



## AFSC SPACE SYSTEMS DIVISION

# Total Quality Report



"REPORTING ON SSD ACHIEVEMENTS IN TQM"

MARCH - APRIL 1991

### GEN CROMER ENCOURAGES EXCELLENCE

In a recent memo to all SSD 2-Letter Chiefs, Lt Gen Donald L. Cromer, SSD Commander, praised the excellent work many organizations were doing in implementing TQM, improving customer satisfaction, and improving the quality of life in our working environment.

He encouraged the communication of these achievements through the dissemination of new TQM publication, the *Total Quality Report*.

Gen Cromer also expressed his desire to hear other success stories and achievements throughout SSD. Your input is welcome and desired.

### PRES. BUSH GIVES VIEWS ON QUALITY

President George Bush spoke to leading industrialists recently at the Baldrige National Quality Award ceremony. IBM-Rochester, Cadillac, Federal Express, and Wallace Co. were the 1990 recipients of the prestigious award.

In his speech, President Bush explained that he wanted to promote an awareness of quality in American business and that giving these awards allowed companies to share successful management strategies that could sharpen America's lead in the world marketplace.

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### PLANS FOR SSD TQM EXPLAINED

by Barbara Van Dine

*(Ms Van Dine is a Program Manager at Technology Exchange Center, the consulting firm contracted to assist in implementing TQM at Space Systems Division.)*

Borrowing a quote from Aristotle, "We are what we repeatedly do. Excellence, then, is not an act, but a habit."

As TQM moves toward the end of its second year at SSD, it is time to begin to focus on its incorporation into our everyday lives. Do we insist on quality from ourselves? What are we doing to constantly improve the processes and quality of life at SSD? Total Quality's primary focus is on *each person* making small improvements in our way of life.

TEC's role during this next year will be to focus on the steps necessary for self-sufficiency in Total Quality implementation and training. The training will focus on a continued upgrading of skills for the Process Managers as well as more seminars on tools and process skills for Senior and Middle management.

We, at TEC, would be interested in your overall feedback or any questions you might have on any area relative to TQM. You can reach TEC on E-Mail using the name TECHEX or by call me at the office at (714) 648-0266.

### GEN KLINK CHAIRS METRIC STUDY

There is a saying in TQM that goes, "What you measure, you improve." Although this implies that the act of measurement will point out areas to improve, it isn't all that easy. Meaningful metrics that will monitor our improvements must be found.

In order to seek out areas for improvements within SSD, Brig Gen Jean Klick is chairing a study on Product Division Metrics. Participants at the 2-Letter level are investigating improvement measurements that will enhance the way we do business and satisfy our customers and users.

Metrics that are being considered include improvements in reducing costs, meeting schedules, the number of SSD people winning awards, and the type of training offered. The results of these measurements will help to determine where bottlenecks occur, as well as assist in monitoring our progress in moving toward total quality.

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##### Good news on TQM from:

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## DSP OUTLINES THEIR TQM PLAN

By Lt Col Richard S. Cheney

The DSP TQM effort is moving forward and gaining speed. Our 3-Year Improvement Plan has been an invaluable tool in keeping us on schedule and showing the people that continuous process improvement is possible with their support and dedicated efforts.

Equally important is that the Plan was the product of the DSP TQM Council (process owners) and Steering Committee (SPO volunteers for process improvement), assuring broad representation in its development. The Plan authorizes the formation of specific teams over the next three years.

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## PRES. BUSH (cont'd)

"These four companies learned that quality can not be imposed from top to bottom... They learned that they are only as strong as the intelligence, judgment, and character of their employees... And when many companies speak of quality changes, they speak of improvement in management... They proved that even in tough times you can still commit to long-term improvements in quality," explained the President.

The message given industrialists by President Bush also applies to Air Force. Every organization within Space Systems Division should emulate the standard of excellence set by these Quality Award winners. All of our contractors and suppliers should be aiming to win the Baldrige award themselves. Our leadership, workers, and support should all strive for total quality in the work they produce.

## BUICK'S QUALITY SECRETS

Several years ago, Buick City was known as GM's worst manufacturing plant. It is now GM's best, and Buick is the only American car rated in the top 10 of quality automobiles.

The following six-step problem-solving technique was adopted by worker teams to help improve quality (From "Boardroom Reports Newsletter" 1 Feb 91):

1. Identify the problem and set a goal.
2. Analyze the problem.
3. Come up with as many potential solutions as possible.
4. Select what seems to be the best solution.
5. Implement the solution.
6. Try the solution for seven weeks. If it works, the problem is solved. If problems remain, go back to step 1.

This may seem simplistic, but it is a unified effort to improve processes, from the worker-level. A similar approach could be applied in the various SSD organizations.

## CN HOLDS OFF-SITE

Col Bill O'Brien, Director of the SDI Programs (CN), recently held an off-site with his program directors and their deputies at Ft. MacArthur. Lt Col Jim Ledbetter facilitated the meeting, which included a brainstorming session to update CN objectives along with their metrics.

Col O'Brien announced the formation of a Quality Council, consisting of the 3-Letter deputies. This group will meet regularly to work TQM issues.

## LOGISTICS USES BENCHMARKING

by Ms Jackie Saxer

Under Col Joseph O'Neill's leadership, Acquisition Logistics (AL) is taking a major steps in the commitment of resources to change to a quality culture and environment. He is committing key personnel to be the TQM Point of Contract and Process Managers, and he is also applying benchmarking techniques to the planning and measurement of progress towards AL's goals.

These benchmarking techniques were used at the recent AL Quality Council Meeting. The group found the benchmarking tool to be a catalyst for arriving at a group consensus of what the AL goals should be, in determining where we are now, and envisioning where we want to be. We can begin to "see" what steps and actions are required to reach these levels and ultimately our goals.

### Free Flow of Information

Participants of this meeting felt it had the freest flow of information and opinions that had been seen in such meetings. It was also observed that developing the benchmarking matrix helped focus efforts on what we really do for a living. In general, the group wished to proceed immediately on action items and not wait for the next scheduled meeting to follow-up.

To assist as a tool in the cultural change, AL is also investigating the adoption of an automated Search For Opportunities (SFO) system similar to that developed by PK. This effort is being considered to gain impetus to AL's People's Idea Program.

(Ms Saxer has recently been appointed AL's new TQM Focal Point.)

## DSP PLAN (cont'd)

Teams are the key to our success. We use four different types: Process Action Teams (PATs), Implementation Teams, Working Groups and Task Teams. Each type of team has a separate role that supports our total improvement effort and has been identified in our Improvement Plan.

### PATs Chartered

The PATs are chartered to investigate specific processes and develop a process improvement plan. The plan is then given to the process owner who then puts it in place using an Implementation Team. This team works all the details of the plan, develops measurements to check its progress and reports directly to the process owner. These two teams work when the processes are defined and the areas of opportunities can be easily identified.

When this is not the case we use a Working Group to identify, define and prioritize processes. The output from the working groups is a recommendation to the Council on the formation of PATs to improve specific processes. Task Teams are formed to look at specific problems that need to be rapidly fixed. Task teams solve only these problems and implement the changes themselves.

Our first teams have been outstanding:

### Training PAT

The Training PAT, was led by Paul Leuthauser, with team members Beverly Godshall, Kevin Panet, Joe Coniglio, Melinda Eddington, Al Duenas, Linda Jeter and facilitated by Kim Hurd. The team met nine times in December 1990 and January 1991 to define and develop the DSP training process.

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## MILSTAR WORKS WITH LOCKHEED ON TOTAL QUALITY

by Maj Meloney J. Stone

The Milstar Joint Program Office (MJPO) has been working with their prime contractor, Lockheed Missile & Space Center (LMSC) to develop a strong customer/supplier relationship. The way we have been doing this is by hosting joint off-sites and joint Process Action/Improvement Teams (PA/IT).

Our first off-site was held last summer with Program Director Col Dale Condit, the 3- and 4-Letter Chiefs, and their LMSC counterparts. The main focus was communications and teamwork. As a result of the session, we established a number of action items to enhance the contractor/government relationship. A follow-up off-site is planned for April 1991.

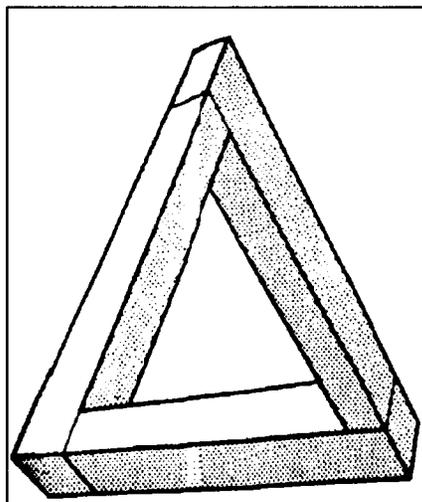
The LMSC Continuous Quality Improvement (CQI) focal point, Mr Dennis McNulty, and the MJPO

focal point recently developed a two day off-site for PA/IT team leaders. During this off-site, the team leaders learned more about the processes they need to follow, team leader skills, meeting skills, and information on other teams were accomplishing. This was a very successful event, and the participants were enthusiastic about applying what they had learned.

The actual joint PA/IT activities include subjects like Engineering Change Proposal processing, scheduling, funding, Mission Control element test procedures, Requirements Verification, and Work Breakdown Structure. We continually interface to update each other on the events which have joint impacts.

We have found that teamwork is necessary to continually improve our processes.

*(Maj Stone is the TQM Focal Point for MJPO)*



**One of the tragic results of using a Contractor that doesn't quite understand how to use TQM principles.**

## PROCESS MANAGER CLASS SCHEDULED

The next session of Process Manager training will be held at SSD during the weeks of 15 April and 22 April. The class will be taught by the Technology Exchange Center (TEC) and coordinated through the SSD TQM office, SDD.

This training is designed to provide the first level of skill necessary for an individual to coach Process Action Teams (PATs) and to assist with the TQM implementation effort in their organization.

For more information concerning this training, contact Capt Tom Geoghan at x33035.

## DSP PLAN (cont'd)

The lack of this process was the Number One problem identified by our survey of SPO personnel in July 1990. The PAT's plan assures everyone will be properly trained before beginning work. The plan was briefed to and approved by the Council and an implementation team was authorized to put it in place within 12 weeks.

### Admin Support Team

The Administrative Support Task Team was led by Kevin Panet and Kim Hurd, with team members representing the entire secretarial pool. Their task was to develop and implement a plan to assure the executive secretary's position would always be covered during working hours. The team developed a standby roster of all the secretaries and a continuity book for the executive secretary position.

### Supplier Partnership

The Supplier/SPO Partnership Working Group has just formed and is led by Ed Manko, with team members Roger Garza, John Toomey, Pam Hodge, Al Duenas, Bill Scott, Jim Clancy and facilitated by John Toomey.

The group is developing the agenda and will execute the first-ever conference devoted entirely to process improvement between the SPO and our prime contractors. The DSP TQM office sponsored a meeting on 4 Jan 91 where the focal points from each supplier came together to share their experiences in supporting TQM on DSP contracts.

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*"Don't wait for your ship to come in..."*

*Swim out to it."*

## THREE STEPS TO TOTAL QUALITY

Starting up a Total Quality way of doing business in any organization is difficult. To many, TQM seems to be concerned with a lot of motherhood, PATs, and other activities that seem to have little to do with the ultimate goal of satisfying the customer/user with quality products and services.

The reason for this is that many efforts toward implementing this new philosophy are disjointed and not focussed. A solution is to look at implementing TQM in terms of three simple phases or steps. The size of organizations applying these steps may be as large as DoD or as small as a 3-person working group. A number of organizations at SSD have successfully used this technique.

Before starting to implement total quality, the leader of the organization must see a need for improvement and make a commitment to achieve excellence. In fact, the commitment must even go beyond excellence to a commitment to perfection.

The first phase in achieving that commitment is to improve internal operations. Those reporting to the leader - his suppliers - must know of this commitment and must be encouraged, motivated, and helped to provide quality products and error-free services to their boss.

Simple examples of ways to improve internal operations are

award programs, encouraging training, and improving the work environment.

Once internal operations are improving, the second phase is started. That consists of improving the products and services received from external suppliers and contractors. The method is similar to what is used for internal suppliers: they must know of the commitment to excellence and must be encouraged, motivated, and helped to provide quality products and services to their customer.

Forming Air Force/Contractor teams is one example of helping and encouraging supplier quality. Removing obstacles that

inhibit contractor performance also improves their output.

At this point, the leader should have his "organizational act together" and be ready to work on the third and most difficult phase: completely satisfying his customer.

Not only must the customer be made aware of the commitment to excellence, but he must also be encouraged to keep open clear lines of communication as to his requirements. The leader must aggressively seek to continually improve what he delivers and keep the desires of the customer always in mind.

What phase is your organization in at this time? If you can give any examples of your experience in this method, we'd be glad to hear from you.

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### Three Steps to Total Quality:

1. **First, Improve Your Internal Operations,**
  2. **Next, Encourage Quality From Your Contractors,**
  3. **Then, Satisfy the Customer.**
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## CONTRACTING ACTIVE IN TQM

by Maj Charlie Buntsma

The Deputy Chief of Staff for Contracting, PK, is actively involved in TQM and enjoys the benefits which are resulting, thanks to the teachings of Dr. W. Edwards Deming. The active participation by a diversity of PK personnel is beginning to pay dividends of improved acquisition quality, timeliness, and happier employees.

The process of maximizing participation in PK quality improvement is based on their TQ Team. This group meets at noon every Wednesday to discuss its mission, methods, training, and Search for Opportunity (SFO) suggestions.

SFO is a suggestion program for improving processes and the way work is done within PK. It has recently been automated so that inputs and tracking of suggestions or "SFOs" can be done via personal computers. The SFO program has

been very successful, and other SSD organizations are implementing similar programs.

A half dozen key individuals called Process Managers meet weekly prior to the TQ Team meetings to prepare documents and agendas. Although the TQ Team meetings have agendas, they are essentially brainstorming sessions.

The TQ Team *regularly* reports to the PK Steering Committee, which is composed of the PK Directors. This group receives the SFO reports and recommendations. After evaluation, they vote on the implementation of the suggestions.

In summary, PK is following a very methodical approach to getting people involved and getting results that lead to Total Quality and Continuous Process Improvement.

*(Maj Buntsma is the Deputy Director of Plans, Programs and Management in PK)*

## QFD RELATES TO BUYING CONCERNS

In the acquisition of space systems, there are certain factors we like to see in the products and documents we receive. These factors should be the same as the "buying concerns" of our external customers and users within DoD.

A powerful tool used in determining the "voice of the customer" within system development is called Quality Function Deployment (QFD). Engineering features are matched against important customer requirements to determine what factors are important.

Interestingly enough, these factors are often similar to what is important to commercial buyers. For example, PC WEEK magazine publishes charts of "buying concerns" of corporate executives of various computer hardware and software products. Typical buying concerns, in order of importance, are:

*Overall reliability*

*Ease of use*

*Compatibility*

*Performance*

*Quality of documentation*

*Price related to performance*

PC WEEK uses customer surveys to get their information, while QFD uses customer/supplier teams.

QFD can also be used by Air Force organizations as part of their step to satisfy their DoD customers and users. The use of QFD by the contractors should also be encouraged as the step in ensuring receipt of quality deliveries.

*(See related article on page 7.)*

## REPORT'S NAME CHANGED

You may have noticed that the name of this publication has changed from the last issue.

SSD commander, Lt Gen Donald Cromer suggested deleting the word "Management" from the name to emphasize that the information and achievements published do not only concern SSD management.

Just like continuous improvement, the *SSD Total Quality Report* is intended for every person at SSD, no matter at what level.

*It is more difficult to do a poor job than an excellent one.*

## THE SCOURGE OF INSPECTION FOR DEFECTS

One thing TQM is trying to eliminate on the production line is *Inspection for Defects*. That is where someone's only job is to look for mistakes or poor workmanship, resulting in scrap or re-work required. Worker incompetence is the assumption.

The new way of doing business of working together to produce a perfect product without needing re-work. Good workmanship is the assumption and the rule.

Which method do you use in managing your workers?

## WHAT'S REALLY NEW ABOUT TQM? (part 2)

by Lt Col John Williams

*(This is the conclusion of 2 part article. In the last issue, Lt Col Williams referred to the book "Out of the Crisis" by W. Edwards Deming to summarize the new approach to quality: Continuous Process Improvement.)*

To emphasize the importance of continuous process improvement, let's look at some of the more common misconceptions about what TQM is:

### 1. TQM is not simply "doing your best."

This is not to say that you shouldn't do your best, it's just that doing your best is not at the heart of TQM. As Deming put it, "Best efforts are essential. Unfortunately, best efforts - people charging this way and that way without guidance of principles - can do a lot of damage. Think of the chaos that would come if everyone did his best, not knowing what to do."

### 2. TQM is not simply "teamwork."

Now, teamwork is great, but teamwork has been around for centuries, long before TQM. We have had teamwork without TQM, and it is also possible to have TQM without teamwork.

For example, many innovations are the result of ideas and actions by individuals. The Air Force teaches leadership attitudes that can result in improvements that are initiated by a single person. This is good and a form of TQM, but it does not involve teamwork.

### 3. TQM is not simply "statistical control."

Often one hears that the TQM way to improve quality is, "get the

process under statistical control."

Admittedly, statistics is indispensable, because TQM can only be applied to a stable system, and the only way to know if the system is stable is to use statistics. To quote Deming, "Improvement of the process can be pushed effectively, once statistical control is achieved and maintained."

But Deming also points out, "It is possible and in fact fairly easy for an organization to go downhill and out of business making the wrong product or offering the wrong type of service, even though everyone in the organization performs with devotion, employing statistical methods and every other aid that can boost efficiency."

Thus, while TQM definitely uses statistical methods, the use of statistical methods is not a guarantee that TQM is being used.

The list of "TQM is not..." could go on and on.

It's not that these things - things like effective communication, worker participation, doing it right the first time, etc. - are bad. It's that they don't offer a *roadmap* on how to effectively improve quality.

The new guidance from Deming tells us what approach to use to improve quality: "Improve constantly and forever every process for planning, production, and service."

#### REFERENCE

W. Edwards Deming, "Out of the Crisis" (Cambridge MA, MIT, Center for Advanced Engineering Study, 1986).

*(Lt Col Williams is the Chief, Program Integration Division, CNPI)*

## ROCKWELL STATES THEIR CREDO

Air Force contractor, Rockwell International recently established a Credo, stating what they believe and the values they want to represent.

The first statement in the Rockwell Credo is: "We believe that maximizing the satisfaction of our customer is our most important concern and is the means of warranting their continued loyalty."

Their Credo also stated how their people are most valued assets and the importance of providing value to their customers.

Credos like this are important in focussing organizations toward quality. What are your quality beliefs?

## TQM QUESTION TO PONDER:



**Are Award Fees or cash awards good incentives to encourage quality from your workers, contractors, and suppliers?**

**Deming says, "No." Others disagree and say awards do encourage future quality.**

**What do you think?**

## COL SIMMONS PRESENTS COURSE ON GOAL SETTING

Col Jim Simmons, Deputy Program Director for the SDI Programs, is presenting a 20 hour course "Investment in Excellence" to CN personnel. The videotape/discussion course is useful establishing personal and professional goals.

"I put over 600 people through the course when I was stationed at Vandenberg," Col Simmons explained. "The response to the material was very positive."

### Positive Benefits

As a result of consulting with Col Simmons on this material, Lt Col Don Sutula and the CNW 4-Letter Chiefs worked with their people to develop goals, visions, and 1991 objectives at the 4-Letter level, consistent with the CNW, CN, and SSD statements.

Col Chuck Whited, CNW Program Manager, felt the establishment of these goals, visions, and objectives solidified the important TQM step of improving internal operations of his program office. "We empowered the workers to have an input of how we plan to do our business," explained Col Whited.

For more information on the "Investment in Excellence" course, contact Col Simmons at x30740.

## NAVY BEST PRACTICES USED AS TQM GUIDE

The Navy's *Best Practices - How to Avoid Surprises in the World's Most Complicated Technical Process* (NAVSO P-6071) is used as a TQM guide by many contractors. It gives good pointers to follow in the transition from development to production.

## LAUNCH PROGRAMS USES QFD

by 1Lt Tom Eide

A unique application of Quality Function Deployment (QFD) is currently being used in the Launch Programs SPO (CL) for the acquisition of medium launch vehicles (MLV) to launch the GPS IIR satellites. What makes this application of QFD unique is that it is being used to develop the acquisition requirements for the Request for Proposal (RFP).

Traditionally, QFD is used for product design, where a piece of hardware is being developed and specific design characteristics need to be determined. For instance, the ALS program applied QFD to the development of cryotanks. QFD is ideally suited for this application, since it not only helps define and prioritize customer requirements, but also helps quantify the best way to meet them.

### Used on RFP

The MLV III program, though, is not designing a new launch system. Most likely, the winner of the competition will use a mature design with an extensive flight history. Thus, the QFD tool was tried on the RFP process. The effort proved successful.

QFD provided a systematic way of defining customer requirements, (called 'whats') and determined how each of the components of the RFP (called 'hows') impacted or met the customer's requirements. With this information, the acquisition team could streamline the RFP by eliminating those components that least met the customer's requirements. They could also pay more attention in the source selection to the items that could most impact the customer's requirements.

A core QFD team consisted of 1Lt Tom Eide, 1Lt Mercedes Vizueta, Joyce Mullenbach, Capt Jim Knauf and Horace Clark of AFSPACECOM, 1Lt Evan Xenakis from the GPS JPO, Jack Yahner of the Aerospace Corporation, along with Maj Max Jeane of CL, and Lt Col Jim Dywer and Paul Kocincki from staff. Joe Juarez of Aerospace was chosen to act as the facilitator. The team agreed to bring other people in and out of the process as necessary.

### Worth While Exercise

Since documenting and prioritizing the customer requirements was new to the SPO, the QFD process took six weeks, but it was well worth the time spent. Not only did the team develop a strong bond with their customers, but they also quickly realized that most of what they traditionally called "requirements" were actually just one of many ways to meet *customer* requirements. The extra time up front should save money and hours downstream.

Anyone desiring more detail on QFD or this unique application, may call 1Lt Eide at 363-3996.

*(1Lt Eide is an Acquisition Engineer and TQM Process Manager in CL.)*

## AL NAMES TQM MANAGERS

Ms Jackie Saxer, ALM, has been recently appointed as AL's first full time TQM focal point to plan, manage, and track AL's quality environment. She will be assisted by the AL process managers, John Armstrong, Mike Hinshaw, Wayne Markison, and Capt Bryan Adams.

## DSP OUTLINES THEIR TQM PLAN

(cont'd from page 4)

Copies of the DSP Improvement Plan were given to the focal points and the upcoming conference was the main topic of the afternoon session. The discussion was very lively and everyone left with a clear understanding of the scope of the upcoming conference and the SPO's intention to make TQM the way we do business. The focal points have since identified their team members that will work with our working group.

Our last team is the most challenging - Internal Business Processes Working Group - led by Jim Adams, with team members Dave

Cole, Bill Lee, Ann Kuo, Angela Smith, Georgia Pierce, Roy Weber and facilitated by Rich Cheney. They have the daunting task to identify, define, assign ownership and prioritize our business processes for future process improvement.

There is one other group that is not a formal team but has been critical in identifying and documenting our progress in TQM. Every office in SSD has a requirement to report how they meet their customer's needs at the Horizons Conferences.

We report to the PEO for Space, Brig Gen Schnelzer. Lt Col Cheney acts as a liaison between the PEO staff and DSP to assure we provide the PEO data substantiating our efforts to meet the customer's needs. The group came together in December, with Mike Booen, Paul Leuthauser, John Gee, Butch Cham-

berlain, Ed Mallert and Paul Sontag as members.

Our brainstorming session identified six areas where we had already collected data. Col Kidd selected three from this list and showed the results to our users who agreed these were the most important areas to track. As a result, the PEO staff sent us a letter of appreciation for our timely input and stated that Gen Schnelzer would use the DSP model for his other programs.

With so many activities going on, it's sometimes hard to select which ones to report. How do we measure our success? There is no clear answer to that;

however, all of our teams are composed of true volunteers who have agreed to work together to improve DSP. Col Kidd has cleared the way by making this his top priority in the SPO. His leadership and determination in making DSP a model TQM organization has inspired all of us to seek and expect excellence in the work place.

*(Lt Col Cheney is the TQM Director for MJ.)*

**DSP has a 3-Year Improvement Plan, putting them on solid ground for implementing TQM within their organization.**

## BOOK EXPLAINS DEMING

Much of the Total Quality movement is based on the work Dr W. Edwards Deming did with the Japanese to turn them into the quality "terrors" they are right now.

An excellent book explaining Deming's famous 14 Points is *The Deming Route to Quality and Productivity* by William W. Scherkenbach (CEEPress Books, George Washington University, Washington D.C., 1990).

The book advocates that management "adopt the new philosophy. We are in a new economic age, created by Japan. Western management must awaken to the challenge, must learn the responsibilities, and take on leadership for change."

It also says, "Remove barriers that rob the worker of his right to pride of workmanship."

This 145 page book clearly explains the various facets of the Deming philosophy and is recommended reading for managers.

## REDUCING BOTTLENECKS

An important reason to measure areas for improvement is that it helps to point out the bottlenecks that cause inefficiency.

### *SSD Total Quality Report*

*Lt Gen Donald L. Cromer, Commander*

*Brig Gen Jean E. Klick, Vice Commander*

*Mr William Briggs, Assistant for TQM*

*Mr Ron Kurtus, Total Quality Report Editor & Publisher*

*If you have any questions, comments, or contributions to the SSD Total Quality Report, contact:*

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