

# After the PAT—Reengineering the Acquisition Oversight and Review Process

**“Reengineering the Acquisition Process Puts More Responsibility, Not Less, on the PMs and PEOs”**

**A**rmy Brig. Gen. John S. Caldwell, Jr., has not advanced through the Army ranks without taking on the tough jobs. Abrams Project Manager was but one of many assignments that prepared him for, perhaps the most difficult challenge of his career: reengineering the oversight and review process for acquisition systems.

Two years ago, while serving as the Military Assistant for Systems Acquisition in the Office of the Deputy Under Secretary of Defense for Acquisition Reform, Caldwell was chartered by Secretary of Defense, William J. Perry as team leader of a Process Action Team charged with reengineering the oversight and review processes, which comprise the decision making process within systems acquisition. This team, among the first of the Acquisition Reform Process Action Teams (PAT), was described by Under Secretary of Defense for Acquisition and Technology, Paul G. Kaminski, as “...the first prerequisite for what we wanted in that kind of [Process Action Team] effort to remove all existing constraints and have a fresh look.”

In an August 1996 interview with *Program Manager* magazine, Kaminski expressed his confidence in the results of that study. “It was a very constructive study in that it pushed far enough to get beyond the comfort zone of some of the people supervising our acquisition system. And so it tested some people on the boundaries of how far we could go to reengineer the system.”

**“One of the biggest successes in my mind has been the work that’s come out of the Oversight and Review Process Action Team. Their initial draft report and the counter-proposal that came from OSD set the stage for the final recommendations acted upon by the Department—use of Integrated Product Teams, early insight rather than oversight, where people are working toward a common goal—program success.”**

**Colleen A. Preston**  
Deputy Under Secretary of  
Defense (Acquisition Reform)  
Aug. 22, 1996



Now, two years later, the preponderance of the recommendations coming out of Caldwell’s PAT have been accepted and, according to Kaminski, “Most of those [recommendations] have been very effectively put into practice.”

*Program Manager* recently caught up with Caldwell, who is now a general

*Collie J. Johnson, Managing Editor, Program Manager magazine, conducted the interview with Gen. Caldwell and Col. Engel on behalf of the DSMC Visual Arts and Press.*

officer and Director, Army Digitization Office, Office of the Army Chief of Staff. We also managed a simultaneous interview with his successor who was also a member of the PAT, Army Col. Richard A. Engel, Military Assistant for Systems Acquisition, Office of the Under Secretary of Defense for Acquisition and Technology. We asked both to reflect on the progress of this monumental task of reforming the acquisition system.

Process Action Team to reengineer the oversight and review process for material acquisition. We formed a team of about 30 people from all the Services and Defense Agencies to define the oversight review process, determine how to make it more streamlined, reengineer it to reduce the cost of doing business, and improve our acquisition process.

And we accomplished that in about 90 days. We completely re-engineered

implemented. And the process has been underway since April 1995, continuing to examine those recommendations and implement those that were judged ready to be implemented.

We think all of them were worthy of being implemented. Some have not been, and some are still in the process. To my pleasure and surprise, by far most of them have been implemented or they probably will be implemented, even if slightly modified, within a reasonable period of time. Some have not been implemented, and I hope they get a re-look because I think our look was very comprehensive and very thorough, and the recommendations were pretty far-reaching.

**Program Manager:** Col. Engel, how did you come to be assigned to the position vacated by Gen. Caldwell?

**Engel:** Shortly after the Process Action Team published its report, Gen. Caldwell was reassigned to the SARDA staff, and I was coming out of my program management shop in Detroit where I was the PM for Survivability Systems. I volunteered to come out here and backfill Gen. Caldwell in this position based on the fact that I was on the Process Action Team, and could build upon my program management experience, and make a contribution to the entire defense acquisition community.

**Program Manager:** Gen. Caldwell, your report had 33 recommendations. Let's talk about some of the major ones. Would you tell our readers about the three-milestone process. Has it been implemented?

**Caldwell:** It was not implemented in the way that we recommended. However, the Department decided to go back and re-baseline all of the major programs and make program-by-program decisions on what changes in the oversight and review process could be made that would best fit that program. So the intent of the recommendation for the time being was probably carried out, even though the specific process that we



Photos by Richard Mattox

FROM LEFT: ARMY COL. RICHARD A. ENGEL, OVERSIGHT AND REVIEW PROCESS ACTION TEAM MEMBER, AND ARMY BRIG. GEN. JOHN S. CALDWELL, JR., PROCESS ACTION TEAM LEADER, REFLECT ON THE PROGRESS OF REFORMING OVERSIGHT AND REVIEW OF DoD'S ACQUISITION SYSTEM.

**Program Manager:** For our readers who might not have heard of your PAT team and their fine work, would you give us a little background?

**Caldwell:** I'd be glad to. I led the Process Action Team while working for Mrs. Preston in her capacity as the Deputy Under Secretary of Defense for Acquisition Reform. I was appointed to lead the

that process to a large degree and published our findings on Dec. 9, 1994, as directed by the Secretary of Defense in our charter. The process then began review and approval by Dr. Kaminski, the Under Secretary of Defense for Acquisition and Technology. And that process took a while; I believe it was about April 1995 when the first of the recommendations were approved and

## “REENGINEERING THE ACQUISITION OVERSIGHT AND REVIEW PROCESS”

### Highlights of PAT Recommendations to the Secretary of Defense Dec. 9, 1994

The Process Action Team (PAT) developed 30 concrete recommendations for a reengineered oversight and review process. In addition, the team developed three other recommendations to implement the recommendations that senior DoD leaders would ultimately decide to undertake. The reengineered oversight and review process recommendations included the following highlights:

- forging a three-milestone process;
- trimming milestone decision documents and activities;
- collapsing the number of formal pre-milestone meetings to one;
- institutionalizing integrated product teams to do oversight;
- aligning program accountability and reporting;
- centralizing the affordability decision by placing it into the warfighters' hands;
- consolidating the oversight and review process for Joint programs and those programs requiring substantial inter-Service harmonizing;
- establishing more stringent experience criteria for ACAT I program managers and deputy program managers;
- stabilizing major defense acquisition program manager tenure from program initiation until start of production;
- establishing a career civilian deputy for the Defense Acquisition Executive and each Component Acquisition Executive;
- revitalizing the Acquisition Program Baseline as the major program control tool and eliminating the need for other documents and “contracts” (e.g., exit criteria) among the program manager, the user, and the Milestone Decision Authority;
- institutionalizing a summit process for ACAT I programs to highlight opportunities for cost, schedule, and performance trade-offs; and
- applying reengineering principles to contractor oversight.

laid out was not implemented across the board.

**Engel:** Yes, the three milestones that were laid out in the Process Action Team report were basically the requirements determination phase, an engineering phase, and then a production and fielding phase. And that particular process was not adopted, but we have made some changes to the milestone process in the acquisition cycle.

First off, Dr. Kaminski decided that we would eliminate the Milestone IV decision, so that's no longer in the cycle. That used to be the modification decision point for systems that were already in production and fielding. Under the new process we make a determination as to where that upgrade or that modification would fit back into the acquisition cycle, whether it would have to start with a demonstration/validation or it was mature enough to slip into EMD, and

you would just basically start at that point.

Another decision that moves toward a streamlined milestone process is the fact that there is now only one DAB-level production decision. The policy now is that there will only be one production decision, either low rate or full rate production, at the DAB level, and the other one will be delegated to the Services.

**Program Manager:** Please comment on trimming milestone decision documents and activities.

**Caldwell:** Once again, not exactly the way we recommended, but I think there's been tremendous progress made there, and I've been very pleased with that. Very few programs have had to go all the way to a DAB. All the issues have been settled in advance. They've been settled a lot faster with a lot less documentation. And there has been a lot of follow-on, guidelines-type work by Mrs. Preston's office. And I think a lot of progress has been made in that particular case.

**Engel:** Documentation streamlining, I believe, is one of the major improvements that we've achieved. The old DoD 5000.2 Series was very thick and dictated, or at least gave the impression of dictating, that all of the various forms had to be filled out, the reports had to be attached, and you had to check all the blocks. If you did not want to complete some of those, you had to go back in and ask for a waiver. The new DoD 5000.2 Series information requirements, however, are based on a tailoring-in philosophy.

The new philosophy now is that we will make a deliberate decision to tailor information into the decision package. We start with only what's required by statute and regulation. And at that point, people have to make a deliberate decision as to what information is required by the decision maker to make an informed decision at that future milestone. And so there's a tailoring-in philosophy here.

What's really good about this is that those decisions are made early in the acquisition phase so that PMs will look ahead toward the next milestone. They will say, "Okay, I'm moving to a production decision. What information do I believe the decision maker, the Milestone Decision Authority, needs at that point?" They will work that through their Working-level Integrated Product Team (WIPT) structure. They will then make a recommendation to the Overarching Integrated Product Team (OIPT), and then the OIPT will provide them with guidance or get clarification from the Milestone Decision Authority. And so that information decision is made very early in that particular acquisition phase. And then the entire program management team can move forward executing their program, knowing what information they have to acquire and present four, five, or even six years later when they get to the next milestone. So it's all laid out, and it's tailored to meet the specific program's needs.

**Program Manager:** How about the issue of collapsing the number of formal pre-milestone meetings to one. Do you want to comment on that?

**Caldwell:** Maybe my expectations were too high to do that. That has not been implemented the way we envisioned it on the Process Action Team. But there are fewer meetings, and there have been meetings that included members from the Office of the Secretary of Defense and the Service offices in the same meetings, whereas before our decision meetings always followed a sequential process in which the Service would have all of its deliberations and then OSD would have all of its deliberations.

The very sensitive issue is resourcing, the programmatic, dollars, etc. And that's going to be the last one to fall because that gets deep inside in-process decisions, usually a lot broader than any one specific program. And so those are more closely held.

**Engel:** I thought it was a great recommendation, and it really fits well with



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the WIPT/OIPT process that is in the new 5000. I will have to say that we're not quite there yet. We are moving in that direction.

If the process was working perfectly you would have representatives from all of the Services and the Department's staff working very closely together at the program level—through the WIPTs supporting the PM, and that would eliminate the need for a lot of the pre-milestone briefings given to various Service and OSD executives before the program goes to the Defense Acquisition Executive. We're seeing progress in that direction, but there is right now, I will say, a natural reluctance for a Service Acquisition Executive to take a program to the Defense Acquisition Executive before having a chance to personally look at it.

But we're seeing the comfort level grow, and that's leading to the elimination or consolidation of some of those pre-briefs.

**Program Manager:** Let's discuss institutionalizing Integrated Product Teams to do oversight and review. Is that working? Do you sense any resistance in the acquisition corps to IPTs, or does the professional acquisition workforce, for the most part, like the concept?

**Caldwell:** I think they do like it, and it has made a lot of headway to the extent that I think it's broken the cultural mold. And I think everyone sees that when it's executed properly, it really does move you to address all of the issues faster and more effectively.

While there are guidelines that have been published, each program is different and they're in different cycles, so at times there has been some confusion about setting up the IPTs. And IPTs are difficult to run, to do them correctly, and so there's been a lot of training, and there needs to be a lot more training on how to do that. But I believe that the overall jury verdict would be that they have been quite effective, although not perfect.

**Engel:** I would just add to Gen. Caldwell's comments by saying that I think they're working better than many folks have expected. Dr. Kaminski signed the first memorandum institutionalizing IPTs on Apr. 28, 1995, and then Secretary Perry signed another one on May 10, 1995, basically stating that throughout the Department, we're going to use the IPT process as much as possible.

All of that has been embedded in the new 5000 which was published March 15 of this year. And it's working much, much better than anybody ever anticipated.

We did a survey in February of this year. We went out and we surveyed all of our ACAT-1 PMs and their matrix staff; we went to Component staff, OSD staff and so forth, and we tried to assess how well that process was being implemented. And we were very encouraged with the responses. Ninety-five percent of the people who responded to the survey said that their supervisors endorsed the process. Eighty-seven percent of the respondents said that the IPT process adds value to the entire acquisition system. Quite frankly, that was a much better reaction than we'd expected at that time.

After publishing policy, conducting conferences, conducting a satellite broadcast, producing a video, and publishing in newsletters and so forth, we weren't really sure just how comfortable the people on the ground actually were with this new process. We were very pleased with their positive responses.

There are obviously some areas that need some improvement, and we've identified those and we're continuing to press forward on this. And I think the OIPT/WIPT process, like everything else, is a continuous improvement process. You make the change, and you identify and assess where you are. You identify areas for further improvement, and you keep working those off. And I think we're well down that road.

**Program Manager:** *We've been fortunate to publish a lot of IPT success stories in the last several months. From our vantage point, this initiative appears to be one of the most successful in OSD's ongoing efforts to reform the acquisition process.*

**Engel:** I participate in IPTs for about 20 programs. They've been assigned to me as a mentor and or a consultant from our office to help people understand what the policy is, help interpret it, help them implement it and adapt it to their particular program. And in the programs that I see, I'm very encouraged that it's working well. People are working very well together. I think that the programs are benefiting from the exchange of information, the adding of the additional experience up front and early in the various programs.

When I come down here and I talk to the classes at DSMC, I tell them that what we have done is we have added a vertical dimension to the program manager's staff of advisors. The PM and his immediate organic and matrix support staff frequently will reach out, horizontally so to speak, to outside agencies, test agencies, and analyses agencies for additional support and information.

What we've done now is we've added this vertical dimension. We brought in the experience, knowledge and the expertise from the Service and OSD staffs. They have seen many programs go down through the acquisition cycle and through milestone reviews, and they've seen things that work and things that don't work.

And so what we're doing with this new IPT process is we're plugging that experience in earlier so that you can influence strategies and plans up front. You can tailor the strategies and plans to include all this information as opposed to the old process where maybe program managers weren't aware of that good information until the very end of the cycle. And the first time that they may have received some of this good guidance from the Service or the

OSD staffs was just before a milestone review. That was too late to help the PM.

**Caldwell:** Yes, the IPT process was a big change from the way business had been done in the Pentagon. And then probably there were many places outside of the Pentagon, out in the Services, where it was a big change also. There were other places where maybe this process was being used to one degree or another.

But the greatest value was that it really did change the culture to one of working together versus the old way of a somewhat adversarial relationship; a very sequential formulating of the issues, closely held, then taking the issues into a different forum. Often you had to start over again. That added a lot of time and sometimes created a lot of ill will, and certainly more cost and headache.

So it's been very favorable, and my action officers in the job I just left were very positive toward it. And the programs that we took through the process during that time all had a very good experience—not perfect, but a very good experience.

**Program Manager:** *We were at the Pentagon in May, and Secretary of Defense Perry handed out several awards to various IPTs. That certainly speaks well of the IPT process.*

**Caldwell:** Secretary Perry has stayed very close to this process, especially considering he does have a lot of other things to do, and that's helped. And Dr. Kaminski, of course, has provided a lot of leadership. Mrs. Preston, of course, as the Acquisition Reform Deputy Under Secretary, has been instrumental in all of this. There's been a lot of leadership from the top.

**Program Manager:** *Could you comment on aligning program accountability and reporting. That was another major recommendation coming out of the PAT team.*

**Caldwell:** That recommendation has been implemented in different forms in

different Services. All the services initially did not warmly receive that recommendation, but they are now moving toward implementation of that recommendation. The Army recently is making some changes to consolidate and then move programs into the subordinate commands of Army Materiel Command and will put an acquisition official over those programs.

Our recommendation was that all the programs ought to come under the acquisition chain. It looks like that's getting ready to happen. On the reporting part, we made some recommendations about the reports and type of reporting and communications between the PMs, PEOs, Service Acquisition Executives, and the Defense Acquisition Executive. I don't think there's been much change in that regard. Although I know there have been some further studies, I'm not sure where that is.

**Engel:** The API directorate was tasked to study that issue and make some recommendations. They haven't reported out yet. However, with the recent Army PEO restructuring, all of the Services have now streamlined the reporting chain for all of their ACAT I-III programs. The Army's new structure places Deputy CGs for Acquisition within the Army Materiel Command's major subordinate commands to function as the PEO for their AMC-managed programs. Essentially the Services have already accomplished what the PAT recommended, and that issue can probably be considered closed. They've done what's spelled out in the new DoD 5000 (streamlining the reporting chain with no more than two levels of review between the PM and the milestone decision authority).

**Program Manager:** *Let's turn to centralizing the affordability decision by placing it into the warfighter's hands. Has this come about?*

**Caldwell:** Not the way we would like to have seen it done. Personally I was a little disappointed in this one. But actually, I believe that our recommendations were very much in line with the



**Actually, the process that we used within the team to formulate those recommendations, while it was long and pretty arduous, was clearly a consensus within the team, and it was almost unanimous on every one of the recommendations.**

way the Joint Requirements Oversight Council (JROC) procedure is going anyway. So if I were to look at the glass as half full, I believe the JROC process is leaning toward what we recommended. Our recommendation would have more closely tied the acquisition process to the requirements question and affordability determination process better and sooner.

And as far as this requirements question and affordability process, it really has not been formally addressed. I know there's been a lot of discussion about it. But I must tell you that was the one that disappointed us because we spent an awful lot of time on that one, and we worked very closely with the Joint Staff on that. But for one reason or another, it didn't take off.

**Engel:** Centralizing the affordability decision is ongoing, but not in the strictest sense that it was recommended in the PAT report. One of the major tenets of the new 5000 is the up-front and continuous role of the user in the acquisition process. I guess it would be safe to say in the past users would define their requirements and then would hand them off to the acquisition team to execute. And while users would stay in touch, the acquisition team would develop and field the hardware to meet that requirement.

What 5000 does for us now is it defines a much greater role of the user throughout the process. We are trying to get the user involved up front and early in defining the requirements in a form that, if you will, doesn't drive specific materiel solutions. We are going to work with the user more closely in terms of what are the risks, the costs, and the schedule implications of the various requirements so that we both have a better understanding as to what it's going to take to develop and field a system that will meet those requirements.

They—the users—will be instrumental to us as we implement the Cost-As-an-

Independent-Variable (CAIV) policy, which is another key feature of the new 5000 in the acquisition process. We are going to have to work together with them, as well as closer with industry, in identifying what the costs are and identifying that key cost target, that CAIV objective. That's going to be worked into our program goals. As we go through the acquisition cycle, we become smarter and more knowledgeable with regard to the actual technologies that we are developing. And we also become smarter and more knowledgeable regarding the threats that we're facing, the capabilities that we need, and, therefore, the user's requirements. That will afford us, the user and acquirer working together, a continuing opportunity to conduct trade-offs between cost, schedule, and performance in order to ultimately achieve the CAIV objective that we agreed to at the very beginning of the process.

**Program Manager:** *Consolidating the oversight and review process for Joint programs and those programs requiring substantial inter-Service harmony. Would you comment on that recommendation?*

**Caldwell:** Personally I have not had a lot of experience with Joint programs. In my most recent job as the Assistant Deputy for Systems Management, I worked around a lot of Joint programs. And if I had known as much about Joint programs as I do now, I would have pushed that recommendation a lot harder.

I think we were correct in our recommendation, but it's one that is very difficult to implement. I am more convinced now than I was then that it is an area that needs a lot of improvement, and I think that our recommendation ought to get re-looked in some of the really tough programs.

**Engel:** That's a real tough one. The PAT report recommended that we, as an experiment, establish a Joint Acquisition Executive to try and consolidate the decision authority and other programmatic aspects. That recommendation was not approved

by the USD(A&T). He felt that it was too big a step to take at this time, but he did recognize that there were some very serious problems associated with trying to manage Joint programs.

And so, again, he asked API to conduct a study of the problems associated with Joint program management, and they have not reported out yet.

However, I believe, again, that the WIPT process will certainly help facilitate a smoother management of Joint programs. I've seen evidence of that on some of the Joint programs that I work with. The WIPT process gets all the stakeholders, from all the Services, working closer together. Certainly, the more Services that are involved, the greater the management challenge. But this WIPT process is helping to smooth that process and get the issues on the table sooner and worked collectively. Having said all that, I would emphasize that managing Joint programs, and all the issues associated with varied Service views and funding priorities, will remain a challenge for the PM.

**Program Manager:** *Sounds like an extremely difficult process.*

**Engel:** It's very difficult.

**Program Manager:** *Of the 33 recommendations in that PAT report, are there any in hindsight that you would have changed?*

**Caldwell:** Actually, the process that we used within the team to formulate those recommendations, while it was long and pretty arduous, produced a consensus within the team, and it was virtually unanimous on every one of the recommendations.

No, I think we did a really good job. I've had a lot of time to think about our recommendations, and I wish that we would have been more clever in packaging the ones that haven't been implemented. I would like to think that if we had packaged them better,

maybe they would have been implemented.

**Program Manager:** *Were there any surprises or recommendations that weren't implemented that you expected people to embrace, or vice versa?*

**Caldwell:** A lot of vice versa. More have been implemented than I thought would be if you allow for some slight modification. And part of that is, I think, because of how we've done the follow-up, taking some members of the team and those being assigned to Mrs. Preston's office to maintain the focus. They were well-thought-out recommendations; therefore, over time I think a lot of their merit has become obvious.

But no real surprises. While I've said I was disappointed that the Joint program recommendation and the affordability recommendations weren't adopted, I'm not surprised that they haven't been because we knew they would be very tough. I thought we might get a little bit further down the road on the affordability one because I think that that one is at the heart of really streamlining and reengineering the way we do business, and until we do that, I don't think we're going to make a radical change. But we have had more change than I had expected.

**Program Manager:** *What do you see as the biggest challenge facing DoD acquisition right now?*

**Caldwell:** Well, it's broader than acquisition. I don't like to single out acquisition separately. But in a period of fewer resources, the uncertainty of the world situation and the advancement of technology really demand that we keep up with the pace of modernization. That is a very difficult challenge when you have increasing requirements and fewer resources.

As the technology advances, if you don't keep ahead of it someone else in a local conflict could surprise you and cause a lot of damage/casualties. That, to me, is our biggest challenge.

**Engel:** I would say that for a long time all of us in the acquisition community have been asking for relief from all of the constraints that are on us in terms of, "You have to do it this way. You have to provide this information." And we've been asking for the latitude to use our sound judgment and our business experience to tailor our programs to do what makes sense. I'm reminded of a saying that warns us to be careful what we ask for because we could get it. Well, now we've got it (the opportunity to tailor our programs and do what makes good business sense).

Our people want to be successful, and in the past success was pretty well defined by the old 5000 (do things exactly this way). Now with the freedom to tailor just about everything we do, our people are concerned with, "Well, what is success now?" And they may be hesitant or apprehensive to go out and try new things on their own for fear that it may not work and they will not be seen as successful.

So I think the challenge is taking the new freedom, the new latitude that we have, not being timid, and boldly stretching, going and trying new things, challenging the system, and identifying new opportunities.

**Program Manager:** *Dr. Kaminski believes that we are at the "end of the beginning" of acquisition reform, meaning that we have built a good solid foundation upon which to complete reforming the acquisition process. Any comment?*

**Caldwell:** I don't think there's any question that we've gotten a very good start. And it was very difficult to get this far. I always hesitate to predict the future, but if we continue to work as hard as we have and if the subsequent leadership down the road continues to focus on it, I think that it will continue to take hold.

**Program Manager:** *Gen. Caldwell, do you have any advice for PEOs and PMs as they are out there in their program management activities every day imple-*

*menting all these new policies, procedures, and strategies?*

**Caldwell:** It may be presumptuous of me to do that. But the reengineering of the acquisition process puts more responsibility, not less, on the PMs and PEOs because it removes a lot of the overhead that was there to check their work. And while it was very onerous and time consuming and expensive, the system did rely on that overhead to check a lot of the work.

The challenge is going to be when some mistakes are made (which there are going to be because this is a very difficult business), will the leadership back up the program manager? When you're in development and you're pushing the edge of technology and sometimes schedule-oriented because of the resourcing, PMs are going to make some mistakes. And when they do, the system is going to have to back the PMs up. The PMs will have made the decisions that they made for the right reasons even though the answers may not turn out that way.

It's going to be when some mistakes are made that we will see if acquisition reform is real or not. If the people that are in the leadership positions and the program management positions are not backed up when they take the risk, then they're likely not to take any more risk and then we will take a step back. I don't believe that will happen.

**Program Manager:** *So you do believe that senior OSD leaders are going to be more tolerant of risktaking?*

**Caldwell:** I believe they need to be more tolerant of risktaking. As I said, there will be mistakes made, and the leadership will have to examine, ensure that the decisions were made for the right reasons, and then if the 95-percent chance of success turns into the 5-percent failure, the leadership has to be willing to back up the person that took the 95-percent chance but lost to the 5 percent.

## In Memoriam

U.S. Navy Rear Adm. Roger D. Johnson, 64, the eighth Commandant of the Defense Systems Management College from April 1984 until retirement in September 1985, died of cardiac arrest Oct. 4 at Fairfax Hospital, Fairfax, Va.



Known as "Spider" by family and friends, Johnson was born in Montpelier, N.D., and was raised in Wilmar, Minn. In March 1952 he enlisted in the Navy as an electronics technician. He became a naval aviator after graduation from the U.S. Naval Academy in 1955.

Johnson earned a master's degree in physics from the Naval Postgraduate School, Monterey, Calif., in 1963, and joined the Naval Air Systems Command in Washington D.C.

Johnson graduated the National Defense University and the Industrial College of the Armed Forces as a distinguished graduate in 1976 before returning to the Naval Air Systems Command as a deputy project manager.

In 1980, he was assigned assistant commander for systems and engineering and then deputy commander for plans and programs.

After retiring from the Navy, Johnson worked for Cypress International in Alexandria as vice president for Navy programs and then as a Navy systems representative in Washington for Boeing Co., retiring in 1995.

Survivors include his wife of 39 years, Jean Johnson of Vienna; two daughters, Kim Frowein of Arlington and Karen Plummer of Vienna; son Scott Johnson of Big Sky, Mont.; and four granddaughters.