 1985, any training now, or did they train them once and say, "We have done our job"?

Mr. CARROLL. The original training was sensitivity training to what TQO was and to what our obligations were. We have since conducted, at the local level, many training classes on process analysis and all the techniques in systems management and improvement. I don't have the numbers for you as to the number of students who have attended them.

Mr. HORN. I take it then, the IRS has been engaged for 12 years in total quality management? Would you say it started in 1985?

Mr. CARROLL. We have been on that journey for 12 years.

Mr. HORN. Did they fully utilize the trained employees of 100,000 and put them in teams immediately, or was it something the training evaporated when nothing happened to it?

Mr. CARROLL. I think they did not go back, all 100,000 employees, not even a small fraction of those went back and actually practiced the training, although the training wasn't around practicing the quality techniques, it was sensitizing them to understanding who the customer was and the fact they would be learning more as time went on about what that meant to them.

Mr. HORN. OK. So this was sort of a human relations training and attitude changing training for the total quality management. I mean, is that what I am hearing?

Mr. CARROLL. Right. It was training about what total quality management is, not training on how to do it.

Mr. HORN. Now the National Partnership Council, you say on page 3, established additional fiscal year 1997 goals to move us toward an improvement-focused organization. Now are you the repository of these recommendations for this group as well as other process-oriented total quality management groups?

Mr. CARROLL. I am on the National Partnership Council, and I am the repository, I guess, of their activities. The activities that go on around the country, though, at the local partnership council levels are not fed back up to me or to the National Partnership Council on a routine basis.

Mr. HORN. Now are those on a regional basis of the IRS? In other words, does every regional director have a National Partnership Council for his or her region?

Mr. CARROLL. Every regional commissioner has a regional partnership council, and then every district director has a district partnership council.

Mr. HORN. How many districts are there now?

Mr. CARROLL. Thirty-three.

Mr. HORN. And how many regional commissioners?

Mr. CARROLL. Four.

Mr. HORN. I knew you would reduce the size of some of those, but I think you are right on the organization, you can spread it out a little more with the responsibility.

I am curious, though, in terms of those recommendations, and now the question I am going to ask you, I don't ask you to answer it as an official of IRS, I ask you to answer it simply as a human being who has been around there and seen these reports come to you in these recommendations.

At this point, do you as an individual, not speaking for the IRS, feel that IRS should undergo major structural changes? This isn't related, necessarily, to total quality management, it is related to the tremendous size of IRS.

You are, what, third most Government employees, with the Pentagon and Department of Defense overall would be No. 1. Forget the Post Office. We don't have anything to do with them now, or very little. And we have HHS, I suspect, in there, but I would think you are about third, aren't you?

Mr. CARROLL. We have 102,000 employees.

Mr. HORN. Then you lost 4,000 since last week because I have been having 106,000 in my mind.

You say it is down to 100,000.

Mr. CARROLL. 102 is my understanding.

Mr. HORN. Having dealt with all this paper and processes and partnership councils, is it obvious that IRS should undergo certain major structural changes?

Mr. CARROLL. As a practitioner of quality techniques, I think to jump to the solution, without having the data about what is driving you there, wouldn't be appropriate. But I would say that it is the right question to ask, but I really don't have the data to give you an answer to that, either as an IRS official or as a human being.

Mr. HORN. Well, I am not asking as an IRS official. I think the President has made a very good selection in terms of the proposed potential commissioner, and he comes with a lot of executive experience, which is what, in my humble opinion, IRS has sorely needed for about 50 years. He comes with an understanding of management, and modern techniques, and computerization, and so forth.

So I will let you off the hook on that, but I would think you ought to have some view, based on all the things you see from quality management improvements, it ought to either be obvious that the IRS should split its services and look at different aspects and maybe even have a different relationship to Treasury, or maybe just have a different relationship within itself.

I will give you an analogy of another agency, almost with the same initials, INS, Immigration and Naturalization Service, that has been argued for years that maybe they ought to separate their enforcement responsibility from their service responsibility. That is what I am thinking of.

Are there missions within IRS that really lead to great confusion and great time to—because of that confusion—versus a cleaner way to set up the agency to do its prime mission, which is collect the money from taxation?

Now here, as you know, there are numerous ideas you can have, a consumption tax, and they think they can exist without IRS. I don't see how that is possible. You still have to check, is the gross you are turning in the right percent in the consumption tax, and you have all the wonderful ideas from the Democratic leader at 11 percent, the Republican leader at 17 percent, of the across-the-

board bit that Mr. Forbes made so famous, and presumably that will limit what IRS is doing.

Again, how do you know they paid the 17 percent? To me, it is off the wall to think you are not going to need IRS when you change the tax laws. Granted, it won't be as complicated. That will be the day, I will be on Medicare plus by that time, and we will have some sort of cleaner way to do our job. And I just wondered if anything comes to mind, since you have seen all these ideas on how we can improve this process and that process?

Mr. CARROLL. Nothing particular comes to mind.

Mr. HORN. Nothing comes to mind, OK.

Now you say at the bottom of 3, "To support the commitment to using systems management, we have tools in place (e.g., training and improvement methodologies) to ensure IRS employees have the capability to apply total quality management principles."

Well, let me ask you, the commitment to using systems management, was that commitment focused prior to the $4 billion spent on computing that is going nowhere? And it seems to me that the first thing you would do in any human organization is figure out the systems and the logic of the systems before you start computerizing, so you know what it is you are computerizing.

So I was excited when I saw that you have all that support for using systems management and would assume that some of the systems were untangled, so that we didn't have to spend $4 billion, or was there no relationship between all the systems management and the expenditure of $4 billion on computer investment that is going nowhere? If the papers are correct, and if it is in print, well, then, it must be true.

Mr. CARROLL. My intention in the testimony was to talk about what we had today as opposed to what we had some time ago, and I do believe today that the—although Arthur Gross, our CIO, could better address the issue, I do believe the way we are attacking the modernization activity today is, in fact, around a TQO systems management environment where, in fact, we have a high level of success.

Mr. HORN. I notice on page 6 that you say, with notices reengineering team, "Notices are computer generated to taxpayers about a variety of outstanding issues (e.g.,) miscalculation, missing signatures, missing schedules."

As I read your reaction, I thought that was terrific. Did any of that notices reengineering team get into debt collection, by letters, and what the timing is on that?

Mr. CARROLL. Yes, they did. I don't have the information.

Mr. HORN. Could you furnish that report for the record? That will be included at this point, without objection.

Mr. CARROLL. Certainly.

Mr. HORN. And, let's see here. That is really it. Just a few little things I wanted to clarify in that.

Now we are delighted to have Mr. Cooke here, the long time Director of Administration and Management, Department of Defense, and those that accompany him.

We will have questions for all of you. And, Mr. Cooke, please proceed.

Mr. COOKE. Thank you, Mr. Chairman.

I would like to introduce the Defense members who have joined me today. Anne O'Connor is Director of Quality Management for the Department and reports to me. Dr. Kauvar is Deputy Director of Manpower Organization, quality, for the Air Force. Particularly privileged to have with us——

Mr. HORN. As long as you are going to go down the line, you will save me from asking five different questions if they are not only introduced but I would like to know to whom do they directly report.

Mr. COOKE. I directly report to the Secretary of Defense.

Mr. HORN. Right.

Mr. COOKE. Ann reports directly to me.

Gerry.

Mr. KAUVAR. I report to the Deputy Chief of Staff for Plans and Programs in the Air Force.

Mr. HORN. Deputy Chief of Staff, Plans and Programs. OK.

Mr. COOKE. Our next two witnesses, we are particularly privileged to have two commanding officers of DOD field activities, both of whom have earned Presidential recognition in the Presidential Quality Awards Program, because, in our judgment, quality management is not an office structured someplace, reporting to the Secretary or the Deputy Chief of Staff, it is not an end in itself, it is really not a program. It is an approach, a means, and statistical tools to optimize organizational performance, to meet customer requirements, and if quality management works, it is going to be the people in the field who undertake it as part of the responsibility for field command. It is not a separate thing that can exist in and of itself.

And these two gentlemen, General Boddie, who is Commander of the Army Research Development Engineering Center in Picatinney and Captain Cantfil, who was the Commander of the Naval Station Mayport, two of our military leaders who have gotten recognition for what they have done in quality control and their commands, and, again, I suggest to this—if this works for Defense, it is going to work because of the quality of leadership in the field.

And finally, we are pleased to have Tom Sawner, who is Deputy Director of Productivity and Quality Center at the Air National Guard.

Tom, who do you report to?

Lieutenant Colonel SAWNER. I report to General Sheppard, Director of Air National Guard.

Mr. HORN. Sheppard?

Lieutenant Colonel SAWNER. Yes, sir, Director of Air National Guard.

Mr. HORN. Based here in the Pentagon?

Lieutenant Colonel SAWNER. Yes, sir.

Mr. HORN. Just so I have it straight Captain Cantfil, which naval station was it that you were in charge of?

Captain CANTFIL. It was Mayport Naval Station in Florida.

Mr. HORN. M-A-Y-P-O-R-T?

Captain CANTFIL. Yes, sir.

Mr. HORN. Where is that located?

Captain CANTFIL. Greater Jacksonville area of northeast Florida.

Mr. HORN. And I wasn't quite clear; General Boddie, to whom did you report?

General BODDIE. I report to Major General Andrews, the Commander of the Tank Automotive and Armaments Command in Warren, MI, which is a subcommand of the Army Materiel Command, the General Wilson command here in Alexandria.

Mr. HORN. I just want to get the hierarchy straight.

All right. Proceed, Mr. Cooke.

Mr. COOKE. Defense began using quality management theories in the mid-eighties, particularly in the Air Force and the Navy and depot operations, and over the next several years its application spread from our manufacturing processes to service processes, such as hospital and travel pay, and eventually quality management theories were even applied to our headquarters processes. As a matter of fact, the Joint Staff in OSD have used the tools and techniques in the development of policy and guidance in the Department.

Today, most elements in the Department have integrated some aspects of this philosophy into their daily operations. Some organizations limit their use of quality management to activities, such as strategic planning or the use of teams to resolve problems, but others use the full range of quality theory, including baseline and followup surveys, strategic planning, metrics application, and team activities we have. And all these quality activities are based primarily on Deming, Dr. Deming, with his essentially four interrelated components he called System Profound Knowledge, and his famous 14 points were based on the four points.

Now we will say that we have heard, at least since I have been here, the IRS saying we followed Dr. Duran. I don't think anybody has mentioned Crosby, at least as long as I was here, but of the four leaders in quality management, many of their thoughts and principles are remarkably light. But in Defense, we are basing our defense quality management on Deming.

My statement gives you a whole series of examples of quality management in the field. I think you may wonder, why did they all come from the Pacific area? The reason for that is, a couple months ago, when we first gave you an example, many of them came from Europe and elsewhere. Anne O'Connor got back from a swing through the Pacific Rim and came up with these current examples of how the commands and activities in the Pacific are implementing quality management.

Very frankly, we tend to focus on the CINC's, HATCOM, UCOM, and the rest, and the theory that if we can get the CINC and his staff involved in quality management, the subordinate component commanders will come along as part of the CINC's activities, and that today has worked.

I will not go through each example listed in the statement. However, we are available to respond to questions on any and all of them.

How is our program doing? Well, over the years, I think one important measure of that program, there are awards in the President's Quality Awards Program. There are two types of awards in the program, the Quality Improvement Prototype Award, the QIPS,

and then the Nation's highest quality award in the Federal Government, the Presidential Award for Quality.

Mr. HORN. Let me just interrupt there, if I might. Just so I am clear, who grants these awards? Is it the White House? Is it the Department of Defense? What is the body that does these? I was rather fascinated by them.

Mr. COOKE. These are not Defense awards. These are awards covering the whole executive branch of the Government.

Mr. HORN. Who administers them?

Mr. COOKE. They are administered now by the Office of Personnel, the quality office, which is now part of Jim King's OPM operation.

Mr. HORN. OK.

Mr. COOKE. Applications for the awards are carefully screened by panels, just as the counterpart awards are in the civilian sector. And I want to boast a little that since the inception of this program, DOD units have earned 59 percent of the Quality Improvement Prototype Awards and 83 percent of the Presidential Awards. That is the highest award that can be earned in the Federal Government for quality.

You have asked what are the factors that contribute to a good quality program. One certainly is a commitment of leadership, from the top down. Unless we get the commitment of leadership up the CINC, General Joulwan in Europe, for example, it is not going to work. Another is the commitment and empowerment to the people in the field, who, as you have heard from our other witnesses here, have any number of good suggestions to make, if they are free to make them. Then, finally, we found that a facilitating office, in OSD, Anne O'Connor's office, is very useful in pulling these things together, and there are similar offices like that in the military departments and also in the Joint Chiefs.

Now for all of this improvement, we still have a long way to go. There is a change in the Department structure, and now the Quadrennial Defense Review, combined with increasingly high OPTEMPO, have added new challenges. We are trying to meet them in adjusting our implementation approach to them.

I could go on. We have a wonderful 90-minute video tape on quality we use in quality awards, but somehow I forgot to bring that.

Mr. HORN. Well, send it over sometime, and I will be glad to look at it.

Mr. COOKE. We work hard at it; we have. And I would like to offer for the record our Federal Quality Conference coming up about a month from now. This conference is here in Washington. It started out relatively small, and now there are only a few hotels in town that can handle the conference. It is a good program. We get large inputs from the field, and, again, I am not talking Defense alone, I am talking the Federal Government.

[The prepared statement of Mr. Cooke follows:]

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TESTIMONY

Mr. Chairman and members of the Subcommittee, I am pleased to appear before you today to discuss the implementation of Quality Management within the Department of Defense. The Department began using Quality Management theories in the mid-1980's within its Air Force and Navy depot operations. Over the next several years, this application spread from our manufacturing processes to service processes, such as hospital and travel pay operations. Eventually, Quality Management theories were even applied to our headquarters' processes. The Joint Staff and the Office of the Secretary of Defense have used these tools and techniques in their development of policy and guidance within the Department.

Today, most elements of the Department have integrated some aspect of this philosophy into their daily operations. Some organizations limit their use of QM to activities such as strategic planning, or the use of teams to resolve problems or improve processes; Others apply the full range of QM theory, including baseline and follow-up surveys, strategic planning, metrics application and team activities. From the Joint Staff at the Pentagon to the 35th Air Wing at Misawa Air Base, Japan, QM tools and techniques are actively used to improve DoD operations.

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Over the last several years, the Department has realized many benefits from its Quality Management implementation. In addition to the examples we provided earlier, a recent review of QM implementation at bases within the Pacific Command revealed additional improvements.

At Kadena Air Base, Japan, the 18th Medical Group improved the process of handling and storing their MREs, or Meals-Ready-to-Eat, used during typhoons and training exercises. Their efforts reduced MRE spoilage from over 6% in 1993 to less than .5% in 1996. With a minimal investment, the team saved almost $220,000 per year. Over the past three years, enough money has been saved to provide 3 meals a day to 1,500 troops for a 30 day deployment.

At Camp Foster in Okinawa, Japan, the Marine Corps Morale, Welfare and Recreation staff responded to customer input to change the focus of a base restaurant. The former restaurant had lost approximately $25,000 per month. Working with their customers, they created "The San Antonio Smoke House", which averages a profit of $5,000 per month. Patronage has increased from 300 customers per day at the old restaurant to 600 per day at the Smokehouse.

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At the Fort Shafter Army Garrison, Hawaii, the Contracting Office worked to reduce the contract administrative lead time and overhead for micro purchases. Working with customers and suppliers, they decided to make maximum use of the Federal Government's IMPAC card initiative. As a result, this method was used for 92% of transactions during FY96. At an estimated administrative savings of $92 per purchase, the Garrison saved over $1.3 million in procurement overhead costs.

At the U.S. Naval Hospital in Okinawa, Japan the staff wanted to decrease the anxiety of children scheduled for surgery. They developed an innovative pre-surgical visit for the children and their parents, which allows them to meet the staff and view the facilities, while the staff explains the surgical procedures. This initiative has greatly alleviated the fears of both the children and their parent(s), and has provided calmer surgical visits and faster recovery for the patients.

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Over the years, many DoD organizations have been recognized for their quality improvement efforts through the receipt of many different quality awards. The most important of these awards is the President's Quality Awards Program. There are currently two awards in this Program: The Quality Improvement Prototype Award, and the Nation's highest quality award, The Presidential Award for Quality. Since the inception of this program, DoD units have earned 59% of the Quality Improvement Prototype Awards, and 83% of the Presidential Awards for Quality.

For all of this improvement, we still have far to go. The rate of change in the Department's structure due to BRAC and other reorganizations, combined with a consistently high operations tempo, have added new challenges to our implementation efforts. We are meeting these challenges by regularly reviewing and adjusting our implementation approach.

This concludes my statement. I would be happy to answer your questions.

OFFICE OF THE SECRETARY OF DEFENSE
1950 DEFENSE PENTAGON
WASHINGTON, DC 20301-1950

ADMINISTRATION &
MANAGEMENT

17 DEC 1996

Honorable Stephen Horn
Chairman, Subcommittee on
Government Management, Information
and Technology
Committee on Government Reform
and Oversight
House of Representatives
Washington, DC 20510

Dear Congressman Horn,

This is in reply to your letter to Secretary Perry regarding the implementation of Quality Management within the Department of Defense. As you requested, we have answered the seven questions posed in your letter separately for each Military Service, and have also included a separate response for the Joint Community, including the OSD Staff, Unified Commands, and the Defense Agencies.

Overall, the DoD has a long history of Quality Management (QM) implementation. Today, almost all elements of the Department have integrated some aspect of this philosophy into their daily activities. From the Joint Staff at the Pentagon to the Fleet Industrial Supply Center at Yokosuka Naval Base, Japan, QM tools and techniques are actively used to improve DoD operations.

For all of this improvement, we still have far to go. The rate of change in the Department's structure due to BRAC and other reorganizations, combined with a consistently high operations tempo, have added new challenges to our implementation efforts. We are meeting these challenges by regularly reviewing and adjusting our implementation approach.

Thank you for the opportunity to provide input to this process. Should you have any additional questions, please do not hesitate to contact me at (703) 695-7042.

Sincerely,

David O. Cooke
Director

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QUALITY MANAGEMENT IMPLEMENTATION IN THE DEPARTMENT OF DEFENSE

Background: The Department of Defense began Quality Management implementation in the mid-1980's within its Air Force and Navy depot operations. Initially, many believed that QM theory, i.e., the Deming Management Method, would only work within manufacturing activities. Within a short time, however, the DoD was applying these theories in many of its service areas, such as its hospitals and travel pay operations. Eventually, these theories were also applied to headquarters processes, including the development of policy and guidance within the Major Commands of the Military Departments, the Office of the Secretary of Defense and the Joint Staff.

This paper is organized into five sections. This first section deals with Quality Management implementation within the Joint community, i.e., the Office of the Secretary of Defense, the Joint Staff, the Unified Commands and the Defense Agencies. The answers provided in this section resulted from a data call to the Joint Staff, all Unified Commands and all Defense Agencies. Following this section are an additional four sections, one each for the Army, Navy, Air Force and Marine Corps. The approaches within and amongst these organizations vary, as the DoD is both large enough and diversified enough to allow its leaders to customize their implementation to fit their specific mission. This approach has allowed for much greater innovation in implementation, which has, in turn, provided an environment where different approaches can be applied, studied and improved, and these streamlined approaches can be shared with other DoD organizations.

1. How would you rate the extent to which your agency has incorporated the principles and practices of TQM in your daily business?

The responses to this question ranged from "not at all" to "to a great extent." Between both the Unified Commands and the Defense Agencies, there is varied implementation. Some Commands/Agencies have strong programs, while others have decided to use just selected elements of this management theory. A very few of these organizations have not attempted any Quality Management implementation.

In the Unified arena, the Joint Staff and US Special Operations Command have particularly strong initiatives, while the Defense Commissary Agency and the Defense Logistics Agency lead the Defense Agencies in implementation.

2. Approximately what percentage of your subordinates' activities use TQM as a way of life?

Most organizations have not tracked this type of data, so only general information was provided. Most units thought that there were pockets of their organization where implementation was stronger than in other areas, usually due to the leadership in that particular area.

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3. What measures have you developed to determine the effectiveness of your quality programs?

A variety of methods were used to measure effectiveness. The most popular were customer surveys, followed closely by internal employee surveys and the Baldrige-based assessment criteria of the President's Quality Award Program. Some of the more advanced organizations had integrated their metrics into their Strategic Plans, in addition to performing customer and employee surveys.

4. Cite two or three examples of successful application of Total Quality principles and what you feel the real payoff has been.

Within **US Special Operations Command**, the 353rd Special Operations Group (Kadena Air Base, Japan), saved more than $2 million per year in aircraft repair man-hour costs by revising its maintenance procedures on repair of C-130 aircraft propellers. The Group formed a process action team (PAT) which looked into the causes of propeller malfunctions. Upon discovering that the overwhelming reason for repair was leakage, the PAT recommended installation of an inexpensive seal at regular intervals. As a result of the improved process, props are being removed only 1.66 times per month as opposed to 3.2 times before the change. Propellers on the Group's aircraft now routinely exceed the Air Force standard for reliability every month.

The **National Security Agency's** Material Receipt and Acceptance Center created the "Crossdocking" warehouse distribution system, which allows material to be turned around as rapidly as possible, usually within one day. This effort reduced average processing times from 10.3 days in FY94 to 2.59 days in April 1995, cut 320 man-hours per month, and reduced Prompt Payment Act penalties from $38,000 to less than $100 per month.

The **Defense Logistics Agency's Defense Contract Management Command** teamed with the **Defense Contract Audit Agency** and their customer **Buying Activities (Army, Navy, Air Force buying commands)** to reduce oversight costs for government contracts. They established teams at ten major defense contractor locations to identify government oversight cost drivers and related cost premiums, assess if the degree of government oversight was appropriate based on risk, and identify and implement management and manufacturing process improvements to reduce oversight and related cost premiums. Annual savings achieved by this initiative are $11.2 million.

The **US Strategic Command** streamlined their Strategic War Planning System. This effort enables real-time updates of the existing war plan through continual updates and reduced production cycle times from 18 months to 6 months with 130 fewer people and an approximate annual savings of $13 million.

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The **Joint Staff** has realized several improvements since its implementation of Quality Management. On the recommendation of a Process Action Team, the Joint Staff further improved its process for providing military advice to the National Command Authorities. Before preparing information packages on a particular issue, Action Officers require "top-down guidance" from leadership early in the package development cycle. Per the PAT recommendation, copies of all Action Officer taskings are now provided to the front office leadership first for some "Top-Down guidance." The informal guidance is then forwarded down the chain to the Action Officer. This initiative has been adopted by the entire Joint Staff and a modification to the 'tasking form' has been made, allowing space for guidance and more efficent preparation of information packages.

In its Message Processing Center, the Joint Staff saved resources and time with a recommendation for reorganizing message handling which uses less paper and more electronic distribution.

5. For those examples cited in response to question 4, please provide a prioritized list of the top three reasons, in your opinion, for the success.

The results in this area were clear: **Leadership** was the essential element in successful implementation efforts. The support and direct involvement of senior leadership was key in both initiating and sustaining quality improvement efforts. Leadership must clearly define the effort, from the vision, mission, goals and objectives in the Strategic Plan, to the Process Action Team Charters which will accomplish these goals and objectives.

The **involvement and empowerment of the workforce** were another key ingredient in improvement efforts. The **training and education** of all of the workforce, from the senior leadership to the Process Action Team members, were the foundation upon which improvements were built. Once this training was accomplished, the workforce could be properly empowered to improve processes.

Many organizations also credited the efforts of their **full-time Quality Management staff**, who coordinated and facilitated the improvement efforts for their organization. While respondents acknowledged that these offices do not lead the effort (Senior Leadership must do this), the QM office staff provided the backbone logistics support which facilitated improvements. Some organizations also strongly credited the involvement of **outside facilitators and consultants** as the experts who brought a strong depth and breath of experience to the table.

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6. For those activities that have seen little or no improvement in their operations and customer satisfaction, please provide a prioritized list of the top three reasons why, in your opinion, implementation of quality programs has been less successful than expected.

The **lack of strong leadership support** was the top reason cited for a lack of success in improvement efforts. In some cases, the implementation began with strong senior commitment, only to have the original leader retire or transfer. If the new leadership did not exhibit the same commitment, the effort could falter.

A **lack of good training** was the second reason cited for less than successful improvement efforts. Top quality training and facilitation eased the way for quick process improvement. The lack of this support caused false starts and slowed or stopped the overall effort. Often, insufficient training is provided to key QM staff and leadership at the start of the implementation and, without this training or expert assistance, the effort quickly goes astray.

The third impediment to success was a combination of factors, all falling into the category of "**change.**" Many organizations listed an unremitting barrage of changes, including regular reorganizations, BRAC realignments, senior management turnover, continual downsizing and the pace of technology changes as challenges which slowed or stopped their efforts. The implementation of Quality Management practices takes an investment of time, and many units felt that all of their time was absorbed by responding to changes and helping their workforce adjust to actual or potential upheavals.

7. Please summarize the lessons your agency has learned and what might be done differently to improve the learning and application of quality principles.

The key lessons learned are as follows:

The key essentials for successful implementation:

- Top Leadership commitment and active support.
- Senior Leadership must receive training.
- World-class training and facilitation support.
- An investment of time for the effort to take hold and produce results.
- A tailored approach to implementation which takes into account the unit's mission.
- A Strategic Plan with a reasonable number of goals, tied to metrics.
- Stay the course; Don't drop a proven method (QM) just because something new comes along.

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United States Army's Statements to Congressional Questions:

In July 1996, the Army performed a major command assessment concerning the institutionalization of quality in the Army. Eighteen major commands participated in the survey. The answers to the questions are based in part on this survey.

1. How would you rate the extent to which your agency has incorporated the principles and practices of Total Quality Management (TQM) in your daily business? Use the following four categories: not at all; to some extent, that is, less than 50 percent; to a great extent, that is, more than 50 percent; completely.

General Accounting Office Report # B-249779, March 31, 1993, reported that 52 percent of the Army installations surveyed by GAO reported being in the early phases of integrating TQM in their daily business. More than 63 percent of the installations implementing TQM reported beginning TQM efforts within three years before the date of the survey. Today, more than 50 percent of the Army report that they incorporate the principles and practices of TQM to a great extent to change the way they do business. A cultural explosion is occurring as the Army integrates quality improvements in daily operations for long-term success. Army senior leadership is personally involved in creating an environment that promotes team building, innovation, and constant renewal.

Army Vision 2010 is the blueprint for the Army's contributions to the operational concepts identified in Joint Vision 2010. The vision creates a conceptual template for how the United States Army will channel the vitality and innovation of its soldiers and civilians, leveraging technological opportunities to achieve new levels of effectiveness as the land-component member of the joint warfighting team. Also, Army Vision 2010 serves as a linchpin between Force XXI, the Army's ongoing process to manage change and advance into the 21st century with the most capable Army in the world, and the Army After Next (AAN), the Army's emerging long-term vision. The Army's refined focus is supported in the Army Strategic Management Plan that identifies goals and short- and long- term objectives.

2. Approximately what percentages of your subordinates' activities use TQM as a way of life? List the percentages in terms of subordinate level, such as below GS 15 or below GS 12.

The Army does not maintain this type of data. However, 83 percent of the Army uses the principles of TQM and has integrated it into their daily operations. Seventy-eight percent of Army organizations have a strategy to institutionalize quality.

Organizations within the Army are developing strategic and implementation plans to embed TQM as a way of life. Army organizations are performing organization self-assessments to identify their strengths and areas for improvement. They are using a common framework known as the Army Performance Improvement Criteria (APIC), a Baldrige-based criteria. It is a comprehensive and integrated change management framework, allowing an organization to assess its approach, deployment and the results of its effort to change. The criteria help the Army to improve performance practices and capabilities; to facilitate communication and sharing of best practices

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information; and to focus on customer needs and requirements. Army organizations are advancing in identifying efficiencies, costs savings and cost avoidances by integrating quality management practices with their self-assessments.

3. What measures have you developed to determine the effectiveness of your quality programs?

The Army has a strategy to institutionalize quality throughout the Army. Measurements are defined through the use of various programs such as the President's Quality Awards (PQA) Program, the Army Communities of Excellence (ACOE) Program, and other public and private recognition programs. Over the past three years, the Army's participation in the PQA Program increased from 6 applications in 1994 to 27 applications in 1997. The Army has been the proud recipient of PQA Program awards for the past three years. In 1996, the Army was the sole winner of the Presidential Award and the Quality Improvement Prototype Award. The ACOE Program has adopted the APIC as its award criteria. The ACOE program is a commander's process that takes advantage of entrepreneurs within the community to develop better ways of assisting people in accomplishing the mission. Fifty-five installations participated in the ACOE Program, with 32 selected for awards.

Organization self-assessments and the APIC are becoming entrenched in the institutional Army. The Army's strategy for the operational Army, involving all warfighters, is to introduce the APIC gradually.

The Army is also using lessons learned and success stories to enhance the integration of TQM initiatives across the Army. This reduces duplicative effort and maintains the overall vision of the Army.

4. Cite two or three examples of successful application of Total Quality Management principles and what you feel the real payoff has been.

- Armament Research Development Engineering Center (ARDEC), Picatinney Arsenal, New Jersey (1996 Presidential Award Winner - Sole federal organization winner for this category)

ARDEC conducts or manages research, development, and life-cycle engineering for products that provide 90 percent of the Army's conventional armament lethality. ARDEC ranks among the best as a world-class organization through committed leadership, communication, employee involvement, customer satisfaction, and continuous improvement. ARDEC's strategies for future successes are focusing on using the principles of TQM, focusing on public responsibility and citizenship, enhancing teams, using the PQA criteria, and achieving real reengineering. The return on investment is identified through various means such as:

-- Reduced soldier exposure to enemy fire by reducing fuze setting time by 65 percent while reducing test costs by one-half; decreased mortar response fire time by 800 percent.

-- Increased the barrel life for the Bradley Fighting Vehicle gun by 50 percent while reducing costs by 30 percent.

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-- Increased the reliability of the Grenade Machine Gun by 300 percent while reducing costs by 10 percent, delivering a superior weapon that is less than half the cost of the nearest competitor.

- U. S. Army Tank-Automotive Research, Development and Engineering Center (TARDEC), Detroit, Michigan (1995 PQA Winner - First U.S. Army recipient of PQA)

TARDEC is the nation's laboratory for advanced military automotive technology. TARDEC's mission is to conduct research, development, and engineering to maintain global technological superiority in military ground vehicles and advance the role of science in the greater national interest. TARDEC has flattened its organization and promoted teaming, empowering employees, and customer satisfaction. TARDEC's improvements shone through when the organization:

-- Benchmarked Milliken and Company, changed TARDEC to a customer-focused organization, and reduced the number of suppliers from over 1,000 to 367 in a two-year period.

-- Benchmarked Texas Instrument's Defense Systems Group, empowered business teams, and replaced five layers of management and an organizational structure with a straight-lined TDA and 113 self-directed
product /service teams.

- U. S. Army Infantry Fort Benning, Fort Benning Georgia (Finalist in the 1997 PQA Program)

Fort Benning is the "Home of the Infantry." Every Infantry soldier or officer in the Army begins his or her career at Fort Benning. Fort Benning's concentration is on being the lead in customer focus, quality products and services, and continuous process improvements.

-- The Process Action Team developed an automated inprocessing system that provided appointments and a network that links all workcenters and shares personnel data. This improvement allows commanders to receive soldiers more quickly with a better assessment of individual readiness. The results increased productivity of 14,940 annual persondays and an estimated savings of $846,000. Cycle time went from 5 days to 2.1 days. Waiting time was reduced from 22 minutes to 5 minutes. Customer satisfaction went from frequent complaints to 96 percent favorable, with a rating of 4.8 on a 5-point scale.

The real payoff of these and other Army organizations that are using the principles and practices of TQM is that the Army is doing things smarter. Employees are believing they are empowered to make changes and their ideas and suggestions are valued. Leaders and employees are being held accountable for their missions and they understand where the Army is going in the 21st Century.

5. For those examples cited in response to question 4, please provide a prioritized list of the top three reasons, in your opinion, for the success.

- Leadership commitment and personal involvement. Leaders share their values, expectations, purposes, customer focus concepts, and continuous learning; leaders communicate and reinforce

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these by their interactions among the workforce. Leaders must lead, motivate, and nurture the TQM process.

- Employee involvement and teamwork. Successful Army organizations create an environment of genuine employee involvement and teamwork that actually works. Employees' insight and input are valued and used to improve processes, products, and services. Communication is a major factor in maintaining an environment that makes everyone feel that they are part of the big picture and that their innovative ideas and suggestions are acknowledged.

- Education and training. Army organizations that are dedicating resources to educate and train their soldiers and civilians in TQM practices and principles are advancing to a state to survive in the future. These organizations have trained and educated their employees to perform at their maximum level. The organizations have provided them with employability security.

6. For those activities that have seen little or no improvement in their operations and customer satisfaction, please provide a prioritized list of the top three reasons why, in your opinion, implementation of quality programs has been less successful than expected.

- Lack of leadership involvement. Senior leaders may have shared the same views; however, they did not commit their time and become personally involved in the process.
United States Army's Statements to Congressional Questions Continued:

- Lack of a strategic plan that focused on a vision, mission, and goals. There was no implementation or business plan that identified specific actions to the goals. Also, employees did not understand how they fit into the big picture.

- Lack of a strategy to train and educate employees in TQM practices and principles. Employees did not have sufficient information on how to implement TQM and use TQM tools.

- Insufficient management support for the employees.

7. Summarize the lessons your agency has learned and what might be done differently to improve the learning and application of quality principles.

The Army decentralized the effort of institutionalizing TQM in 1988. In review, there are pockets of excellence throughout the Army. The Army has various levels of implementation throughout all organizations. The Army is defining a strategy to align the organizations within and synchronize the efforts of implementing TQM. The implementation of quality must be driven from the top down, with senior leader involvement. Currently, the Army is developing a strategy that will cut across the entire Army.

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DEPARTMENT OF THE NAVY
TQ IMPLEMENTATION INFORMATION

1. The Department of the Navy (DON) began over a decade ago to use Total Quality (TQ) concepts and methods for the purpose of improving organizational performance. The goal was to help Navy and Marine Corps organizations to meet new challenges with declining resources. The benefits have been many: with an emphasis on quality, productivity has increased and costs have been reduced. Most importantly, operational readiness of our Navy and Marine Corps has been enhanced.

The DON has incorporated the principles and practices of Total Quality (TQ) in daily business operations more than 50 percent. This is based on a survey that was conducted by the DON Total Quality Leadership Office, visits to field units, discussions with military and civilian TQ representatives, and the results of a GAO study. In 1993, a GAO study found that 92% of the DON installations responding to the survey were in various stages of TQ implementation, with 49% responding that they were in the early phases of implementation. In 1995 the Department of the Navy Total Quality Leadership Office conducted a survey of 2169 commands and found that 69% were implementing TQ above the early planning stages.

2. Where TQ is successfully implemented, people work in teams at all levels of the organization. They are engaged in process improvement. The top management of an organization comprises the executive-level team; these members lead and guide the effort. Managers from different functions who "own" part of the work process and have decision-making authority are members of improvement teams. Lower-level teams collect process data and make recommendations to the improvement teams about changes to work processes.

3. Over the past several years the DON has been recognized for its TQ efforts by a variety of public and private sector organizations. Since 1992, DON activities have received 24 major quality awards, including two Presidential Awards for Quality, awards from the states of Maine and Florida, and the *USA Today* Quality Cup. The DON conducts periodic surveys to measure the extent of implementation and effectiveness of TQ. The DON will be conducting a survey in early 1997 as a follow-up to the 1995 survey mentioned above.

4. The Navy has many examples of successful application of TQ principles.

SHORE INTERMEDIATE MAINTENANCE ACTIVITY (SIMA) - CALIFORNIA
"Intermediate maintenance" describes a level of repair that falls between routine, onboard repairs done by ships'crews and the extensive industrial repairs done by Navy and commercial shipyards during overhauls. SIMA San Diego's mission is to provide intermediate maintenance support and training to more than 100 major customers, including ships, submarines, shore activities and other commands of the U.S. Pacific Fleet and the Coast Guard. It is the second largest ship

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repair facility--public or private--in California. SIMA has 2,400 military and civilian personnel employed in 70 industrial work centers.

SIMA San Diego has developed metrics for measuring quality improvement in several areas. For example, SIMA's principal customers-- the commanding officers of supported ships--rate the quality of SIMA's services at the conclusion of every ship repair. In 1996, more than 80% of SIMA's customers rated the quality of repair work "outstanding," compared to only 70% in 1994.

Through strategic planning and process improvements, SIMA made improvements in every area of operational performance over the past several years. Some of the most important key performance indicators include:

- The number of completed jobs relative to production manpower available has risen 24% while the work force decreased 5%.
- Material cost per unit of work has decreased more than 10%.
- Billable work hours have increased 19%.

SIMA San Diego conducts ongoing TQ training. It also conducts aggressive inspections for environmental compliance to control hazardous wastes. Through process improvements and the inclusion of employees in monitoring and reporting of environmental hazards, the command has saved $700,000 in the past three years.

NAVAL STATION MAYPORT (FLORIDA)

Naval Station Mayport is one of Jacksonville, Florida's major employers, contributing more than $1.5 billion annually to the local economy. It is one of the largest naval facilities in the U.S. and operates much like a small city, with more than 17,000 workers; 1,300 resident families; and more than 90,000 family members and retired service members relying upon its services. Mayport is both a seaport and airport, offering complete airfield operations and aviation maintenance services for squadrons and berthing/"hotel" services for ships and their crews.

The base budget dramatically decreased and yet the level of services it provides to workers and residents has not diminished, with the number of ship moves in the harbor has increased from 980 in FY93 to 1,688 in FY96.

To ensure that the Naval Station Mayport is meeting the needs of all its customers, all departments have developed strategic goals to support the overall organization. Customer feedback systems and key quality indicators that relate to customer satisfaction have been developed and are monitored. Naval Station Mayport uses more than 100 quality indicators to assess performance. It monitors all key metrics, including customer satisfaction. Information collected from the data is used for planning, day-to-day management, monitoring of operational and quality performance, improving work processes, improving personnel effectiveness, and helping to identify customer needs and satisfaction.

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Using a teamwork approach and by empowering people, the Naval Station has saved more than $18 million in two years. Efficiencies have been achieved in several areas; however, primary savings have been in aviation maintenance, hazardous waste minimization, and harbor services. The savings have been used to cover budget shortfalls in key functional areas and to maintain operational readiness. Other quality initiatives included development of a central database to manage complaints and compliments, improved customer feedback systems, increased recognition of employees and setting of quality standards in all areas.

To ensure the quality philosophy was injected into all levels of leadership, the Naval Station opened a Quality Academy in 1994. It offers seven courses in quality management techniques; more than 3,000 students have been trained to date in quality theory and practice. For Mayport employees, training in TQ is a requirement.

Naval Station Mayport was the 1994 winner of the Florida Governor's Sterling Award for Quality, and was a finalist for the 1995 President's Quality Award.

NAVAL AVIATION DEPOT ALAMEDA (CALIFORNIA)

Naval Aviation Depot (NADEP) Alameda was a finalist for the 1996 President's Quality Award. It used TQ principles and methods in closing down as a result of BRAC (Base Closure and Realignment Commission) action. Its leaders determined that closing was a process that could be managed well or poorly and they decided to close in a planned, systematic way.

When the closure process began in 1993, it employed 3,500 permanent civilians and 35 military employees. It occupied 99 buildings with a total-covered facility area of 2.5 million square feet. Industrial plant equipment was in excess of 27,000 items. The annual operating budget was $370 million. Workload included maintenance, engineering, and logistic support for a number of systems, including three aircraft programs, five engine programs, and two missile guidance and control systems. Under the authority of BRAC, three naval aviation depots at Norfolk, VA, Pensacola, FL, and Alameda, CA, were to be closed. Work would be transferred to the remaining depots at Cherry Point, NC, Jacksonville, FL, and North Island, CA. The human cost in terms of what can happen to people and to communities was minimized because of the NADEP's commitment to its customers, which were redefined within this new context. They included (1) the Navy Fleet and other Department of Defense customers; (2) those depots and other installations acquiring Alameda's workload; (3) the employees at Alameda, and (4) the people in the surrounding community.

Even though it was imminent, the traditional mission of the organization was not changing. Quality, schedule, and cost of products and services were still the primary drivers. In spite of the drawdown, the quality of work continued to improve. Average defects per aircraft, for example, declined 58 percent over three years, from 3.57 in Fiscal Year 1992 to 1.53 for the first three quarters of FY95. Originally envisioned to take four years and require $448 million, the final closure was accomplished in 3-1/2 years at a cost of only $249 million, a cost savings of 45%. Eighty-eight percent of the employees have transferred to other Federal agencies. Many who

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were involuntarily separated were offered employment elsewhere but did not wish to relocate.

The real payoff from TQ has been to help make the Department's operations more cost-efficient and effective while improving the quality of products and services and increasing customer satisfaction.

5. The 1995 DON TQ survey results showed that the top three reasons why DON organizations have been successful in their quality efforts were related to leadership. Items included: (a) top leadership attended TQ training; (b) leaders made statements of support for TQ; and © leaders supported TQ implementation.

6. The 1995 DON TQ survey results determined that the top three inhibitors for implementing TQ included the belief that TQ "takes too much time," indicating the need for understanding that TQ is not an activity to be conducted apart from the "real" business of the organization. The other two inhibitors concerned lack of training in TQ tools, techniques, and implementation methods.

7. Lessons learned and recommendations:

Lessons Learned

(a) If TQ is to increase productivity and significantly reduce costs, the leadership must provide strategic guidance and resources.

(b) TQ is not an end in itself, nor is it a program. It is an approach, a means, and statistical tools to optimize organizational performance to meet customer requirements.

(c) TQ works best when it is done in a systematic, strategic way, led from the top, aimed at improving mission performance.

(d)TQ takes time and money, particularly when beginning implementation. It represents an investment of resources to yield maximum benefits.

Recommendations:

(a) Based on successes, TQ principles, concepts, and tools should be widely promulgated throughout the Federal Government.

(b) TQ tools and methods should be integrated with existing laws and requirements (e.g., Government Performance and Results Act of 1993, Information Technology Management Reform Act of 1996) to provide efficiency in government.

(c) A systematic review of policies and procedures at Federal agency department levels that inhibit TQ implementation should be conducted and addressed.

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AIR FORCE TOTAL QUALITY MANAGEMENT (TQM) IMPLEMENTATION

OVERVIEW

Air Force will address quality deployment by first giving an historical perspective of the evolution of current quality practices. Due to the significant redirection that has recently occurred in the Air Force to fully operationalize quality, the second segment will concentrate on where Air Force is focusing its future efforts. Lastly, the third segment will specifically address the questions posed in Congressman Horn's request.

HISTORICAL PERSPECTIVE

Air Force began implementation of TQM principles in May 1988. While Air Force's initial focus was to improve the quality of weapons systems through the acquisition process, two of the non-acquisition commands, Tactical Air Command (precursor to Air Combat Command) and Military Airlift Command-(precursor to Air Mobility Command) saw the benefits to TQM implementation and adopted an approach to bring TQM into day to day operations. Initial successes involved reductions in costs per aircraft of B-1B advanced avionics subsystems and saved the Air Force 90 million dollars – the 100th system was delivered at 18% of the cost of the first system. It was not until September 1990, however, that the Air Force decided to embrace TQM as a system of management in order to capitalize on what the private sector had learned in regaining their competitiveness in the world markets. The challenge at the time was to build on the concepts that worked so well in the private sector, understanding full well that the profit motive and inherent flexibility to make immediate changes did not exist in the federal sector. The Air Force "bottom line" focus was enhancing mission capability.

To fully deploy quality, a structure was required to oversee implementation. The Air Force made its most visible step in adopting and implementing quality principles in December 1991 by establishing the Air Force Quality Council. The Council consisted of the senior leadership throughout the Air Force and was a further recognition that if quality deployment was to be successful, it had to start at the top and cascade down. The Council's role would be to shape the policies for the implementation of TQM. The Council met to review the progress of implementation efforts, receive their own training, and sanction policy efforts for dissemination throughout the Air Force. The Council approved the formation of the Air Force Quality Institute. This "schoolhouse" would be the Air Force Center for Quality Excellence and serve as the focal point for developing and consulting on curricula unique to a TQM culture. At the same time, commanders at all levels were encouraged to establish their own Quality Offices to assist in the deployment efforts. In addition, the Council adopted an Air Force version of the Malcolm Baldrige National Quality Award (MBNQA) criteria as the "system of management" for use by the Air Force, formally established a program to provide initial awareness training for all Air Force personnel, and established a TQM implementation "Roadmap" (atch 1).

The Air Force "Roadmap" for Organizational Performance Improvement was stratified to allow Air Force organizations to categorize their improvements and align them with the seven (7) categories of the Baldrige criteria. Moreover, the foundation for organization improvement was the establishment of unit strategic plans and the conduct of Unit Self Assessments (USAs) using the criteria. The USAs, as envisioned, would become the commanders' tool for gauging areas where management attention was

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required and at the same time identify organizations/processes that clearly warranted special recognition. Air Force directed the use of the Baldrige criteria (reworded into Air Force language) in FY 93 and allowed commanders to use the system on an optional basis. In FY 94, the use of the criteria became mandatory. Our Air Force and Major Command Inspector Generals conducted Quality Air Force Assessments (QAFAs) to determine unit performance when measured against the Baldrige criteria. In addition, Air Force established the Chief of Staff's Team Awards to recognize organization/process improvements that embraced the quality precepts and hosted annual Quality Symposiums to share information across the Air Force. Throughout the entire quality deployment effort, Air Force senior leadership depended on the counsel of experts in the private sector. In the Spring of 1995, senior leadership conducted a major review of Air Force's progress--the results indicated "definite" improvement with many local success stories, but more could be done to drive Air Force-wide improvements. At the same time, the civilian consultants advised senior leadership that Air Force was at a crossroads on their quality journey, like so many other corporations reached after 3-4 years. They recognized that Air Force built a superb foundation in quality, but lacked the "engine" to drive major improvements throughout the organization. After these reviews, senior leadership launched a major effort to truly "operationalize" quality at every level in the Air Force.

OPERATIONALIZING QUALITY

To embed quality concepts and foster continuous process improvement at every level, Air Force accomplished an end-to-end review of its structure and processes. As a direct result of this review, major changes have/are being made across the entire Air Force. The corporate decision-making structure was completely revamped to empower teams to bring real-world solutions to the table. Over 100 integrated process teams (IPTs), covering every major area, were formed to serve as the Air Force experts and consultants to senior leadership. The IPTs now support three levels of corporate review that recommend fact-based resource/policy options for consideration by the Chief of Staff and the Secretary of the Air Force. To further embed the quality philosophy in all senior leadership forums, the Quality Council was disestablished as a separate entity. The Corona forum (a semiannual meeting of all military and civilian leaders) will now address quality issues as an integral part of all deliberations. To solve a critical void in Air Force-wide strategic thinking, a new organization will be activated on 1 Jan 97 to build an AF-wide Strategic Plan that will have both a near term and long range planning focus. The Plan will identify the core competencies inherent in the Air Force of the future and identify those non-core areas where alternative sources can be pursued for mission accomplishment to achieve the "best value" for the government. In addition, the Plan will cascade down to every level of the Air Force and build the linkages to measure performance (outputs) against the established goals.

At the same time, senior leadership agreed with an independent review that would direct major changes in our assessment systems and the structure needed to drive continuous process improvement. Air Force recognized the confusion caused by the strict application of the Baldrige criteria to military organizations and launched a major effort to "blue" the criteria to focus on mission performance. The criteria rewrite is scheduled to be completed in Jan 97. A major review is also underway of Air Force's assessment and award systems to minimize the need for multiple systems to check on compliance and determine what organizations deserve special recognition. Emphasis is to empower commanders to operate within broad guidelines that encourage innovation and focus on results. The assessment and

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award systems review will be completed in Feb 97. To foster continuous process improvement, Air Force will restructure and refocus its current Quality and Manpower communities.

Air Force recognized the need for a formal structure with skilled practitioners to partner with the mission experts in order to achieve real savings and fully deploy innovative solutions Air Force-wide. By 31 Dec 96, Air Force will have integrated the process reengineering skills now vested in the Manpower specialty with the strategic planning and facilitation skills of the Quality experts into a single career area. In addition, Air Force will establish "centers of excellence" at every level in the Air Force, with these skilled practitioners, to partner with commanders and mission experts. They will facilitate continuous process improvement and look at every area in the Air Force to achieve efficient and effective organizations and identify opportunities to use the private sector for non-core areas. To work Air Force-wide issues, the Air Force Management Engineering Agency and the Air Force Quality Institute will be combined into a single organization on 19 Dec 96 called the Air Force Center for Quality and Management Innovation. These "centers of excellence" will have a direct link into the Air Force Corporate Structure to influence future resource allocation decisions.

ANSWERS TO QUESTIONS POSED BY CONGRESSMAN HORN

Question 1: How would you rate the extent to which your agency has incorporated the principles and practices of TQM in your daily business?

Answer: Air Force has completely incorporated the principles and practices of TQM in our daily business. Our implementation strategy roadmap provides all new accessions with TQM awareness upon entry into service and continues the education through our Professional Military Education (PME) and Professional Continuing Education (PCE) courses.

Question 2: Approximately what percentage of your subordinates' activities use TQM as a way of life?

Answer: As stated earlier, through our education programs and USAs, all Air Force personnel are encouraged to promote new ways of operating...to find a better, faster, cheaper way of doing business.

Question 3: What measures have you developed to determine the effectiveness of your quality programs?

Answer: The measure of success quality deployment is our use of the Baldrige assessment criteria and its scoring philosophy. The data collected to date suggests a rate of improvement in our business practices on a par with or better than those rates of improvement by private industry corporations who use the Baldrige criteria. The Air Force approach has been to view the use/implementation of TQM principles not as a program but as a management philosophy. In addition, the use of the Air Force version of the Baldrige criteria provides a common management approach throughout the Air Force. We also depend heavily on our civilian experts to partner with our military experts to gauge the progress of our quality deployment. Our continuous assessment of our progress drove the significant changes that are either completed or ongoing to our entire structure. Examples of assessment scoring data at attachment 2.

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Question 4: Cite two or three examples of successful application of Total Quality principles and what you feel the real payoff has been.

Answer: Our use of the system of management embodied by the Baldrige criteria has allowed the Air Force to proactively deal with the effects of increasingly austere budgets. For example, one of our "Tools" called Action Workout (see attachment 3) has resulted in increased efficiencies and reliability. Specifically, the major maintenance overhaul of the B-1B aircraft use to take 8.5 days, now it takes 5 days--tear down and overhaul of a jet engine (GE F-100) went from 4.3 days to 9 hours. These efficiencies in cycle time reduction allowed a finite pool of aircraft overhaul technicians to keep up with the influx of additional aircraft maintenance procedures. These are but two of the hundreds of examples of improvements and efficiencies realized through the application of continuous improvement principles.

Question 5: For those examples cited in response to question 4, please provide a prioritized list of the top three reasons, in your opinion, for the success.

Answer: The top three reasons for the success were: unwavering support and trust from senior leadership, unparalleled teamwork by mission experts and skilled process reengineering experts, and a dissatisfaction with the status quo.

Question 6: For those activities that have seen little or no improvement in their operations and customer satisfaction, please provide a prioritized list of the top three reasons why, in you opinion, implementation of quality programs has been less successful than expected.

Answer: While the Air Force has realized ever increasing improvements in operations and customer satisfaction, our own internal dissatisfaction with the progress of some of our operations can be traced to the following: treating "quality" as a separate program rather than as a state of mind for everything we do, lack of skilled practitioners working within a formal structure to institutionalize and export change and have the ability to drive resource changes in the PPBS, and an inconsistent approach to the deployment of the system of management which the Baldrige criteria brings by not establishing the linkages early on for a military environment.

Question 7: Please summarize the lessons your agency has learned and what might be done differently to improve the learning and application of quality principles.

Answer: Our primary lessons learned in deploying and "operationalizing" quality principles can be narrowed to a "critical few." First, our unit commanders must be able to link the application of our system of management with increased mission effectiveness. Our inability to translate the concepts of the Baldrige criteria to "airman's english" in a timely fashion led to the belief that the concepts espoused by the criteria only apply to "for profit" organizations. Second, the varied approaches to the deployment and use of the criteria as a system of management created confusion within the Air Force on how the criteria's application can benefit an organization's mission capability. Finally, the creation and fostering of a separate TQM organizational structure created an impression that TQM is a program managed by a Total Quality office instead of a leadership tool. The ongoing efforts to "operationalize" quality, discussed earlier, represent the Air Force approach to resolving the above identified shortcomings and provide the foundation to free up the critical dollars so vital to modernize our forces.

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RESPONSE TO CONGRESSMAN HORN'S INQUIRY
CONCERNING THE IMPLEMENTATION OF QUALITY MANAGEMENT

In order to provide a comprehensive, as well as, candid response to the Congressman's questions the following introduction is provided in order to frame the Marine Corps response.

Introduction

The Marine Corps has a 221 year tradition of responding to the Nation's security requirements. This response is built on the dynamic and immutable principles of Honor, Courage, and Commitment; ideals that are instilled in the character of every Marine and are an essential part of what being a United States Marine is all about. In addition, the Marine Corps has developed a culture for innovation, or "thinking outside the box" which relies on, and demands creativity and innovation from its personnel throughout the various headquarters and field commands. These ideals fostered in a permissive environment have imbued Marine Corps leadership with a conceptual affinity toward Total Quality, Process Matrix Management, Business Process Re-engineering and Continuous Process Improvement as key management tools necessary to execute Mission and to achieve Goals set forth in its leadership's Vision.

In order to insure success and institutionalization of these goals and objectives the Marine Corps has a proud history of continuously updating and revising the processes that train and educate Marines. The tools incorporated in the management methods discussed have been adapted and applied to the critical management and businesses processes at Headquarters, Marine Corps and the multitude of Marine Corps Field Commands and are being taught at our formal schools and training centers throughout the Marine Corps and the Department of the Navy. Two key examples of this which will be discussed in detail in answering the Congressman's questions are are:

-- The newly incorporated "Crucible Training" that is occurring at the Marine Corps' two Recruit Training Depots, Parris Island and San Diego .

-- The HQMC Marine Corps Continuous Process Improvement Program (MCCPIP) which is modeling the Marine Corps Business Enterprise and the system of processes that make up that Enterprise.

In August of this year a survey was conducted to assess the status of Total Quality in the Marine Corps. A sample of 23 out of 57 major and subordinate commands were surveyed. As this sample represented 75% of the Marine Corps, it will serve as the baseline for the responses that follow.

Question #1: How would you rate the extent to which your agency has incorporated the principles and practices of TQM in your daily business?

Answer: The extent of incorporation of the principles of Quality Management in the daily business of the Marine Corps is "to a great extent, that is, more than 50%". This is demonstrated by

the findings in the August survey.

- All 23 commands surveyed had Strategic Plans. These strategic plans are formulated and developed by Executive Steering Committees (ESC's) comprised of the senior leadership (Military and Civilian) of the command.

-- Over half of the plans have been updated and revised within the last year.

-- The longest standing plan (w/o revision) is 36 months since incorporation.

-- 75% of the membership of these ESC's have been to the Department of the Navy's Senior Leadership Seminar that provides instruction in Total Quality for top management.

- At the commands surveyed there are significant numbers of Marines and civilians who have been to the DON classes in Total Quality that are designed to train - the - trainers. The available pool of personnel currently on active duty in each of the course areas is as follows:

-- 372 in Fundamental of Total Quality

-- 121 in Team Skills (a course in group dynamics and team building)

-- 249 in Methods for Managing Quality (a course in process analysis and process improvement).

Question #2: Approximately what percentage of your subordinates' activities use TQM as a way of life?

Answer: As indicated in the introduction a philosophy of quality is pervasive throughout the Marine Corps so it would be reasonable to estimate the 100% of the Marine Corps considers TQ as a way of life . At a minimum the tools for process improvement are being used by a cross section of Marines and Civilians and this varies by area and organization. The largest percentage of those involved in Quality Management are the process owners who have the responsibility for the processes that are being improved. For example:

-- At HQMC business process re-engineering is being applied by 100% of the General Officers and Senior Executives, 80% of the officers, Staff Non-Commissioned Officers and GS9 - 15 civilians.

-- At field Commands the cross section of Marines and Civilians involved in process improvement is approximately 75% at the command level at our bases and stations with similar percentages throughout the grade structure.

-- In the Operational Forces (Tactical Commands) the Marines involved in process improvement initiatives is less than 50% while the unit is in garrison and even less when they are deployed. This level of participation is typical of tactical commands as they are operating in a largely responsive environment in processes and functions well outside of their immediate control.

Question #3: What measures have you developed to determine the effectiveness of your quality programs?

Answer: Local commands largely determine their measures of effectiveness through customer surveys and analysis of their key processes. These are normally determined by the Commander with assistance of his/her ESC. This was by design to decentralized in accordance with the principles of TQ and to support the empowerment of local leadership. This is consistent with the Marine Corps'

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leadership philosophy that delegates authority and responsibility for a Command to the local Commander. The overall indicators of effective development and implementation of Total Quality is the fact that each major and subordinate command (Garrison) have operating strategic plans. MCCPIP at Headquarters, Marine Corps is beginning to formulate measures of effectiveness and will be visiting field commands in the spring of '97 to determine customer requirements.

Question #4: Cite two or three examples of successful application of Total Quality principles and what you feel the real payoff has been.

Answer: Success stories that the illustrate the implementation of Quality Management in the Corps are those commands that have won Vice President Gore's "Golden Hammer" award. They are:

- The "Ace-in-the-Hole Gang" (a process improvement team) at Marine Corps Logistics Base Albany, GA which radically redesigned the repair and rebuilding of the High Mobility Multipurpose Wheeled Vehicle (HMMWV) to respond to the needs of their customers. Their streamlined process increased the production of rebuilt HMMWV's from 5 per month to 40 per month.

- The Traffic Managment Office at Camp Pendleton, CA was awarded for the adjudication of Personal Property Claims. This effort resulted in
  - -- Improved responsiveness to personal property claims - 75% improvement
  - -- Ease of financial burden on Marines
  - -- Reduced administrative casework - TMO increased their production rate from 10 to 25 cases per day.

- Another "Hammer" award went to the MC Support Activity, Regional Contracting Office, in Kansas City. The team reduced the cost of relocating personnel to the Richard-Gebaur AFB by assuring contracts were in place for the maintenance of facilities, custodial services, grounds upkeep, and building renovation before moving in. Their concentration on customer service included privatizing the utilities by such means as converting from steam generation to gas for heat. The application of Total Quality methods realized a savings of $1.1 million over prior lease costs.

The valuable pay off in these and other instances has been in the leadership's direct involvement and empowerment of the local command. The creativity and innovation of the Marines and Civilians has stimulated action and is building momentum.

Question #5: For those examples cited in response to question 4, please provide a prioritized list of the top three reasons, in your opinion, for the success.

Answer: The top three reasons for the success in the examples cited above are:

(1) Leadership by the Commander and top management,

(2) Training and skills developed by the employees, for the employees, and

(3) Commitment to follow through with new and improved processes, as exemplified in action implementation planning.

The Marine Corps has produced a 15 minute video that illustrates Marines and civilians improving processes which is used in our training program. The other contributing cause to the success of Quality Management in the Marine Corps is application of the quality principles and

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methods to Deming's Quality Management philosophy. The Marine Corps recognized the dynamic evolutionary nature of process improvement which is manifest in the radical change initiatives exemplified in the Business Process Re-engineering (BPR) methodologies and therefore, adapted it in developing the Headquarters MCCPIP initiative. This includes the two major commands at Quantico, Marine Corps Combat Development Center (MCCDC) and the Systems Command. Significant progress is being made to define, analyze, and re-engineer the key business processes that deliver the product ("Integrated Capability") to meet the needs of the customers, the warfighting CINC's. We recognize that the business of the Marine Corps occurs within the beltway which involves "resourcing" the Marine Corps. MCCPIP's next step in implementation is to develop a viable TO-BE activity model that defines its future state and then execute those actions to get from our current AS-IS condition to that TO-BE.

Question #6: For those activities that have seen little or no improvement in their operational and customer satisfaction, please provide a prioritized list of the top three reasons why, in your opinion, implementation of quality programs has been less successful.

Answer: Those activities that have the least levels of growth in formal Total Quality are the operational combat units (tactical commands). As outlined above this is due to the operational tempo that put extreme demands on time and personnel. The trade-off to active process improvement programs is in improved readiness of combat Marines through the solid application of leadership and the fact that the training environment is being thoroughly managed and improved. It is a misnomer to suggest that these units are not providing a quality product to their customers, the truth is they are. The problem is that we are achieving results because the processes that support these units are improving significantly in the support they are rendering. We have made progress with combat units such as a Light Armor Battalion and Combat Engineers by custom designing just-in-time training to fit their needs and schedules and by dealing with training processes internal to those organizations that they have control over.

Question #7: Please summarize the lessons your agency has learned and what might be done differently to improve the learning and application of quality principles.

Answer: One of the main lessons we have learned can be summarize in the Commandants' Planning Guidance, "...**We must anticipate change, adapt to it, and foster it. We will remain relevant only if we are willing to meet future challenges and adapt to new needs.**" We have re-engineered Quality Management in the Corps to fit the unique requirements and demands of Marines. We have designed just-in-time training by combining three courses into one, four and half day compressed training session where the students work on real processes. We have focused strategic planning on the implementation side of the ledger. We learn the lesson and then apply the training to fix or improve the condition.

In the Marine Corps we believe the emphasis should be on implementation of appropriate critical processes where there is a potential for significant return on investment. The concept that Quality Management is designed to be "total" or universal needs to re-examined. More importantly it needs to be applied where it makes the most sense.

Mr. HORN. OK. We thank you for that testimony.

Let me ask you a few questions. Remind me of what is the current budget of the Department of Defense.

Mr. COOKE. The current what?

Mr. HORN. Budget of the Department of Defense.

Mr. COOKE. $259 billion.

Mr. HORN. $259 billion. That is good. Let's round it off at $260 billion. It is probably in there somewhere.

What is the total budget of the total quality management efforts made within the Department of Defense, both the services as well as all the supporting agencies? Out of the $260 billion budget, how many have been affected by the total quality management?

Mr. COOKE. Mr. Chairman, we do not have a single line item in the budget. I can tell you how much my own operation is costing. I don't know how much the service is, nor do they have a single item.

Mr. HORN. Why don't we get an answer by coordinating through your office with the services, file it at this point in the record.

Is it more than $1 billion?

Mr. COOKE. I don't think the services here at the Washington level would have a total figure either.

Dr. Kauvar.

Mr. KAUVAR. I agree. We don't have a program.

As Dr. Cooke said, quality is not a program in the Air Force. We look at it the way we look at safety. It is something you think about all the time. We can give you the budget for the number of people, for example, employed at the Air Force Center for Quality Management and Improvement.

Mr. HORN. That is nice, but I am not interested in that. I am interested in what degree has total quality management permeated the life of the Department of Defense, both civilian and military.

Let's face it, folks. You have a fine bunch of projects here; but it has nothing to do with the degree to which the Department of Defense, and the services under that Department, are really serious about total quality management. Now what it sounds like is that, gee, we are concerned about quality, just like we are concerned about safety. Everybody that says that shows me they really aren't doing much on quality. Otherwise, you could put your finger on it.

If somebody gave a hoot about quality in the Department of Defense, they would say, you show me annually where this approach to management has been implemented in the Department. It is the first thing I would ask if I were Secretary. In fact, I will share some of this with the Secretary and say, you know, if we are serious about this, you ought to be able to tell me we have $20 billion worth of the Department of Defense investment in a total management, quality effort.

I don't think you can tell if it is $1 billion. I am not saying you should have it here, but please file it for the record in the next 2 weeks or 3 weeks and work with our staff to get a figure so we know to what degree is this actually taken seriously in the Department of Defense.

Mr. COOKE. Mr. Chairman, I think the examples we gave you, we can triple the number of examples we furnished to your staff in

this statement or prior without our figures. The fact we have one in open competition throughout the executive branch with a great majority of quality awards is a demonstration of the fact that Defense is committed to quality and is taking it seriously.

Mr. HORN. Well, that is nice to say. The proof in the pudding is how many billion dollars has been affected by the process, and if it isn't more—you have been at it for—what—8 years, I believe. Is that correct or am I wrong on that?

Mr. COOKE. I think probably a little longer than that.

Mr. HORN. Let me put it to you another way. I want at this point in the record, without objection, the amount of the total budget affected by the processes of TQM, whatever you want to call it, total quality management.

I can ask this question. Implementation of total quality has been a policy, as I understand it, for 8 years. How many commands, organizations have genuinely learned and adopted TQ as a way of life? In other words, what percent of the total organization? I think we need to know that to see if we are being taken seriously on this.

As I said earlier this morning, I am sure it got reported to you, we have known for several years there were two agencies that will not be able to make the mandate of Congress to show us a balance sheet by the fall of 1997, the Internal Revenue Service and the Department of Defense. So we have known that around here for 5 years. In the 103d Congress, under control of the other party, I sat on a relevant committee when the IRS was examined on that point.

It is just that we have had 5 years now elapse? Are we any closer, in terms of total quality management, in those particular processes?

I am not saying you are not doing wonderful work in these examples. That is wonderful. I give you credit for that. The question is, there are huge problems that also need this approach; and nothing in that testimony convinced me that the Department of Defense was doing anything about it. So I would be glad to have it and put it in the record.

Now, what I am curious about now, if you heard the testimony from the State of Ohio, the State of South Carolina and with the experts, it is key if we are serious about an effort that that person report to the chief executive. So I would ask, if you have a total quality office, why isn't that structure to report directly to the Secretary of Defense, not through the Administrative Assistant to the Secretary of Defense or the Director of Administration and Management? I guess I want to know, if they are serious, the boss has to permeate that through the organization.

Mr. COOKE. Mr. Chairman, total quality management is not a line function that you can order any more than you can order the Congress to follow total quality management or, for that matter, the Speaker could do that. Total quality management is an approach to a problem that we have been following assiduously.

We can give you the percentage and estimates; and we have given you the percentage of Army, Navy, Air Force, and Marine Corps who have had some quality training. The Marines, last time, I think, said 100 percent. The Air Force said 83 percent have been trained to some degree.

Now when I heard the other witnesses, you did not say, how many are doing diagrams? How many of this? How many of that?

Mr. HORN. No, but what you did here is training, isn't enough; and what you heard from the witnesses was that if you are doing training and then you have no teams to put these people on, in essence, you are doing nothing. You can have a lot of training, but unless you have a process to feed that training into, you have a command—and now we are talking Ohio, South Carolina, where they have accomplished these things.

Mr. COOKE. I heard South Carolina say there is a quality office for each subordinate unit of the State, so it doesn't quite sound—I certainly don't want to demean the very fine progress that the State of South Carolina and Senator Thurmond—I have a son who graduated from Clemson, by the way. But what I am saying is that we will stack up our quality program—we will try to get the figures against any in the country.

Mr. HORN. OK. How do you go about determining—and the other services can get into this—determining those that have and those that have not adopted total quality? Do we know which parts of the organization have not adopted it and which parts have adopted it?

Ms. O'CONNOR. We do regular reviews in the field to look at who has adopted quality and who has not. It might be helpful to give you background on how we structure this inside the Department. At the OSD level, we have a group called the Joint Quality Network, composed of the Army, Navy, Joint Staff, and myself.

Mr. HORN. Who sits on that committee?

Ms. O'CONNOR. That is someone from the Army.

Mr. HORN. Who is the someone?

Ms. O'CONNOR. The quality management folks. Tom Kislawski right behind me represents the Navy.

Mr. HORN. What is his title in the Navy?

Ms. O'CONNOR. He is director of the TQL office.

Mr. HORN. That is one who reports to the Under Secretary of the Navy.

Ms. O'CONNOR. I believe so, yes.

Mr. HORN. So we know the Navy has an office where there is a quality office and it reports directly to the Under Secretary, and this is the deputy to the person that reports to the Under Secretary of the Navy.

Ms. O'CONNOR. Correct.

Mr. HORN. Presumably, I take it, no one is there from the Chief of Naval Operations' Office. Or is the Under Secretary's Office expected to deal with that?

Ms. O'CONNOR. No, that is correct. The Under Secretary's Office coordinates with Chief of Naval Operations' Office.

Mr. HORN. Give me the next person, and to whom do they report?

Ms. O'CONNOR. The next person would be Lieutenant Colonel Dennis Falencort, who reports to the Air Force office, who reports to Mr. Kauvar.

Mr. HORN. We have to whom you report. That was, as I look at my notes, you report to the Deputy Chief of Staff of the Air Force for Plans and Programs.

Ms. O'CONNOR. Then the third person is Randa Vagnerini, who reports to the Director of Management for the Chief of Staff of the Army.

Mr. HORN. Director of Management for the Chief of Staff of the Army.

Presumably—in all these somewhat distant relationships with the major people that make a decision, presumably there are staff functions here—we aren't talking line functions—where they can go back and get something done.

Ms. O'CONNOR. No, they go back and get quite a bit done, in fact.

Mr. HORN. Well, I would like to hear about it.

Ms. O'CONNOR. Good.

The fourth person is Christine Cavel, who represents the joint community. She reports to the Comptroller on the Joint Staff, who reports to the Director of the Joint Staff.

Mr. HORN. We are talking about where?

Ms. O'CONNOR. The Joint Staff, as in the Chairman of the Joint Staff.

Mr. HORN. OK.

Mr. KAUVAR. Let me give you examples from the Air Force which may clarify that.

You asked how many people were trained, and the answer is 100 percent. You asked how can we determine who has adopted quality management.

The answer is twofold. We have a system where every unit does a unit self-assessment at least every 18 months, and those scores are brought together so we can see not only how they are spread across the Air Force, but how individual units have improved. Until this year we have had a system of sending the IG out to do quality Air Force inspections.

About 2 years ago, the Chief of Staff of the Air Force asked me to come to work for him, because we recognized that the Air Force had reached a kind of glass ceiling, a crossroads that many companies had reached on a quality journey. After a year of work, we made some major changes in the Air Force quality program.

The first thing we did is link it more directly to mission outcomes. So we were less interested in evaluating the process than we were in enhancing mission accomplishment in the Air Force. Second thing we did is take a look at the entire spectrum of assessment and inspection and award in the Air Force and determined we were spending way too much time on auditing when we had the quality indicators in place through the unit self-assessment that gave us the answers as to how well individual units were doing.

We just established the Air Force Quality Institute, which was our primary schoolhouse and was responsible for, essentially, just-in-case training to the application level for every individual in the Air Force; and we stood up the Air Force center for quality and management innovation in its place. At the same time, we merged two career fields, manpower and quality, because we wanted to have, at every single unit and center, an office responsible for quality management and process reengineering. We made a decision that that should report to the Director of Plans and Programs in each major command or unit, rather than to the Commander, because we wanted to have symmetry throughout the organization

and an individual whose full-time job it was and who does report to the Commander to have quality management as a task.

For the sake of symmetry, we moved it to the newly created position of Deputy Chief of Staff of Plans and Programs in the Air Force. We have had Baldrige judges and both the Chief of Staff Unit Quality Awards and the Secretary of Air Force Team Award. We rely heavily on civilians to come in and help us with our quality program.

It is pervasive in the Air Force. It is radically different from what it was a year and a half ago. We think we are on the springboard to more success than we have had in the past.

The Chief was intimately involved in every single one of these decisions and the direction to operationalize quality in the Air Force, so I don't think it lacks for senior leadership attention.

The difficulty I would have in trying to tell you how much money is spent is that I would have to go back and try to track in on every team chartered on every single base and how much instruction they got and how much time it took them to accomplish their mission. That is literally thousands of teams over a period of years. What is fairly easy to tell you is how much money we are spending on the overhead process.

Mr. HORN. I don't think I am interested in the 8 years or 10 years or whatever service thinks it has been engaged in this. What I am interested in is, where are we now? What percent of the military command, what percent of the Air Force support systems, be they under the military command or directly under the civilian command. I am interested in how far this is going now.

Mr. KAUVAR. It is pervasive in every command in every unit of the Air Force.

Mr. HORN. See, when they say pervasive, my suspicions get aroused. Because I have never seen it pervasive in much of anything, even in the private sector. The way we sort of nibble at it in this and many agencies—and there is nothing wrong with that.

Over time, you expect more. In other words, incrementally, you move step by step. I am not knocking that. But what I am saying is if we had 8 years in this, we must have accomplished at least 25 percent of the organization, I would hope; and that is setting a very low goal.

But I realize the world is complex. People sit in Washington and think there is something happening and if they go to the field and keep their ears open they will know nothing is happening or they are just filing the paper. We have all been in human organizations where that has happened, and usually that is what happened. Nobody wants to tell the boss the bad news.

You mentioned Inspector Generals. It is one of my questions here. Are we learning something from the Inspector Generals about where some of our shortcomings are? And don't tell me the organization has no shortcomings or I will say good-bye. The fact is, they have a lot to contribute.

And I just wonder are we taking advantage of what the Inspector Generals are saying——

Mr. KAUVAR. What I tried to do——

Mr. HORN [continuing]. During the process analysis on those problems?

Mr. KAUVAR. To help clarify that, let me submit to you, I will be happy to get you more copies of the report of the Chief of Staff's Blue Ribbon Commission on Organizational Evaluations and Awards which we started last year. And you'll see what the responsibilities of the Inspector General are.

I think another way to answer your question might be, and I'll be happy to provide this for you, is a, across the Air Force, listing of the unit self-assessments and the scores over a few years so that you can see for any particular unit, for example, a wing at Dyess Air Force Base, how it scored on the standard Baldrige criteria 3 years ago, last year, and this year.

Mr. HORN. Right. That would be fine.

Mr. KAUVAR. I would be happy to do that.

Mr. HORN. OK. I realize different services treat things in different ways and there are a lot of ways to achieve the goals without all following the cookie cutter way. Yes, Ms. O'Connor.

Ms. O'CONNOR. To go back to what the joint default network does, that network, the folks around that network are the people who work this full time. They know the nuances of it. We get together every couple of weeks when we're in town, which is more often than not. And we discuss what is the best way to set policy for this across the department? Is it a directive? Is it a support letter? Is it a videotape? Is it going out to the field? Is it a data call? And over the years, we continued to look at this on an ongoing basis, because we think that it will change over time and we will need some additional structure as time goes on. But currently we're very pleased with where we are right now.

Now, in addition to the joint quality network, we also have what we call the defense quality network. There's some, a number of defense agencies in field activities as well as the unified commands that will come in for that meeting. Because of the number of the people that have to come in we'll hold that every 2 or 3 months.

We've also, to help us in defense, but also the rest of the Federal Government reestablished the Federal quality network, which has a representative from each of the Federal agencies on it. And that meets about quarterly as well. We wondered when we brought that back up if anyone was really interested in the rest of the Federal Government in continuing this on. And we had 35 or 40 people at the first meeting we had. And they've continued to stick with us through this. So that's a great vehicle for networking back and forth, finding out who is doing what and what new ideas there are out there.

What we found has worked best for us inside the department is more of a central support setup but with a decentralized implementation. For example, the Air Force has a system by which they do this. The Navy has their system. The Army has their system as well. And we try and cover on the OSD staff the unified commands because we think they're the linchpin to the operation here and also defense agencies and field activities.

What we have tried to do is set up a facilitating mode as opposed to a directive mode, because what we found over time is that this succeeds based on leaders in the field wanting to do this, not because we necessarily set up some program.

So when they tell us that they need something we try and respond to that, and then we also go out into the field, as I said, and we do a review, because, as you just mentioned, you get data calls up in Washington, and you're not really sure what that data means to you by the time it goes all the way up the chain of command and shows up here. So we actually go out to the field, and we pay particular attention to the overseas areas because they tend to be at the far end of the supply line for assistance, and have gone over there, looked at what they need, asked them if we could do anything for them, particularly looking at the unified commands. And in fact, we worked with special operations command for a couple of years now. They've had some great successes.

We just started working with European command about 6 or 8 months ago and they've got their strategic plan now. And we're just starting to work with Pacific command. It is a slow implementation, but it's a slow implementation by design because we think that's the better way to do it in a department that is this complex.

We do a lot of implementation differently than the private sector. For example, in the unified commands, we won't send these folks off on their 2, 3, 4, or 5-day offsite somewhere, because they simply cannot by operational realities be away from the office for that length of time. So what we'll do with them is we'll have strategic planning sessions that last no longer than 4 hours, and they can do them Monday, Wednesday, and Friday morning, or they can do them Monday, Tuesday, Wednesday, Thursday, Friday, whatever they choose to do. So that the senior folks that are sitting around that table from the CINC on down can get back to that in-box, get back to those phone calls, get back to the operational mission.

So what we do, and in fact Dr. Kauvar coined this term maybe a year ago, is we wedge it in where we can find the minimal amount of time that they have in their schedule. We attempt to wedge it in to get them started on the things they need to be doing, and then move them continually down the road. And one of the examples, with the OPTEMPO that we've had, we've occasionally just had to stop. We're working with the United States, the admin folks in U.S. NATO, and we had gone down the path with them and we started to develop their strategic plan and then the NATO Summit was announced. Well, they're going to be dedicated full-time making sure that that summit goes off, so we will just back up from them and we're totally on hold until September, the summit will be over, and then a whole bunch of people take, use, or lose leave and readjusting and clean out in boxes, and then we'll go back in September. So the key to the implementation in the department with our OPTEMPO is really flexibility, to keep the aim in mind but be flexible about how we get there.

Mr. HORN. Does your office have the responsibility for the defense agencies such as Defense Logistics and others such as that which aren't under a command and aren't under one of the services? Do you have responsibilities with these agencies to——

Ms. O'CONNOR. We don't have direct responsibility but we will help them out. We'll help people——

Mr. HORN. Who has responsibility for those?

Ms. O'CONNOR. That's the responsibility of the Commander of Defense Logistic Agency.

Mr. HORN. Yes and that Commander reports to whom?

Ms. O'CONNOR. The Under Secretary for Acquisition and Technology.

Mr. HORN. Mr. Kaminski.

Ms. O'CONNOR. Yes, that's true.

Mr. HORN. OK. To what degree has Mr. Kaminski's people been educated in this area?

Ms. O'CONNOR. A number of years ago they were very well educated. The quality function was located there. We had some pretty good successes. In fact, Dr. Kauvar was located in that community at the time. And he had some very good successes there. They still were—what we will do on the OSD staff is we will get—they know we're there. We send out a periodic memo that tells them what we're there for, what we do, and to give us a call if they need anything. We do get frequent phone calls from staff members who are attempting to work on processes and to improve the processes, and normally that will be either linking with, say, their subordinate commands as DLA or going to the Army and the Navy and the Air Force to form up process action teams to look at some significant processes.

Mr. HORN. And has much of that occurred since the function now? I am not quite clear. Was it removed from the Kaminski shop over to——

Ms. O'CONNOR. It was shifted.

Mr. HORN [continuing]. To Cooke's shop?

Ms. O'CONNOR. It was shifted several years ago. And it's expanded tremendously.

Mr. HORN. Why was it shifted?

Ms. O'CONNOR. I don't know.

Mr. HORN. Maybe Mr. Cooke can say.

Ms. O'CONNOR. I think it was just a better location for it, because under ANT, it was really an acquisition initiative, and we didn't want it to have a particular flavor that it was the acquisition community, the comptroller community, or the policy community. This way it covers the entire department.

Mr. HORN. OK. Do you feel that since the shop has been moved that the acquisition shop has lost interest in total quality management?

Ms. O'CONNOR. Absolutely not. We have worked with them through the acquisition reform effort. We've provided the facilitation for that. And we worked with Colleen Preston from the time she come on board all the way through.

We also get regular phone calls from the folks in ANT requesting assistance, and we will provide that, but the effort has expanded tremendously since it's moved, because people realize it's not just an acquisition initiative anymore. This is an initiative for the entire Department of Defense. So it's expanded across all of the elements of the OSD staff.

Mr. HORN. Is it your office that will be able to survey the defense agencies such as logistics as to the degree to which they are involved with total quality management teams and success and so forth?

Ms. O'CONNOR. If we were to do a survey, we would normally survey everyone in the department, including the military departments and ask for feedback.

Mr. HORN. Yes, well fine.

Ms. O'CONNOR. That is excessive.

Mr. HORN. However you do it, that is your business. I am confident the military department has got the data. I am just wondering who will get the nonmilitary department data, which are a whole series of agencies?

Ms. O'CONNOR. That's correct, sir.

Mr. HORN. OK.

Ms. O'CONNOR. We would coordinate that as we did for the data call you sent us.

Mr. HORN. Fine. OK. Now that will include who has and who does not have any emphasis or projects, however you want to define it, on total quality.

What I understand the original strategy was to build total quality organizations command by command with the commanding officer being responsible for the success. Then the effort was shifted to randomly training individuals at schoolhouses, if you will, remote from operational commands.

What percentage of those trained do we know, and this I ask of the services but I guess you are not necessarily, except for Mr. Kauvar, probably able to answer that. What percentage of those trained are still on active duty? How many were ever used in total quality billets? And has this strategy really worked? In other words, at one point there was—and this is certainly true of the Navy. I know from my own experiences years ago with some people that the commanding officer was properly pinned with responsibility for this. And then the effort was to just randomly train a lot of people, but there was no place for them to go and practice those new found skills, whether they be 2 days, 4 days, 6 weeks, 2 weeks, whatever.

So we are just curious as a committee with oversight on economy and efficiency the degree to which this operation is still running somewhere. And I would be interested in what you have to say, Ms. O'Connor.

Ms. O'CONNOR. Part of the answer to that rests in how quality management started in the Department of Defense. Normally when we have an initiative, either you on the Hill or the OMB or someone else will say to us, this is what we're going to do, or we get an idea to do something at the OSD staff. And then hopefully we work with the military departments to refine that policy before it goes out.

In this case, I was in the field when we started implementing quality, and what happened was some of the folks in the depots with Navy and Air Force saw this MBC white paper of Japan ask why can't we feature Dr. Deming. And they wondered, why can't we? And so they starting working on trying to implement some of those things.

Now at the time, not just in the Department of Defense but even in the private sector, people said, well, this is great, it works for manufacturing and that's about the only place it applies. So the depots started to work this and they saw some very good successes.

They didn't say very much to other folks even inside the command. And then the command found out that we had some successes out in the field and they went out and then they created a command-wide program. And so instead of this being an implementation that started at the top and went downward, it actually started more in the field. A couple of years after the field started, then the folks up in OSD formed up an office at that point under the Under Secretary for ANT. So we had a lot of existing groups in the field and that's where you probably heard that we had commands that did this.

Well, Naval air systems command was one, because they've got a lot of depot operations. The old Air Force logistics command, of which I was a part at the time, we had a lot of depot operations.

And when we went through this development in the field, first we started with, it can't be done anywhere but on a shop floor. And then we said, well, really is that true. And the Wright Patterson Air Force Base hospital actually revised the way they did entire prescription refills. And that may sound like a very small thing, but it used to be a 45-minute wait for a prescription, and there was never any place to park up front, and they were only open during duty hours, and it was really quite tedious to get a prescription filled. So when they did that, it really sent you, as—it was the shot heard around the base, because so many people got prescriptions filled and thought this was great, but let's do this in more places. So that proved it can be done on the service side of the house.

Travel voucher processing, it was an instant process at AFLC headquarters. You could hand it in, wait 10, 15 minutes, the folks in back would add it all up, and you would get your money. It was a great setup.

So that's where it spread.

Mr. HORN. This was which area?

Ms. O'CONNOR. Wright Patterson Air Force Base.

Mr. HORN. Yes, but what was the subunit there?

Ms. O'CONNOR. It would be the headquarters of Air Force logistics command.

Mr. HORN. The finance office or whatever, the travel or——

Ms. O'CONNOR. It would be the payroll office at the headquarters.

Mr. HORN. Payroll?

Ms. O'CONNOR. Yes, the travel office at the headquarters.

Mr. HORN. I just wanted to get that straight.

Ms. O'CONNOR. And then what we saw in the long run after applying this to various service processes, we started looking at applying it as well to headquarters processes. Well, a lot of things that the headquarters don't measure as easily, and things in the services, in the service don't measure as easily as the shop floor.

But we did find that the very process of getting all the inputs from the military departments, working the policy, putting the information back out, and the tools, the techniques that we used in the process action team were invaluable. Even at the OSD level and the military department level and the major command level as well.

Mr. HORN. So you printed some of these success stories and got them first throughout the Air Force; was it? And did the rest of the

Department of Defense see some of these, what could happen with a little thought that would take a couple——

Ms. O'CONNOR. Early on, it was more of an informal system. And I was on the IG Air Force logistics command, and we were sort of the people who spread the word, which is one of the reasons why the Air Force used the IG in this implementation, because people respond to what they're graded on to a great degree.

And the IGs were everywhere. Those were the folks who actually went out across the command and could see all of this. And then they would share the ideas.

But one of the things we have wrestled with over the years is we've got a lot of installations out there. And some of them have common processes. And how do we get it from Misawa Air Base Japan to—well even to Yokosuka Air Base, or Yokosuka Naval Base Japan, or over to the European theater, to Aviano Air Base. I mean, how are we going—because the folks at Misawa Air Base Japan don't have the travel money to go to Aviano Air Base.

So what we've done is on our web page, we've set up what we're calling a best practices data base. We went out with the initial data call for folks to send information back up through the chain. And we are subcategorizing those under topics such as maintenance, and then we'll have a subcategory eventually that says flight line maintenance, F–16 maintenance, et cetera, to share those ideas back and forth. Because that's one of the key issues we're working on is how do we share the ideas.

Mr. HORN. Yes. And that's a good thing to work on.

Mr. COOKE. Mr. Chairman.

Mr. HORN. Excuse me a minute. Since you served on an Inspector General's staff, do you get the various Inspector Generals into the Pentagon on an annual basis or something and sit down and talk out what are the things they are finding that are still not straightened out regardless of service and then try to encourage teams in this area? How are you doing that? How are you using that Inspector General's knowledge and how do you hear about it?

Ms. O'CONNOR. Well, actually a couple of years ago there used to be an IG network forum that reported to the Federal Quality Institute that had IGs from across the Federal Government on it, and we looked at that. But that has since been disbanded as the FQI was disbanded. So at this point, we don't have an internal structure, but certainly I work with the DOD IG on any issue that they feel that is necessary. So we coordinate as necessary with them. But we do not get the IGs together specifically, no.

Mr. HORN. Do they ever come together in a conference within the Department of Defense, whether you are there or not?

Ms. O'CONNOR. Do we have an IG conference?

Mr. COOKE. I'm sure there's an IG conference, Mr. Horn.

Mr. HORN. I would hope so.

Mr. COOKE. Yes.

Mr. HORN. OK. Mr. Cooke, sorry to interrupt you.

Mr. COOKE. I was going to say that the story about quality started from the depots and particularly the Air Force and the Navy were a little like the same story of how it started in the Federal Government, where the word came through, and I was then a member of the President's Council and Management Improvement.

And the council established—in essence, a pool of quality experts came. We contributed people from each of the departments, which eventually metamorphosized into the Federal Quality Institute. And now, of course, have moved over to OPM exclusively.

But I think Anne is quite right. It started because of the good things that we were learning about, not only in some of the departments, but also in industry, which led to the emphasis that the PCMI put on quality training, so it's the same process.

Mr. KAUVAR. One of the things that we've done in a number of years in the Air Force is to hold an annual quality symposium in Montgomery, AL, that's attended by about 2,000 people and all the four-star Commanders in the Air Force. And that's one of the ways that we used to share the experiences and the lessons learned. The Department of Air Force Inspector General has just finished a worldwide swing to take the results of the Blue Ribbon Commission directly to all of the Air Force commanders.

Mr. HORN. OK. How about the Army? General Boddie, do you have any thoughts on how the Army does this on a system-wide level in terms of either using the IG, having an annual conference?

General BODDIE. Sir, I'm a field soldier but I can tell you——

Mr. HORN. I know you are.

General BODDIE [continuing]. But I can tell you that General Reimer, Chief of Staff of the Army, General Wilson.

Mr. HORN. You might pull that microphone closer, it is a little hard to hear you.

General BODDIE. OK. And General Wilson, the AMC Commander, and my boss are all very much supporters of total quality management, supporters of training for total quality management. General Wilson has used his IG and AMC to go around to see all of those Commanders that are talking about teaming, how are they really doing. So he's had the IG look at the teaming aspect to make sure that that's truly happening. So from my experience, and I'm a big believer in total quality management, I've been very fortunate to have my chain of command totally supportive of what I believe very strongly in.

Mr. HORN. Captain Cantfil, are you aware of how the Navy spreads the word throughout the Naval establishment?

Captain CANTFIL. Well, Mr. Chairman, I'm actually further down the food chain than the General to my right here. But from a field activity level, Dr. Doherty, who is the Navy's TQL director up in Washington, her office-to-field activities, where I was when I was still at the Naval Station, was active in terms of sharing information, passing information back and forth. So we had a real connectivity back and forth along those lines, both in terms of how we set our program up, if we needed any help along those lines and stuff.

Did I ever attend a symposium that the Navy held on quality? The answer is no. I don't know that the Navy does it annually like the Air Force does or not. Was I ever inspected on quality management techniques? I would say the answer is no on that also.

Mr. HORN. Where was your assignment before this current assignment at the Naval Station? Where did you have an assignment?

Captain CANTFIL. My current assignment is the Deputy Director of the Joint Interagency Task Force East in Key West, FL.

Mr. HORN. I see.

Captain CANTFIL. And that——

Mr. HORN. I met with their group a few months ago on their drug eliminations.

Captain CANTFIL. Yes, sir.

Mr. HORN. Very interesting group.

Captain CANTFIL. That's my current assignment, is a deputy down there. Prior to that, I was a CO of the Naval Station at Mayport. And prior to that, I was a navigator on the *U.S.S. Abraham Lincoln,* a nuclear carrier out of Alameda, CA.

Mr. HORN. How much did you hear about quality management in those various roles in the Navy? And did you ever go to any courses they had on the subject?

Captain CANTFIL. My first experience in TQL was as the CO of Naval Station Mayport. That was my first experience with it. And I had training prior to getting to the Naval Station back in 1994.

Mr. HORN. Now was that at your initiative or was that at the command's initiative to which you reported?

Captain CANTFIL. At the time it was at my initiative. And subsequent to that, the Navy has directed that to take command of any major installation, you would have to go through senior TQ training.

Mr. HORN. How about you, Lieutenant Colonel Sawner for the Air National Guard? What can you tell us about the National Guard spreading the word on total quality leadership or management, whatever you would like to call it?

Lieutenant Colonel SAWNER. Forgive my cold. We're hooked in tight with the Air Force. And because the Air National Guard, in Federalized reports to all the different gaining Air Force major commands, as we have gone through the last 3 to 4 years of quality Air Force assessments, our Air Force Baldrige-based assessment, we were tied in with all the different variants with this and the different major commands, all very similar but at the same time enough differences. And so we ended up forming teams that went out to assist our units doing a previsit when the commander requested. And during that process we brought people from other units that had previously been through an assessment or were very knowledgeable to share the wealth back and forth. And it would not be a pre-inspection. It would be a here is what this means to us, is that what you meant to say. And, oh, by the way, most likely, you're doing this and this and this, so that that assessment, that unit self-assessment was the best possible instrument it could be. And so that was one thing that helped a tremendous amount.

And Tyson's Corner is where the quality center is located. It's our schoolhouse. And academic instruction is about 25 percent of what our organizational energy is focused on. We taught about 160 courses last year for about nearly 5,000 students from all over the Air National Guard. Students come in from——

Mr. HORN. How many in all? How many students, 5,000?

Lieutenant Colonel SAWNER. About 5,000 in the last year.

Mr. HORN. If I heard it right. There is an echo over here.

Lieutenant Colonel SAWNER. We teach those both at the quality center. But the majority of them are taught at the unit. We'll send a mobile training team out to do that. But in the process of doing that, we've developed a cadre of adjunct instructors that are people from the field. They're from the operational unit. Most all of the team, they're operationally oriented, some line function, and they do this as an additional duty because they have an interest in doing it and because they like to.

I wish I was smart enough to say we planned it that way. But what's been created is all of these, now over 300 of them, and they range in rank from staff sergeants up to major generals, that come in and teach with us in a teaming mode, and they're fully qualified to teach just as well or in many cases better than my staff. That has created a center of expertise at the unit level to embed this throughout the organization. And it gives that Commander an internal resource. And because one of the things that we found early on is a lesson learned was that you really had to avoid a concept that I call "doing" quality. "Doing" quality is characterized by how many folks you got trained over how many teams you've got without focusing on what's actually being improved, how are you helping embed this and change a culture of an organization.

So by putting those centers of expertise out there, that's really helped us. And it also shares the wealth big time. Because they will go to the different States with us and see what's going on there and take it home to their home unit. And it's worked very well.

Mr. HORN. Now, are you full time with that center as a regular Air Force officer, or are you part of the Air National Guard?

Lieutenant Colonel SAWNER. Sir, I was initially hired as a regular Air Force officer. I spent 18 years in the regular Air Force. And 3 years ago, General Shepperd invited me to join the Air National Guard. So I'm an Air National Guard officer on full-time stat tour now.

Mr. HORN. I see. Let me ask you. It seems to me if I were running an organization, as I have run one on the civilian side, among the criteria that I had for promotion would be the degree of which somebody took care of matters such as quality leadership, quality management, whatever word you want to use in the improving of one's work force and improving one's system.

To what degree does the Air National Guard have anything to do with quality management, quality leadership? Well, I realize that is an out—the leadership—obviously, you won't promote without some leadership. I am talking about doing for the organization they have had the responsibility to head. Is there any recognition in the promotion system that, yes, you ought to get a few points for that, not just your ability to fly a plane, not just your ability to lead a company, your battalion or whatever it is, and I realize there are different terms in the Air Force, but where is that? Is it in the promotion system somewhere that we should give a hoot about quality management, quality leadership?

Lieutenant Colonel SAWNER. Well, I can answer that two ways, sir. One, we have the same officer rating system that the Air Force does. It's identical. And it is weighted. There's a specific block in there that talks specifically about impact on organizational per-

formance and on teamwork. And that is a relatively recent change in the last 4 or 5 years.

Mr. HORN. Yes.

Lieutenant Colonel SAWNER. More——

Mr. HORN. On that point, if the services, and coordinated by Ms. O'Connor and Mr. Cooke, would give us the actual criteria on promotion of all the services so we can see to what degree this is a factor and is it weighted, let us know what the weighting is. I have seen some of that in some organizations, not the services that have been off the wall in their weighting some time, it is like 2 percent or something, which tells you something. But go ahead.

Lieutenant Colonel SAWNER. Let me give you a little more real world actual, and this is what I use, because it's more than just anecdotal.

I mentioned a minute ago that we had right now on the books approximately 300 fully qualified adjunct instructors. We're constantly growing new ones; we're grooming them all the time, anyone that has an interest. It's a pure voluntary kind of a thing with their commander's permission. The commanders like this. They think this is a real good deal that they're sharing their wealth in other places and growing. It's almost classic Malcom Knolls adult experiential learning for the instructor. And we've discovered in many cases that the instructor gets more out of it than the class does in building this functional expertise.

But what I have noted is that my biggest turnover in adjunct instructors is they get picked for command.

Mr. HORN. They can what?

Lieutenant Colonel SAWNER. They get picked up for command within their unit.

Mr. HORN. I see.

Lieutenant Colonel SAWNER. And they don't have nearly as much time to be an adjunct instructor then. And so if I'm losing adjunct instructors because they are being selected, they are being promoted, they are being put in increased responsible positions, well, I'm doing my job. And I'll take all of those. And I keep getting those calls every day, I'm sorry, Tom, I can't come teach for you again, I'm now the support squadron commander or this supplier or whatever. And that's the proof in the pudding that we're embedding this the right way.

Mr. HORN. Excuse me. That is good news. But then the question is 1 year, 2 years, 3 years down the line has it made a difference in how they conduct themselves and how they analyze and help develop the organization that they are now leading?

Lieutenant Colonel SAWNER. I can only give you an anecdotal, but my gut is absolutely. Because what we talk about a tremendous amount is that the task here is not to do quality, it's to change organizational culture. It's to embed in that culture systemic and continuous improvement as a mind-set. And the only people that can change culture and our literature supports this, consciously, is the senior leadership of the organization. And so

their task is to embed that culture. And for the record, if it could be submitted, we sent a statement.

Mr. HORN. Without objection, that will be put in the record at this point. Hand it to the fine reporter right next to you.

[The prepared statement of Lieutenant Colonel Sawner follows:]

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LT COL THOMAS E. SAWNER

Lt Col Sawner is the Deputy Director, Air National Guard Quality Center. Comprised of more than 110,000 Air Guardsmen in over 700 units located in all 54 States and Territories, the Air National Guard is truly the nation's community based defense force. Lt Col Sawner has over 20 years of operational experience as an Air Force fighter pilot. In 1986, he was awarded the 1986 Anthony B. Shine Award as the most outstanding fighter pilot in the U.S. Air Force. Outside the cockpit, he has an extensive background in leadership development, matrix teaming, organizational change, and the successful implementation of a quality culture in a high performance, high demand environment. Under his guidance, the Air National Guard Quality Center was selected in 1995 for the "21st Century Organizational Excellence Award", the first public sector organization to be so honored. Additionally, he was a member of the TQM Executive working group tasked with planning initial Air Force wide implementation of quality and he continues as a member of a variety of Air Force level policy groups. Lt Col Sawner has written and lectured in both the public and private sector and has authored a wide variety of quality and leadership development curricula.

An Air Force Academy graduate with double majors in economics and management, he holds a Master of Aeronautical Science and a Master of Business Administration, both with honors, and is currently completing his dissertation for the George Washington University Leadership Doctoral program in Human Resource Development. His dissertation is an analysis of the relationship between organizational culture and organizational performance in a large public sector organization.

Following the Academy, Lt Col Sawner entered pilot training at Laughlin Air Force Base, Texas. Selected as a fighter pilot, his first tour of duty was Torrejon, Spain, with temporary assignments to Italy, Greece, and Turkey. In 1982, he was assigned as a fighter instructor pilot at Homestead AFB, FL. In 1986, Lt Col Sawner was assigned to the Pentagon as the Tactical Forces Basing Manager. His responsibilities included management of basing issues for all Air Force fighter aircraft in the United States. In 1988, Lt Col Sawner was selected as Executive Officer to the Assistant Deputy Chief for Programs and Resources where he provided administrative guidance for over 350 people in 25 divisions within three directorates, including review of over 100 decision papers per week affecting allocation of millions of dollars of the Air Force budget. In 1989, Lt Col Sawner was selected as Executive Assistant to the Air Force Under Secretary. There, he provided counsel on a broad range of critical issues and was routinely assigned to identify problems, present positions, and develop a course of action on behalf of the Under Secretary. Lt Col Sawner returned to the cockpit in 1991 and was assigned to Homestead Air Force Base, Florida, as the Wing Quality Advisor. In less than two years, the Homestead quality initiative became the "benchmark" for the command. After Hurricane Andrew destroyed the base, he was reassigned to the Pentagon and is currently assigned as Deputy Director of the Air National Guard Quality Center.

An Eagle Scout, with over twenty-five years as an adult Scouter, he is very active in youth development activities. His military awards include Air Force Meritorious Service Medal with five oak leaf clusters, Air Force Commendation Medal, National Defense Service Medal, and the Air Force Achievement Award, the last awarded for saving an aircraft crippled with a severe flight control malfunction.

Lt Col Sawner has two children, Ann Marie (15) and T.J.(12) and resides in Arlington, VA.

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Air National Guard Directorate of Productivity and Quality

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

Thank you for the opportunity to appear before this committee on behalf of the proud women and men of the Air National Guard. As an integral part of the Total Force, the Air National Guard (ANG) has a long heritage of providing the finest forces available for Federal, State or Community needs. Today, I will share one approach to implementation of a quality initiative in the public sector. Many other agencies have also enjoyed considerable success and it is clear that there is no one "right" way, rather many paths toward the same goal.

My focus will be on answering the following key questions:

What's this "Quality" thing?

How do I do it?

Why does it matter?

Why focus on Quality?

What is Leadership's role?

Organizationally, the focus on a more effective management, leadership, organizational structure, or production methods dates at least from the industrial

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revolution and more probably to prehistoric times. The bottom line motivation in almost every case is a competitive drive to keep up with or hopefully surpass the competition. Today's focus on continuous improvement and systematic problem solving is similarly motivated. For most of our American history, quality was inspected into a product. In other words, the good or service was produced and then inspected to determine it's fitness for service. Items passing the inspection went to the customer and those failing the inspection were "rejected", "reworked" or "redone". This "Re" factor, the cost of poor quality, has been measured by Dr Joseph Juran and many others to cost 20-40% of sales for production processes. There is no reason to doubt that it accounts for at least the same percentage of lost productivity in administrative or bureaucratic functions and quite possibly a far higher percentage. However, when a process orientation is applied to any task, great gains are possible. When tasks are viewed as a process and rejects or problems are analyzed to determine the cause of the rejection, permanent process improvement is possible. As feedback is provided and the process changed to preclude the problem from recurring, the organization learns. This reduces the "Re" factor and the resultant gain flows directly to the bottom line as a productivity gain or a cost avoidance.

In short, the reason we must focus on quality, on building a culture of continuous improvement and systematic

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problem solving, is that we can no longer afford a traditional inspection based approach to insuring the quality of goods and services produced by the Federal sector for the American people. On average, random actions cost 14-30% more than a systematic process orientation, a luxury unacceptable as the cost of insuring a quality product.

The "fly in the ointment" is that culture change is not a rapid process or one that can be immediately effected by mandate or edict. This is why the leader is so critical in organizational transformation efforts. Almost continually, leadership is cited as the key to successful implementation of quality. Unfortunately, despite thousands of "leadership studies," few have a very clear practical understanding of exactly what the leader should do to create and sustain world class performance. In times past, we often focused on and rewarded peak performance which was based on an individual leaders personality or expertise. Unfortunately, this frequently led to heroic effort for many individuals (work harder and get the mission done) and systemic organizational burnout. While heroic effort is expected of the military in a conflict, when it becomes the norm for routine circumstances, productivity bottoms, personal illnesses and injuries increase, and the entire organization suffers and begins to decline. A more appropriate but substantially more difficult approach creates sustained systematic improvement and continual organizational excellence transcending an individual

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leader's performance or tenure (optimize processes and work smarter). In this context, the leader's role is especially critical and is twofold:

To Create & Maintain an Optimal Organizational Culture

To Focus Organizational Energy

It's important to understand the concept of organizational culture. Simply put, organizational culture is our style, how we do things. It is built on shared values, beliefs and a common vision of the organization's future. Without an understanding of the power and importance of an organization's cultural, no amount of quality training, no assessment system, and no organizational structure will produce the desired sustained organizational improvement. The culture must be properly shaped or the effort will fail.

To shape our Air National Guard culture, the Director of the Air National Guard, Major General Shepperd, constantly reminds us of our critical guiding principles. By adhering to these principles we can optimally prepare for the future. Although these are specific for our organization, the concept of establishing guiding principals is equally valid and applicable for any Federal agency.

The first of our guiding principles is "Not for themselves, but for their country." Our business is about the privilege of service, not the joy of personal success...BUT we

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can do both and make the Air National Guard the most exciting, empowered, effective, and fun place to work in America.

Next, we must remember we are Guardsmen first. We are citizen soldiers - Guard women and men. That's who we are, not what we do. We are officers, NCOs, airmen, and civilian members of the Guard first...then we are pilots, navigators, boom operators, maintainers, and administrators.

We have an awesome responsibility. "We send young men and women (our kids) into combat. There is no more sobering responsibility...." We must never forget that we are not about jobs and units or force structure, or the size of our organization. We have a greater responsibility - making a better world for our children and our nation.

We have two basic responsibilities...take care of the troops and make our units and the ANG better. That's what people in world class organizations do.

We are a learning organization. We commit ourselves to learning something new every day. We can improve ourselves and our organization dramatically by attending professional military education in residence and participating in self-directed learning programs, leadership training, quality training, and other training. We must stay personally committed to learning something new every day.

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We will improve something every day. We commit ourselves to continuous improvement. We strive not just to perform work but to truly improve something every day.

It is a critical task of leadership establish and articulate the organizations guiding principals. Thus for our purposes the definition of leadership is the:

The Process of Defining and Enacting the Values of an Organization

As previously stated, a leaders most critical task is "shaping organizational culture." The leader must create an environment open to improvement (change) and based on embedded core values. Values form the basis for organizational rules (stated or unstated) and guide the judgment and actions of each member in the absence of direct supervision (what you do when no one is looking). Empowerment is also frequently cited as a key component of an effective culture. However, it's most critical aspect, willingness of the "empowered" to accept personal accountability for actions, is too often ignored. This accountability is a vital component of a successful organizational culture. Finally, a clear, actionable and shared vision of the organization must be created. This vision is critical because it guides the direction and focus of each individual in the absence of direct guidance.

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The most powerful tool available to a leader for culture building is the ability to model and thereby reinforce desired behaviors, to demonstrate by daily actions desired organizational values. Since no leader can or should constantly oversee the work of each member, embedded mental organizational "rules" are critical. Culture can be compared to a leaf on a lake, which in the absence of wind or current floats randomly. The values modeled by the leadership (formal or informal) of an organization, provide the "current" which pushes the leaf in a specific direction. In the same way, the leaders openness to change, the willingness to listen and entertain new ideas is critical to creation of a learning organization. Leaders frequently talk of having an "open door policy", however, if they have a "closed mind reputation", the organization will never sustain world class performance. Additionally, the leader must demonstrate a mentoring style. Development of vision and cognitive skills at every level is a critical aspect of a successful organizational culture. By modeling values, by consciously shaping the organizational environment, and mentoring at all levels, a culture supportive of world class performance can be created and sustained.

Within the Air National Guard, Major General Shepperd has shaped the optimal culture to create and sustain world class performance. Our vision is:

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A World Class Organization
in a Nation that Slowly Returns to the Militia Concept
in a More Peaceful But Still Dangerous World

At the Quality Center, our focus is not to "Do" quality, rather to help Commanders embed it. "Doing" quality is characterized by a focus on how many people are trained or how many action teams have been chartered, rather than how is the organization doing their mission better than was previously possible. Embedding quality refers to establishing a culture of systematic problem solving and continuous process improvement. Our quality "style" is simple and results oriented. If a class or technique does not help a commander do what they do better, then we must question why we would want to do it. As we see them, the basics of quality are as follows:

Customer orientation
Continuous improvement
Empowerment
Measurement

The acronym, C2EM, pronounced "See Two'em" helps us remember these basics. Our approach to embedding these basics has four focus areas:

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Leadership Development

Organizational Training

An Assessment system

Supportive Infrastructure

Within each area there are a number of different approaches and specific tasks which support the overall culture shaping effort. The four focus areas are like the legs of a stool. All four must be present and in roughly equal proportions to maintain stability. Like a stool, if one leg is gone, sitting is difficult. If two legs are missing, it's nearly impossible. In our experience, most failed quality implementation efforts are missing one or more of these areas.

The Air National Guard Quality Center is the source of many initiatives, but the center for excellence in the Air National Guard is at the unit. We support nearly 110,000 Guardsmen in all 54 States and Territories. Specific Quality Center tasks each support one or more of the focus areas and are as follows:

Leadership Growth

Internal Consultation & Facilitation

Unit Self Assessment Support

Culture/Customer Satisfaction Surveys

Quality Related Instruction

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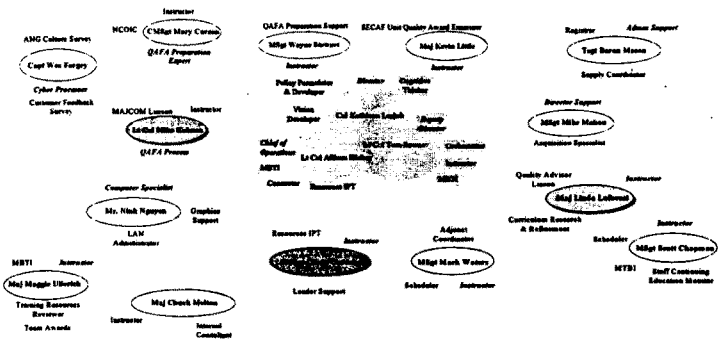
To optimize our capabilities, the 17 members of our staff are organized as a "Resource Net."

ANG Quality Center Resource Net



Each of the resource net member has specific responsibilities which, by design, are beyond the capabilities of a single individual to accomplish. Each must "partner" with others to accomplish the task and be successful. Leadership is "shared" between Col Lesjak, myself, and Lt Col Hickey. Each of us has specific responsibilities, however, any member of the staff can come to the most available, should senior leadership guidance be desired. Additionally, a cadre of over 300 adjunct instructors from units across the nation has been developed to partner with center staff for course delivery. Last year 187 courses in 7 different subjects were taught to nearly 5,000 Guardsmen. Courses are taught both at

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the Center and by mobile training teams which travel directly to the unit.

Our curriculum is as follows:

Course	Duration	Location	
R = Regional	*O* = On Site	*U* = Unit Trainer	
Senior Leader Awareness	3 days	R	*O*
Quality Awareness	2 days	*U*	
Team Tools & Techniques	3 days	*R*	*U*
Train the Trainer	9 days	*R*	
Strategic Planning Tools	3 days	*R*	*O*
Unit Self Assessment Criteria	2 days	*R*	*O*
Facilitator	5 days	*R*	*O*
Quality Advisor	5 days	*R*	*O*
Team Building	1-2 days	*O*	

All curriculum has been built in-house and is continuously revised based on quantitative and qualitative feedback collected in three dimensions on each block of

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instruction in every class that is taught. Creation and revision is a team effort involving expert practitioners both from the staff, adjunct instructors and field quality advisors. All courses are focused for the adult learner, involve extensive experiential learning and provide practical and immediately applicable skills.

Leadership development has been a particular success story. Approximately every four months, Maj Gen Shepperd hosts a "Leadership Focus." Leadership Focus is a two to three day workshop for the entire senior leadership of the Air National Guard headquarters and is specifically focused on personal growth and development for these key leaders. Generally held at the Quality Center, these workshops provide a forum for world class presenters such as Dr Brian Joiner and Dr Jim Belasco, as well as an opportunity for tailored growth experiences. Harvard Business School professors have presented case studies and daylong leadership experiential simulations and a book report is presented by one of the Directors at each workshop. Over the past four years, 12 of these workshops have been held, clearly an indicator of Gen Shepperd's commitment to leadership development.

An assessment system is also vital to a quality implementation initiative. In 1991, the Air Force adopted the Malcolm Baldrige Quality Award criteria as the standard for Air Force organizational assessment. The criteria provides a

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very comprehensive system for organizational improvement and an excellent tool for commanders to verify areas of strength and optimally focus organizational energy on weak areas. Assisting units prepare for the validation of their unit self assessment has been one of the key services provided by the Quality Center.

Another key support area for the Quality Center has been training and facilitation for the Air National Guard planning process. The planning process is composed of three phases: the long range plan, the strategic plan, and functional action plans. The long-range plan focuses on the 15-20 year time frame, reiterates our vision and values, details our historical foundation, and postulates possible futures based on future world characteristics, common future traits, and joint vision elements as they impact the Air National Guard. It provides our guiding principles. The strategic plan details specific actions which must take place in the 3-7 year time frame to meet the long-range planning scenarios. Action plans are short term (within a year) functional area plans to achieve strategic planning objectives. The long-range planning process is very inclusive, involving more than 200 senior leaders from throughout the nation. Strategic plans are accomplished at the headquarters and unit levels. The first headquarters strategic plan is well underway and on

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track for completion in the fall. Action plans are an ongoing process in each functional Directorate.

A supportive structure is one of the key areas for a successful quality initiative. The Air National Guard headquarters is no exception. An Executive Group composed of Maj Gen Shepperd, his deputy, Brig Gen Paul Weaver, and the Director of each functional area exists to charter process action or integrated process teams. Any Director may propose a process action team (PAT) to solve a specific cross functional problem. A "PAT" is normally appropriate for a short-term or onetime issue. During the past year we have also formalized and improved a new matrix style organizational concept, the integrated process team (IPT). The IPT has not replaced our functional organization, rather it offers an additional approach to solving ongoing organizational tasks which cut across functional lines. IPTs bring together a standing team of people from each functional area to work these tasks. As an example, in the past if a unit commander from an F-16 fighter squadron had an aircraft problem which required headquarters help, frequently they grew frustrated calling each functional area in-turn, without any single area being able to resolve their problem. Now, the commander calls the F-16 IPT, the IPT leader calls together the team from all functional areas and together they jointly solve the problem. Although this seems simple, in reality it is a major change in how we do business and a definite step forward. Like a

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process action team, integrated process teams are also chartered by the Executive Group. An Executive Working Group (EWG) chaired by the Chief of Staff and composed of the functional Directors, meets weekly and is the major forum of organizational work flows. The EWG handles most staff work and all issues which do not require General Officer oversight or input.

There are several key lessons learned during our implementation efforts. The most important is that "**Signals are Critical.**" Organizational members constantly take "mental snapshots" of their leaders. Frequently, what a leader says is irrelevant, their actions totally drown out the words. Regardless of a leaders desires, every action sends a signal. The key is to ensure that the signals sent are the ones desired. Modeling desired behavior and values is the only way to send the desired signal and it must be consistent, not just when the leader desires to make a point. A second key lesson is that "**Expertise and experience is critical.**" Too often leaders assume an individual outstanding in an unrelated area will be equally outstanding in the field of quality improvement. Quality improvement and culture building is an emerging profession with the same critical learning paths as any other. In the Air Force we would never place an outstanding non-rated officer in a flying job, hand them a flight manual and say "take a month and read this, I'm sure you can master flying this airplane;" however, in past times

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due to a lack of expertise, this is almost exactly what happened in the field of quality. Fortunately, this is much less often the case now. A third key lesson is **the need for a systematic assessment tool** applied organization wide. Adoption of the Baldrige criteria forced many to accelerate their journey toward a quality culture.

For the Air National Guard, major challenges remain. We are currently focused on developing metrics to better assess organization performance and help commanders predict problem areas before they become critical. Additionally, this is clearly a time of great change and change is difficult both organizationally and individually. Our task is how to assist commanders meet new missions and operational challenges. It's a tough challenge, how to:

Improve the Present

while

Preparing for the Future

It's Like Rebuilding Your House While Living In It !

Machiavelli summed it up quite well. He said:

"There is nothing more difficult to take in hand,
more perilous to conduct,
or more uncertain in its success,
than to take the lead in the introduction
of a new order of things."

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Building an organizational culture based on systematic problem solving and continuous improvement is a new order of things. Culture building is a leaders most difficult task, but is also the key to becoming World Class. Organizationally, we have taken great strides in our quality journey. We have maintained our personnel strength, maintained 94 percent of our units in C-1 or C-2 readiness status, increased our performance on inspections, and achieved our second safest flying year in the history of the ANG in FY 96 - all while also maintaining our highest OPTEMPO. Clearly, our approach is working. The National Guard, your community based defense force stands ready to serve.

Lieutenant Colonel SAWNER. But we think that that task of leadership—and that gets into a little bit of—Dr. Mangrately talks about self-organizing systems. And if the role of the leader is to model the behaviors and to model the core values that we want that organization to have, so if these commanders, these new commanders that have been instructing this, they aren't going to instruct it unless they believe it, unless it's part of their daily activities. So I would say that's what they're going to model. They're going to model, and we're doing the right things.

Now, in the process of doing that, those behaviors are the ones that are going to be picked up by the people that are working for them. We talked to commanders about signals are really critical, because you're sending them all the time. People take mental snapshots of every single thing that you do as a senior leader. And they watch you all the time, whether you're intending to send or not. So you have to be very conscious to send those right signals. And the only way to do it is to model the behaviors that you want replicated. So we think that's working real, real well. And that's a key piece of some of our training.

Mr. HORN. Well, it is very helpful.

Captain Cantfil, what can you say on the various commands you have been through? How serious did the commanding officer at some of your previous commands take total quality management?

Captain CANTFIL. Well, like I said my first real experience is when I came in as the commanding officer myself, but I didn't walk in blindly because you asked me, "Did I get training on my own or was it mandated?" And actually I initially got it on my own because the previous commanding officer had started the quality initiatives at Mayport to this point that by the time I had taken over Mayport it had won a quality award from the State of Florida. So clearly he had fully embraced the concepts and stuff. And I had hopefully slipped in behind it and continued the continuous improvement that we're looking at.

A lot of the premises in quality management have been PRECIPS of solid leadership, PRECIPS of really a long time ago. So I think the Navy really under—you heard Admiral Schriefer earlier this morning. I think it was really Admiral Kelso that fully embraced total quality leadership, is how we're going to be doing business in the Navy. This is the methodology in which we're going to adopt and embrace those ideas.

And since Admiral Kelso started that, like I said initially, the training came into place. And they think that that's really started to permeate all the commands as it goes along. Again, that's a cultural thing. It's a change and adjustment on how we've done business and stuff to date, but I think that's clearly been looked at.

I couldn't have been as successful at Mayport as I was unless I had leadership above me that supported me. Clearly, the Rear Admiral that I reported to when I was there embraced that philosophy also, because it's all synergistic, it's all related. You really can't do it out in a void and stuff like that. So it's all part of a larger system.

How quickly we came out of the shoot; I'm not really qualified to make a comment. I can tell you, though, that certainly in this

decade, my experience has been that's how we're attacking issues and stuff as we go about it.

I'm in a joint command now. And certainly the concepts of PRECIPS we followed at Naval Station Mayport that I was first exposed to, we embrace those and use those as we go about an operational command which is counternarcotics at this stage of the game.

Mr. HORN. So when you were at Mayport and you inherited what a previous commanding officer had done, did you find some of your staff that you inherited also wanted to backtrack on the effort? Or did they take it seriously?

Captain CANTFIL. No, absolutely. That was probably one of the most difficult aspects to the thing, because initially everybody is looking to queue from the new leader. There were clearly some that were giving what we used to call TQL, total quality lip service. They were really hoping to outlast the current commander. I mean how change is.

Mr. HORN. Right.

Captain CANTFIL. So one of the most difficult aspects of that transition, which we've shared our lessons strongly with our TQL office, and I know Dr. Doherty has shared them in many forums in the public and private sector, was the fact that you had to spend a very hard amount of time taking a look at how the organization is really structured; who is really participating in the quality management and who wasn't. I had to spend a lot of adjustment time. Because actually my inexperience led me to believe as I took it on face value that we were fully committed to total quality, and actually I found out it was more my senior leadership and my middle management level that was really fighting the concepts and really paying the lip service, hoping to outweigh the previous commander before we came in.

Mr. HORN. And did the previous commander brief you on what he had done and that is how you knew about at least a partial commitment of some of the staff?

Captain CANTFIL. No, actually he said, "Hey, we won the award from the State of Florida, we're good to go, don't mess it up." And that's really about the way it unfolded. Probably about what I did to my relief.

Mr. HORN. Yes, if you want your own flag, do it again.

What did you do to get your middle management on board?

Captain CANTFIL. Well, it just goes back again to you heard a lot of the testimony earlier. There's nothing magical about anything that we've talked about here. Obviously, it starts at the top and leadership is a key and I could just talk about it. It has to be your behavior activity and things along those lines. If you're talking team building, you're talking training, you're talking about all those specific issues and stuff like that, you have to embrace really what you're taught in the quality management forums and training before you get there.

A couple of things we did, again this is getting into the nitty-gritty, initially opened a quality academy. You've heard training. If you don't train and you don't embrace that, you can't start anywhere. I was very suspicious because I had never really been exposed to total quality before I got to Mayport, is I need to get everybody on

board with this concept. So we opened a quality academy. And everybody who came to the Naval Station, the entire tenure I was there, I'm sure it was continuing at this stage again, it doesn't matter if you were a captain, a commander, the youngest airman or seaman or a new hiree from the civilian work force, you went the very first week you spent on board Naval Station Mayport, you went through the quality academy and the fundamentals of the TQL course. So you went and did that sort of thing.

Mr. HORN. Was that 1 day or a whole week?

Captain CANTFIL. No, actually it was 5 days.

Mr. HORN. Five days.

Captain CANTFIL. It was 5 work days. So we spent that.

The quality academy established—you heard a lot about just-in-time training. We spent a lot of time during that, also. For instance, when you built teams and you established teams and you charter teams, you absolutely had to provide training before they went there. And more specialized training, whether it was managing variation, whether it was team building. So when we went to charter a team, we placed people on that. If they hadn't been trained before, they would go on and receive training 2 or 3 days right after they were chartered. So they would go on the team and be off into the running.

But a large part of it again revolved around you know people watched me. I established the executive steering committee on the base, which was a cross functional team. That was a major decisionmaking body on the base. That was the No. 1 team we chartered. I forced all major policy decisions and resource decisions also into that body. That was met once a week.

From that body, they organized quality management boards which looked at the critical processes throughout the base. They were, in turn, chartered to establish process action teams as they went along.

So you heard about team building. Team building was crucial. I don't share the one comment from the distinguished Representative from the State of Ohio who said, I believe it was him, said, hey, we didn't go after tough decisions on teams. I found that when you had to do tough issues and quality management, that's when you wanted to put your cross-functional teams on. If you weren't willing to attack morale issues, if you weren't willing to attack tough budgetary resource issues, it wasn't going to work if you just picked the simple low hanging fruit. Those were good too initially as you dabble along.

Again, I didn't take anything from its infancy. I took an organization that was already going. So in order to make everything work you really had to pay attention to the signals and stuff that you gave out as a leader that you were fully embracing the principles and stuff that you were taught. Because if you didn't follow them yourself, it didn't make any difference.

Mr. HORN. Now, in your new responsibility, I take it the deputy director on the Key West group, I have forgotten, remind me the name of the team down there, it was about 15 different agencies.

Captain CANTFIL. Yes, sir, it's very painful.

Mr. HORN. I just wonder, how do you give a group like that the quality message?

Captain CANTFIL. It is no different. Culture are things changing. Had I not had my experience at Naval Station Mayport, I think I would have been ill-equipped as a deputy commander down there, because, as you said, now that you have a Naval culture, you have all four services, you have the Coast Guard, you have DEA, Customs, FBI.

Mr. HORN. CIA.

Captain CANTFIL [continuing]. CIA, the whole organizations. And so you have different cultures as seeing there. But there's nothing that's really dramatic about all this. Again, it starts at the top. If you get everybody in and you build teams—and you look at strategic planning is a key. The establishment of cross-functional teams are a key. The fact that you empower individuals to do these sort of things, and you bring everybody together and you've got to train them. If you don't train first before you do any of this stuff, you might as well——

Mr. HORN. But when you did train them, you had a mission for them to carry out. It wasn't just training where they could forget it and go back to work and go to their area and do whatever.

Captain CANTFIL. Actually not. The teams again are very critical. Inside Mayport, every department, there were 27 departments that we had. If it was an intradepartmental effort, each department was told, you have a quality council and you need to build teams. That just really is established inside your individual director or department.

So everybody who went to the initial training, fundamentals of TQL, as they got to the Naval Station at Mayport, then it went into—and their department, each of their department heads and directors there were told, inside your quality councils you need to establish some small teams.

So as people come out of the training, they were given projects and stuff to work on. Some are very simple tasks as they went along as they go there. But that built the cadre so that when you got to these tough cross-functional issues you had a lot that was already there. And some experience already established.

But despite the experience levels, you really had to provide training. And we spent a lot of time training. The executive steering committee once a year did a self-assessment and was provided—we spent money on outside facilitators and trainers that come in so we could take a hard look at what we were doing, how we were conducting business.

Mr. HORN. Now, in dealing with the joint teams there, and you see sort of the representation of the cultures of various other agencies, services, whatever we want to call them, on a scale of 1 to 10, with 1 being nonevident and 10 being certitude, where would you put the Navy in that particular command of 15 different operations that you are now deputy director of? Where would you put the Navy in terms of total quality management and these other teams in terms of total quality management? Give it a 1, a 10, a 5, what?

Captain CANTFIL. Mr. Chairman, I don't know if I would break the Navy out specifically when you ask. Because we don't actually look at the command as this is a Navy, and this is an Army, and the guy here is a Marine. And the teams again are built on the—does a person have a piece of that process? I mean, does he have

a piece of the process, and should he be part of that quality action team or not? And again, I find that the individuals that we bring to the team. It's really a function. Did they get the proper training before they were in there? We have a lot of really talented Naval officers and chief petty officers that handle the teams exceedingly well.

I don't actually notice any variance between the different groups if they've had prior training. It didn't matter if they had Air Force training, Navy training, or any other agency training. If they had produced training and they were experienced and you reiterated that training, they have no trouble working on teams.

Mr. HORN. Well, let's take the civilian agencies only that you have to deal with. You mentioned the drug enforcement, the FBI, so forth.

Captain CANTFIL. Right.

Mr. HORN. To what degree do you think they have had some training in this area? Have they, the time they get to your level and that team level of——

Captain CANTFIL. My experience is they did not have the training. But I didn't specifically ask them. So we made the assumption they didn't have training.

Mr. HORN. OK.

Captain CANTFIL. So typically, when we needed to take a look at our own strategic plan, because we had representatives from DEA, because we had representatives from Customs and those services, we provided training to everybody, making the assumption at the baseline nobody had it.

Mr. HORN. And when you put them to work on the processes, do you find you can get some action there from those since they are representatives of their agency, they aren't in command of their agency? Or am I wrong on that? Have you got the key people in that region coming to those meetings?

Captain CANTFIL. Well, we're an outgrowth of the old Joint Task Group Four. And one of the reasons I think we went to the Joint Interagency Task Force was the fact that DOD used to be the one entity. DEA would be an entity, and this counternarcotics business, you had all these different agencies out there. And they came back to say, hey, really a wave of the future ought to be a joint interagency approach to the things. And there's no reason why you can't have civilian and military organizations blended together.

I was not there when they had JATF Four. I have been told with people who have overlapped the two organizations, because, really, Joint Agency Task Force, or Jatafiest, is embryonic. It's only been around a couple of years now, is that is a heck of a lot better, because embedded inside one organization are representatives from all the agencies that are involved in the drug wars as opposed to each of the agencies are separate and they interface on the exterior. So the fact that we have a true interagency with the people embedded inside the organization has been tremendous.

As we've had each of the other countries come through who are basically collaborating with us and trying to be cooperative in this, and it's really this scourge of drugs there, most of them are impressed that we have civilian agencies embedded with the military, and it works quite well. So I would say it's a success story.

Mr. HORN. Good.

General Boddie, in terms of your previous commands, how much was total quality management a factor as you worked your way up to Brigadier General?

General BODDIE. Sure. Sir, since 1987, it's been a big part of every one of my jobs and every one of my chain of commands.

Mr. HORN. Where were you in 1987?

General BODDIE. 1987, sir, I was commanding the largest ammo depot in the Army at McAlester, OK.

That was when my commander a two-star gave me a copy of Mr. Deming's book, *Out of Crisis.* I probably wouldn't have read all the way through that, but the examples Mr. Deming used in the book were exactly how we were not doing it. So I thought I better read the book. And it had a major impact on me. It was a great opportunity to read that book when I was commanding an ammo plant.

Mr. HORN. What was your rank at that time?

General BODDIE. A full colonel, sir.

Mr. HORN. A full colonel in a slot held for a higher officer, I take it. Or was it?

General BODDIE. No. It was a colonel, sir.

Mr. HORN. It was for a full colonel slot.

General BODDIE. Then my next job was commandant of a school in TRADOC. And I had to go through a lot of the cultural change part of the TQM business, which is the toughest up-front part. Then I went back to where I had all the plants and depots under me.

But the current job has really been an interesting experience, because I got there and the cultural change had been made. And so I had to learn what to do next. And very much like the Captain was talking about, I had an executive committee that met every 2 weeks. I was always there to chair it or my civilian technical director. That constantly put the emphasis from the command on TQM.

When we started the training business, I had all my supervisors go through 3½ days of training. I exported the training into the installation. But I reserved the last hour and a half of the training to personally pass out the graduation certificates and to share my personal views on total quality management. And I did that with the deputy commander filled in a couple of times when I was not there, but made every one of those.

And then we had every employee go through 2½ days of training that we brought in. And I also went and did the graduation for them. However, that was a little more frequent, and it was myself, the deputy and the chief of staff that did it. But again to put the emphasis from the command because you are in that spotlight.

But I would like to share what it did for us. I think partly the downsizing that we're going through I had a choice, we could fight with my four unions over cutting spaces, or I could have them sit at the table to help us figure out how to run the organization and solve the problem. It was much better to have them sit at the table and help me. The command was cut from 1990 until today, 34 percent or over 1,700 people. And I cut the headquarters by 62 percent. But the good news is in that whole process, I've returned over $30 million to my customers through reduced rates just by improved processes.

Let me just share one last thought with you. I have a different definition of TQM. I call it to do the right thing, do it right the first time, continuously improve focusing on the customer.

We also found out some of the things we were not doing were not the right things. We found that in some cases other services were doing it, doing it better than us, or private industry was. Well, we quit doing those things. And that all helped us meet the downsizing requirements that we had. And—but it took a focus—every one of my development programs is done with an integrated product team. Chartered, sign charter, and it sounds like a lot of work from the top. But one of the advantages, when I was high ranking visitors, I had the Assistant Secretary for Research and Development, Mr. Decker, in; I had the Secretary of the Air Force in; I did not have to prebrief the briefing. Those teams are so empowered and they're so proud of what they do, I don't need to see what they're going to say. I might need to share with them some political things that I might know about their program that they need to be incorporated in, but I save a lot of time by that empowerment.

Mr. HORN. Let me ask you, a good part of your laboratories have civilian personnel I assume.

General BODDIE. It's mostly civilian, sir.

Mr. HORN. And they have a fairly high level of education, I would think.

General BODDIE. Yes, sir. But I also have an installation to run where I have the blue collar workers, also.

Mr. HORN. Yes. Do you find any differences between the eagerness of each group to move forward in a total quality management approach between the blue collar and the fairly highly educated laboratory people? What has been the difference and experiences?

General BODDIE. The blue collar, sir, are so eager to go out and really play a bigger part, a bigger role in what they do. They're almost more eager than the scientist and engineer. They've been hungry for this sort of change a little bit more than the scientist and engineer who is often sort of empowered in his own way anyway. So I would say just from my R&D center, the blue collar worker is very eager for this.

Mr. HORN. Very good.

Let me ask a few closing questions here so we won't keep you all night. In view of the huge cost and time required to train a TQ professional, as well as the high turnover rate in some areas and the lack of a TQ career path, it would appear to be a great advantage to outsource TQ training to high qualified professionals. Would that not both reduce the cost and enhance effectiveness of the effort or would that simply mean there wouldn't be an effort? I would just be curious what you feel on that.

Mr. COOKE. We use a number of high cost professionals in our training. And they're really good. They come very, very high; I'm talking several thousand dollars a day. But Anne, do you——

Ms. O'CONNOR. It varies across the department. On the OSD staff, we've outsourced all training and facilitation. And we've done that for a couple of reasons. We have very, very senior people that we're dealing with and we need to bring in folks that have cutting edge experience and actually worked directly with Dr. Deming. And

we have done that over time. So that's one of the reasons we do it.

The second reason we do it is you know there's that old saying about, you know, if you come from more than 100 miles away and you carry a briefcase, you're an expert, and a prophet in our own land is never heeded. So that helps quite a bit, too.

But in different situations it's handy to have different types of setups. For example, overseas you won't necessarily find people to outsource this with. So you really do need to have that expertise in-house.

The other thing is it is important for us to maintain a level of expertise inside the department on this, because I remember the first time we were listening to a contractor's pitch on quality management, he gave his spiel, he left and the boss said, "Well, what do you all think?" And I said, "The only problem with this is we don't know what we're doing." So how do we know if he knows what he's doing? So we decided to keep that in-house, because we just had a more comfortable feeling that the tax dollars were going to be better spent if we embedded it personally.

In many of our operations, as General Boddie alluded to, the commanders play a key role in a lot of this training, too. And we have situations where the supervisors train subordinates. And that again, there's no faster way, as I'm sure you know, to get familiar with material, that they have to teach it. So this really helps perpetuate the learning inside of the Department of Defense. So in certain cases, we outsource it; in certain cases, we keep it in-house, and that's really kind of a commanders prerogative to make that call.

Mr. HORN. Let me ask you, Ms. O'Connor, you came to the Pentagon under, what, Secretary of Defense?

Ms. O'CONNOR. Oh.

Mr. HORN. Dr. Cooke could answer that.

Ms. O'CONNOR. He's got a lot more than I do. It would be Secretary Carlucci.

Mr. HORN. OK.

In the annual commander's meeting that the Secretary has with the key commanders around the world, in any of those Secretaries you have served with, did they ever mention their concern and their commitment to total quality management? Did any of them ever mention that?

Ms. O'CONNOR. Commanders in the field?

Mr. HORN. Did any Secretary of Defense ever mention it to commanders in the field in his annual meeting? There is an annual meeting where the Secretary usually meets with them, as I remember, over the years, unless they have stopped that, and the Secretary runs around the world on a plane enough. Did anyone ever make a personal commitment at the Secretary's level?

Ms. O'CONNOR. At that time, when I came to the Pentagon, I worked under the ANT infrastructure when we had quality in ANT and I moved over. So that would have been Secretary Aspin when I moved over.

There's a lot of information that goes up to the Secretary about this. And the Secretary has put out policy letters and is there whenever we ask him to be there, frankly, for anything we ask him

to do with regard to quality management to show his support. But with regard to that particular meeting, sir, I just don't know.

Mr. HORN. OK.

Mr. COOKE. I can show you, though, starting with Frank Carlucci, because that's when Anne came, a memo to the building, signed by Frank Carlucci and taken up through John Doyte, John White, Bill Perry right now.

Mr. HORN. OK.

Mr. COOKE. So to that extent, in written communications, they've strongly supported it.

Mr. HORN. Getting back to what I mentioned on promotions, but putting it another way, it is generally considered essential that systems be established to reward leaders who were successful in creating a total quality culture. What have the various services done to recognize those who have led this effort successfully? I got a feel from one service. Why don't we ask the Air Force now.

Mr. KAUVAR. Let me elaborate on what Colonel Sawner said who told you that there is, in fact, on a promotion form, a specific recommendation for that. I want to tell you that the enlisted force is equally crucial to our success in quality management, because most of the force is enlisted. That's where most of the adjusting time training takes place and where most of the teams are comprised. Last week we got the promotions for staff sergeant and technical sergeant, and the career field foreman power and quality got more than the average share of promotions.

I can also just tell you anecdotally some information that you will probably find interesting. At the outbreak of Desert Shield in, what was it called, in the mobility commander, mobility command, Four-Star Commander General H.T. Johnson had scheduled 2 days of senior level quality training for his leadership. And they went through with it. The people that I worked for the most directly, General Handy, who is a director of programs and evaluation, and Assistant Vice Chief Three-Star General Newton were both promoted this year. And they were among the leaders in the quality changes that I described to you earlier in my report. Brigadier General Quarter, whose installation won the Installation Experience Award for the last 2 years, was just given a new assignment as the XP in Air Force Materiel Command. And of course in that he will be in charge of quality for the entire command. So I think we do have a record here.

Mr. HORN. Translate those initials you gave me. XP, was it?

Mr. KAUVAR. Yes, that's the director of programs. And that's where the quality function is lodged in the Air Force. So he's gone from running an installation with a superb quality program to taking over the program for the whole command.

Mr. HORN. So you say in the enlisted promotion also, you called it what, manpower end quality?

Mr. KAUVAR. Manpower end power. It's a combined career field now.

Mr. HORN. And what does the manpower group do? Is that the personnel people?

Mr. KAUVAR. No. Personnel is separate. Manpower is authorizations and personnel is individuals. But the manpower people have always been responsible for process reengineering in the Air Force.

Mr. HORN. Yes. Because I would worry if it is the personnel people. Based on the civilian sector, I find they sometimes fight these proposals, so I am curious in what the manpower slot does in the Air Force. Pardon my ignorance, but I am not quite clear on it.

Mr. KAUVAR. It is the management of manpower resources and authorizations, as opposed to individuals, that is a determination of what is the requirement for manpower at a particular location or for a particular function.

Mr. HORN. So these people operate at a higher command level than the ordinary personnel would be.

Mr. KAUVAR. No, you will find them at the wing level and the center level as well.

Mr. HORN. I will have to get familiar with it. If you can send me something over on that, it is whatever the description is in the Air Force.

Mr. KAUVAR. Absolutely.

Mr. HORN. General Boddie, do you want to say anything else on this subject, in terms of the incentive systems?

General BODDIE. No, sir.

Mr. HORN. If it isn't promotion, what is it?

General BODDIE. The Army has been very good to me. It is a privilege and honor to serve as a general officer, and I think my report cards have had mention of total quality management in them, for the last number of them; and they got me promoted to Brigadier General, which is way past what I ever thought I would do.

Mr. HORN. Captain Cantfil.

Captain CANTFIL. I can only put in a personal sense. When I was the commanding officer of the naval station, those who were superpractitioners of quality management were my top-graded people that I personally graded.

Mr. HORN. Colonel Sawner.

Lieutenant Colonel SAWNER. The other thing that is a major motivation, besides the potential for promotion, which is a little different in the Air National Guard, is several different witnesses have spoken of the opportunity to change something, to make a difference, to improve it and actually see it happen; and that is a huge reward system. I think that goes across the board.

Mr. HORN. I think you are right on that.

Let me close with a couple questions to both the IRS and DOD. What should Congress do, if anything, to encourage more widespread application of quality principles throughout the Federal Government? Mr. Carroll, do you have any thoughts on that?

Mr. CARROLL. I hesitate to give you any advice, other than I think that hearings like this, keeping these kinds of things on the table, is an important issue. Because, as I mentioned earlier, agencies, particularly agencies like Internal Revenue, have the possibility of being insular in their view about what is going on; and the more that we can get advice and guidance and other views presented to us, I think that what we are finding is that is of value to us.

Mr. HORN. OK. Any suggestions from the military panel on what Congress might do, if anything, to get this further spread throughout the executive branch?

Mr. COOKE. I can hardly improve on Mr. Carroll's answer.

Mr. HORN. Anybody else have a comment on this? Don't let Mr. Cooke shut off all the discussion.

Mr. KAUVAR. Let me try one suggestion for you, sir. The Congress took a great step forward with the Government Performance and Results Act; and although the implementation of GPRA has been different among the different agencies in Government, I think that moves the whole process in the right direction. The more support we can get for GPRA, I think you will find the more support you will have for quality management as well.

Mr. HORN. I think you are right on that. There is a close interrelationship here.

One last thing. You have heard from every panel today and I heard from dozens of panels before today, before I came to Congress and while I have been here, that one of the great problems any person that wants to accomplish something in this area faces is the so-called culture of a particular institution. And, I guess, how would you encourage workers to embrace change? Do any of you have ready experiences where you felt some reluctance in the start and what did you do now since you are the operators over here in uniform.

Tell me what happened. What is the key? What would you advise, if you had 5 minutes to talk to your successor—after going through doing the job in a particular command, what would you tell your successor that he ought to watch out for if he is getting a new part of the operation that has been untouched by total quality management?

Colonel Sawner, do you want to start that? It is like the Supreme Court. We start with the newest justice.

Lieutenant Colonel SAWNER. Yes, sir.

Sir, what I would say is the senior leadership, as I mentioned, but, to elaborate, everyone has talked about some kind of executive council—well, just having a council doesn't make any difference. The council must do something. They must charter teams. They must sanction the training. They must support this within the organization.

Now what happens, in my experience, is what the teams accomplish is much less important than the process which becomes, in effect, an adult experiential learning process for the council as well as for the members of the team. So if you don't model that and put the process in action in your organization, you are never going to embed it; and you will end up doing quality, not improving what you do.

Mr. HORN. Captain Cantfil.

Captain CANTFIL. I don't think you can really improve too much upon the fact senior leadership is always the key. It is not just words. It is your behavior. We have heard enough examples of that.

Clearly, the only constant is change. My relief, when he took over, they said, I found that quality management principles and methodologies is the way I could manage change; and I thought that was the best way to go. So if you embrace those things through your actions and words, you will get the job done right.

Mr. HORN. General Boddie.

General BODDIE. I go along with the same thing, walk the walk, but I think you really have to work hard in the communications business. I have breakfasts with the boss, breakfasts with the old man, open line TP call-in questions. Because the biggest part of the cultural change piece is to communicate, and let's see the work force understand you are serious.

But I would also say, once you have done that, it would be hard for a commander to come in and change it. Because once the people have tasted empowerment and the things, the way we do business in total quality management, it would be more difficult to bring them back to the old way than it was to turn them around to the new way.

Mr. HORN. I think you are right in the mixed civilian military operation that you had, but if you were in an exclusively combat arm of the military, do you think if a new officer came in that wasn't quite a believer in total quality management and would just like giving orders, that they wouldn't respond to that and go along with it and say this, too, shall pass?

General BODDIE. They would have to respond, but I think they would change the new commander over time. I think people are people whether they are wearing a green suit or civilian coat and tie or blue jeans or whatever. I don't think it makes that much difference.

Mr. HORN. Dr. Kauvar, have you got anything to add to this situation in this particular question?

Mr. KAUVAR. I think it is a matter of just saying yes.

Mr. HORN. Ms. O'Connor.

Ms. O'CONNOR. I would just like to expand upon what General Boddie said.

When we face a lot of change in the Department, when we have gone out to the field units and talked to them, communication is the key. Because the folks that work in the organization are convinced that the boss knows something and he is just not telling and most of the time the boss really doesn't know all that much more about the changes coming at them than the workers do, so we encourage everyone to keep the open lines of communication.

Those lunches with the boss are a fabulous, informal way to get information to the employees and also for the boss to get information back up. Because it is always amazing, the sort of things you hear from the work force when you are sitting in an informal setting.

Mr. HORN. Mr. Cooke.

Mr. COOKE. I share that observation. I think most people in uniform, civilian, in Defense, in Government or not, want to do a good job. They really want to come home at night and be satisfied with the work they have accomplished. I think TQM helps supply that job satisfaction if it is carried out.

What you do thunders so loudly I cannot hear what you say to the contrary. I forget the name of the poet. That is to say the leader, if he is serious about it, has to act, not just talk. Communications is a physical act, not just a verbal, if you will.

We have demonstrated here that we are serious. We may not have all the information you have asked for—we are going to try to provide most of it, Mr. Chairman—but we do take quality man-

agement and defense seriously, and we do invest a considerable amount of time, time well spent, I will say, on implementing and carrying it out.

Mr. HORN. Mr. Carroll, we are going to give the tax collector the last word.

Mr. CARROLL. Thank you. That doesn't happen very often.

The change is all about resistance and comfort, and we have to make it more comfortable to change than it is to stay the way we are. It is a hard thing to do; but, until we do that, people are going to be continuing to resist.

Mr. HORN. We thank you all for coming. Sorry to keep you so late, but it has been very instructive. I suspect when the hearing is published it will be a best seller. Since it is free, it will probably run the budget up of this committee.

Thank you all for coming. This hearing is adjourned.

Oh, wait, on the staff list, I need to say thank you to—and we have it here somewhere. Let me say, before we have adjourned, that we want to thank the following people.

Russell George, staff director and chief counsel, in the Government Management, Information, and Technology Subcommittee; Matt Ryan to my left, the professional staff member who put the hearing together; John Hynes, professional staff member; Andrea Miller, clerk; Mark Stephenson, professional staff member of the minority; Jean Gosa, clerk; and interns, Michael Presicci and Melissa Holder; and the court reporters, that is Katrina Wright and Vicki Stallsworth.

[Whereupon, at 5:01 p.m., the subcommittee was adjourned.

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