Reliability Society

N E W S L E T T E R

October 1996

President's Report

As history repeats itself, "we are making good changes to our society". The Reliability Society is advancing into a real productive mode. As you know we are doing outstanding with our Standards activities and we are developing a new way of working with conferences through the IRP Foundation. We are developing a master plan and bringing in new leadership to carry these ideas forward.

I have enjoyed serving you as President of the Reliability Society. As we finish this year, the society continues to perform outstanding feats, not just due to any one person, but due to the leadership throughout the entire society. I will discus some of these feats briefly in the following paragraphs.

New leadership will be coming onboard in January. These people will have even more enthusiasm than we had 2 years ago. They also have a more established basis to work from. We have established a good position with the Standards Board and we expect Mike Cushing and others to carry their leadership forward. We hope to obtain permanent members on various Standards Committees and have members elected to the IEEE Standards Board. We will also have people on various TAB Committees, while others like Bob Gauger will continue being active with USAB. Bob not only makes major presentations at the PACE conference each year but is a major speaker at this years Section Congress. The congress is being held in Denver the first weekend in November. As you know, this activity only takes place once every three years. We are pleased that we have all of these people representing the Reliability Society.

Also, new leadership is coming from the board of the International Reliability and Physics Symposium (IRPS). These members established the International Reliability and Physics Foundation (IRPF) two years ago and it will most likely become a major TAB Committee (there are only 6 TAB committees) within the next year. It will be named the Reliability Physics Committee (RPC). Some of the goals and interests of this committee include the following:

Concentrate on the Physics of Failure of Integrated Circuits. The committee members will provide the leadership in this field and will share their knowledge by:

> A. Developing and running: Symposia, Workshops, and Task Forces
> B. Developing and presenting: Seminars, Multimedia Teaching Aides, etc.
> C. Joining with other societies outside of IEEE
> D. Producing a Refereed Journal
> E. Using volunteers, consultants and retired engineers as source for study groups.

One very important interest will be to issue Grants. This will be done through the IEEE Foundation based on recommendations from the RPC. Everything else will be performed by the RPC directly including soliciting funds to be used for Grants. Their goals and objectives are well developed and we expect continued success from them. We will offer our assistance and financial backing in support of these activities.

On a less positive note. I am saddened to say that after 8 years of dedicated and outstanding service as Transactions Editor, Dr. Michael Pecht has asked for us to accept his resignation effective January 1. He has been a major contributor to our Society and our profession. It is with remorse that I so reluctantly accept his resignation. He has done a great job. We owe him much, since he has done more work than any other single person in the Reliability Society. At the same time he has just recently published 3 books on reliability and has written numerous articles for us and other technical groups.

Since Mike will stay on until the first of the year, we will have time to look for a good replacement. I am actively looking for his replacement, so if you know of anyone that could qualify for the job of Transactions Editor please let me know (E-mail, r.doyle@ieee.org). He will continue to stay active with the Standards programs and I am sure that we can call on him from time to time for special activities and to give us good advice.

We have a lot of energy and enthusiasm in our society members, particularly our ADCOM members, Chapter leaders, and Conference leaders. This enthusiasm spreads throughout our society membership and to all of our conference attendees. There are so many activities that you can participate in that will benefit you and your technical skills and at the same time benefit our society. You can do this by attending your local chapter meetings and attending national conferences. These activities will provide valuable new information that is unavailable elsewhere. This is the reason IEEE is growing so rapidly throughout the world. The rest of the world realizes that the Reliability Society and other societies are vast resources of technical information. We tend to take our programs and written material for granted. Just keep the IEEE growing with your activities and interest in our work.

I believe if members participate more, then they will be more knowledgeable in their field and this will encourage others to participate more. In this way our membership will grow as others see the benefits of our society. Some of the activities that each of you can participate in are: Attending Local Chapter programs, Viewing Educational Tutorials, and Attending Conferences.. The conferences are enjoyable and are especially beneficial because of the tutorial programs available. These tutorials are in the vary latest fields of interest. This is in addition to the outstanding conference programs. So, start planning on attending one of our Reliability conferences now.

All chapters should develop their programs for the rest of this year and into next year. If you need help in planning chapter activities or preparing awards to companies or individuals for outstanding contributions to our society or profession, just contact the Chapters Coordinator, Bud Trapp (E-mail, otrapp@crl.com).

Our Software Reliability Tutorial was such a success that we have just developed a second tutorial. This new one is on Concurrent Engineering and is assured of being another best seller. We believe that this latest video tutorial will receive a wide distribution and acceptance because of its important and timely subject matter. This is an emerging technology and is extremely valuable to both commercial and military industries. I wish to thank Dr. Sam Keene (Past President of the Reliability Society) for heading up this activity. He always does an outstanding job. I believe that we are assured of another success. Also a special thanks to his cospeakers who assisted him in making this tutorial. For those wanting to view the tutorial or share it with you company, please contact Elizabeth Santos at IEEE Headquarters (esantos@tab.ieee.org) or see the advertisement in this newsletter.

To report on our ADCOM group, we had our third meeting of the year on the 20th of July in San Jose, CA. We are having our fourth meeting on the 5th of October in Boston, MA. Both

meetings were restructured to include activities with the local chapter officers and to include reliability managers in these regions. This new meeting structure has been very effective and we hope to continue using this format. So just check our meeting schedule and when we are in your area, please be sure and let us know that you are interested in participating in our ADCOM meeting. Visitors are always welcome at these meetings. Our first two ADCOM meetings for next year will be with RAMS in Philadelphia in January and with IRPS in Denver in April. We intend to involve the chapters in those areas also.

To report on the Technical Activities Board (TAB, 36 IEEE Society Presidents + more). We will have our third meeting of the year on 4-7 November in Denver, CO. We are having some of our Denver chapter members participate in some of the TAB activities.

As you can see, there are a lot of activities in the Reliability Society and these activities could use your support. Just chose an area of interest and contact either myself or any of the Vice Presidents. We are particularly looking for people to help with our technical activities committees and also with the standards activities. We look forward to anyone wanting to participate in our Society activities.

Dick Doyle,
President, Reliability Society
E-mail: r.doyle@ieee.org

Editor's Column

I've often hear that Quality and Reliability are among the last to hear about changes in designs. With the increased connectivity over in-plant computer networks and the internet, engineers have been given a new mode of communication. It wasn't that long ago that the voice mail system had its impact on business communications. Just think what it would be like not to be able to leave someone a personal message anymore. Fax and then e-mail followed by bringing the ability to send hard copies of documents point to point (this would be even harder to live without). The new wave though is through computer networks. These networks have always given us ways to share information, albeit the methods required users to get familiar with the vagaries of things like ftp, gopher, telnet, etc. With the newer e-mail programs that support attached files and the use of World Wide Web (WWW) browsers you no longer have to know the ins and outs of various computer programs to use the network. Since the majority of our work is already in electronic format, engineers can send original documents to each other via e-mail attachments. WWW sites can be used to distribute files containing the latest configuration or drafts for comment. And these sites can be set up with passwords if necessary to restrict access. With this new ease of electronic communication, our task should be one to exploit this new capability by looking at new ways of doing business using the computer networks. We should find ways to provide something of value to the engineering side of the business by putting our analyses, education materials and tools on the network. It's a new world out there and it's time to go use it to our best advantage rather than waiting until it passes you by.

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Newsletter Inputs

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Newsletter Input Due Dates

Newsletter   Due Date
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January   November 19
April   February 26
July   May 28
October   August 27

Industry Standards Information

Electronic Industries Association Government Groups Meeting

CONFIGURATION MANAGEMENT ADVISORY GROUP & MIL-STD-2549.

The industry and DOD are resolving comments on MIL-STD 2549, which was sent out for coordination as the replacement for MIL-STD-973. MIL-STD-2549 is an interface standard that is an extension of MIL-STD-973. EIA Standard IS-649, National Consensus Standard for Configuration Management (currently available as an approved national standard), takes generic requirements from MIL-STD-973. In MIL-STD-2549, "shalls" are being removed and taskings are being reduced. It is a "cookbook" for what is needed to do Configuration Management and to deliver data in certain formats. There are DIDs for waivers/deviations and ECPs. Many of the older DIDs have been consolidated. The plan is to move the document to a Federal Specification or to an international standard. It has some DOD-unique requirements. The plan is to complete the document by the end of August but funding problems may defer that to the end of December. DOD Systems Engineering did not concur with the document, which is a large one. There will be a two-year optional period with selected tests of the standard. The USAF prefers a handbook to a standard, although it concurred with the standard. The USAF preference is to have a high level document that requires the contractor to respond with a Statement of Work that calls out standards that will be used. The document is intended to be put on contract in tailored form. MIL-HDBK-61 will be a companion to IS-649 and MIL-STD-2549.

PROPOSAL FOR MANAGING SOFTWARE CAPABILITY

EVALUATIONS.

Presentations by DCMC to resolve the problem of individual software reviews at contractors facilities with different approaches, different reviewers, and no feedback to the contractors. The goal is to streamline and improve the review process. DCMC proposed a centralized management by DCMC of software evaluation including a repository of information and coordinated schedules. This would be the equivalent of what DCMC is doing or proposing for Quality Assurance audits. The software reviews would be conducted against the software capability maturity model requirements of SCI. DCMC is not proposing that any specific methodology be used (see above?) and that the reviews could be done by any DOD organization with the data fed to DCMC. DOD is looking at quick-look post-award assessments.

DOD SYSTEM ENGINEERING INITIATIVES.

Overview of current activities including an IPPD guide on the Web and the development of an IPPD capability maturity model. Other items mentioned include the System Engineering Capability Maturity Model Ver. 2.0 and something on design to cost. Useful electronic addresses: http://deskbook.osd.mil and e-mail deskbook@osd.mil.

DOD QUALITY ASSURANCE INITIATIVES.

Summary of the activities and products of the Government-Industry Quality Liaison Panel.

EIA G-33, Configuration and Data Management

Will publish a data management text. MIL-HDBK-61, Configuration Management Guidance, will be published in CY 4Q96. It identifies the concept of a configuration item and has tables of specification types from MIL-STD-961 and SD-15. MIL-STD-973 will be canceled but may remain on contract if already required. Note: the term "waivers" has been deleted. The term "deviations" now refers to what were called "waivers" and "deviations." Useful electronic address: http://magicnet.net/~noble/eia/

EIA G-34, Software (formerly Computer Resources)

The committee was renamed to "Software" from "Computer Resources." The group submitted that the U.S. adopt ISO 12207 as the basis for the U.S. standard. FAA now considered information loaded on a program logic device as "software."

EIA G-47, System Engineering

EIA/ANSI-632 is in draft. They are looking at integrating two system engineering capability maturity models - the EPIC SE-CMM and the INCOSE SE-CMM. Also, they are developing guidance for writing performance specifications.

ANNOUNCEMENTS

EIA Bulletin CMB6-6, Reviews and Configuration Audits, has been released and can be obtained for $35.00 from the Electronic Industries Association, Government Division, 2500 Wilson Boulevard, Arlington, VA 22201-3834, Attn: Darlene Tawiah, or call (703) 907-7568 or send e-mail to darlenet@eia.org.

EIA/IS-648, "Measurement of Electromagnetic Interference Characteristics of Equipment Intended to Operate in Severe Electromagnetic Environments" is available for $119.00 from Global Engineering Documents, 15 Inverness Way East, Englewood, CO, 80112-5704 or call 1-800-854-7179 (U.S. and Canada) or (303) 397-7956 (international).

EIA-sponsored courses are being given on EIA/IS-649 (National Consensus Standard for Configuration Management), EIA/IS-632 (Systems Engineering), and Standard for Information Technology, Software Life Cycle Processes, Software Development Acquirer-Supplier Agreement (Issued for Trial Use)

Ken LaSalla (kenl@sao.noaa.gov)

CONSULTING AS AN OPTION

Reliability engineers worldwide have justifiable concern about the deteriorating employment situation. At least in the United States, long-term jobs no longer exist. Aerospace and military contractors once required a full staff of reliability engineers. With today's concern for minimal inventories, short-term profits, and global competition, most of these corporations have cut or eliminated their reliability staff. Smaller companies can not afford a full-time specialist in reliability engineering.

Overall, this situation is regrettable. Short term employment and treating engineering expertise as a commodity erodes the professional standing of engineers. Layoffs, and moves often prevent a planned program of continuing education. More significant is the disruption of family and their need for relocation.

As an alternate to this unpredictable employment and frequent job changes, the reliability engineer may want to consider becoming a consultant and offering engineering services to several clients. This can include the smaller companies that do not have the need for a full-time reliability engineer as well as the larger corporations that have cut their staff so far that they need help with special problems that their minimal staff can not handle.

Fortunately, the IEEE has recognized this trend and has established the Alliance of IEEE Consultants Networks (AICN), with nearly 30 member networks throughout the United States. A directory of consultants is currently available from Bill Anderson at USAB in Washington, D.C. (202-785-0017). It is also available on the Internet (http://www.ieee.org) for search by area of expertise. This search program has proved to be very effective and often easier to use than the hard-copy directory.

As the AICN was set up under the United States Activities Board (USAB), all networks are currently in the United States. Based on the success of the AICN, it seems likely that similar networks would be effective on a global basis.

If you would like more information or would like to make contact with your nearest U.S. network, write me, r.gauger@ieee.org.

Bob Gauger
Reliability Society PACE
AICN, Vice-chair

Improving the Fault Tolerance of Software

Redundancy is the mainstay of highly available systems. Air traffic control system require unavailability not to exceed a few minutes per year. So there are m out of n of all assets in the system (m required out of n available assets, where m is < n). Good equipment mtbfs combined with timely repairs drive the repairable system availability high.

Software is a prime consideration of the redundancy requirement. In the 1980s, much research was done on n-version programming as a fault tolerant technique. This fault tolerant techniques employs n-versions of programs running the same task and one voter looking for the correct solutions. Ideally these programs are written by different programmers to improve the possibility that the different versions don't have the same faults in them. So if one program fails at a given operation, there is another running simultaneously to properly do the task. Thus this software is robust against some fault conditions. A second, and related, software reliability characteristic is introduced next.

Software failures are environmentally sensitive. The software environment is the operational state the system. This comprises

its memory utilization, memory fragmentation, memory overlays, queues, register contents, etc. The ability of a program to successfully function is sensitive to these system resources. Frequently one has to recycle their pc to clear a general protection or similar fault. This type of failure likelihood builds up over time. The longer the system runs from when it was initially loaded (IPL), the greater susceptibility it shows to failure. The system's entropy increases. These failures have been called "long latency failures" or "State Accretion failures".

These long latency failures can be proactively minimized by periodically quiescing and restarting the system. This will reduce the observed failure rate of the software. The CPUs in one system in field test were periodically being restarted for operational reasons. This had the effect of reducing their long latency failures. These CPUs were being synchronously restarted. They were experiencing occasional system failures. One time the system assets were coincidentally restarted all at the same time. A surprise happened. The redundant CPUs in the system all experienced simultaneous failures. They synchronously went into the same failed system state.

The problem was tracked to message handling scheme where all messages received were duplicated and one message was forwarded out from the CPU. This scheme allowed memory to build up and overflow. Restarting the computer, reset the memory stack to zero.

Two lessons can be derived from this experience. To increase the test sensitivity to common mode software problems, the redundant assets should be synchronized at their restarting. In the real system application the redundancy can be enhanced by starting the assets at different times. This increases the diversity of their operation.

Sam Keene
s.keene@ieee.org

Dr. Michael Pecht Steps Down as Transactions Editor

Dr. Michael Pecht has given us 8 years of dedicated service. This is a major contribution by him to our Society and our profession. It is with remorse that I so reluctantly accept his resignation. He has done a great job. We owe him much, since he has done more work than any other single person in the Reliability Society.

Mike will take until the first of the year to transition out of his current position as Transactions Editor and member of AdCom. He will stay active with the Standards programs and I am sure that we can call on him from time to time for special activities and to give us good advice.

Sincerely,
Dick Doyle, President
IEEE Reliability Society

CHAPTER ACTIVITIES

Cleveland Chapter

Out July meeting was on "BIO SOK." Mr. John Opsasnia, Vice President Environmental Services told us about oil-eating critters that live inside a BIO-SOK and can help us keep our marina waters free of bildge oil. We hope a lot of people will start using this product. It will help a great deal to clean up water supplies.

We are helping RAMS 97 in several ways: Two tutorials, a

software session and a flex team evaluation. This is a world class Symposium that needs our support. Cleveland is glad to help.

The JETC '96 will be held at Cleveland State University. NASA is going to help by providing two sessions on technology transfer. Steve Riddlebaugh is putting the sessions together. NASA's technology transfer is a big boost for business in our area.

We are starting to help the AdCom defend the Reliability Society's position for the IRPF. Our first meeting will be at Headquarters on August 16th with President Dick Doyle. Should be a lot of fun.

All-in-all here in Cleveland we are having fun staying active and trying to serve the needs of our members.

Sincerely,
Vince Lalli, Chairperson

Boston Chapter

Our Monthly Meetings began in September, with Rick Loomis of Varian Ion Implant Systems, Gloucester, MA describing their approach to ISO 9001.

This year, we intend to have a common QA Regulatory theme running throughout all the Monthly Meetings. We will have speakers from various backgrounds (e.g. corporate, academic, QA certifiers) discuss how reliability engineering techniques address many of the requirements cited in QA standards including, but not limited to the ISO 9000 series. Other confirmed speakers through 1996 are Nasser Fard, Ph.D. of Northeastern University and Bob Parsons of National Quality Assurance in Acton.

September was a busy month for us as our Fall Lecture Series started in late September. Our ADCOM members Gene Bridgers and Jeff Clark, Ph.D., along with other notable lecturers from MITRE Corp., Digital Equipment Corp., EMC Corp., 3COM Corp., and Lucent Technologies, will lead a 4 night Lecture Series titled Accelerated Environmental Testing.

Our Home Page address is http://www.channel1.com/users/jeclark/ieee.html. We will continue to post job opportunities on our Home Page. All ADCOM members and their e-mail addresses are listed in the Home Page. We plan to embrace e-mail and the Internet more and more to promote our events and keep our members informed.

Finally, we are pleased to welcome the IEEE National Reliability Society ADCOM members to Boston. The Annual Technical Operations Meeting and Banquet will be held in the Hub on Oct. 4-5, '96. We will actively participate in this two day event. This includes arranging a plant visit as part of the Technical Operations Meeting and inviting local Reliability Managers to the Banquet for informal discussions on the state of the reliability engineering profession.

Philip Tsung, Chair Boston IEEE Rel. Soc. '96-'97
E-mail: PWTsung@aol.com

Los Angeles Chapter

Our first technical meeting of the fall will be held in conjunction with the WESCO/96, Anaheim, California. Zigmund Bluvband, of Advanced Logistics Development, is scheduled to discuss Accelerated testing and other related topics. (For more details contact me at the e-mail address below, or call 818-586-9683).

Our Chapter is sponsoring a Reliability session at the upcoming WESCON Convention October 22-24, 1996 in Anaheim, CA.

The session will feature:

Reliability Engineering - A Design Discipline

The inclusion of Reliability Engineering in the design process produces important benefits to the over all cost of the program and life cycle cost of the product, allowing the delivery of a system of greater value to the customer at no additional cost. This session will deal with four major aspects of reliability, System Reliability, Worst Case Analysis, Software Reliability, and Component Selection. Practical examples of these disciplines will be discussed.

Our bulletin board continues to be active and can be reached at 818-768-7644 (300 -9600 baud). The bulletin board functions are being transferred to the LA Council home page chapters location on the web, "http://www.ieee- lac.org/ieee-lac/". Most presentations are video recorded, copies are available to members and affiliates through our Video Exchange Program. A full listing of available titles be downloaded from the bulletin board, for information on obtaining copies contact the LA chapter chairman.

Dave Franklin
FranklinDL@AOL.com

Dallas IEEE Reliability Society News

The Dallas chapter is looking forward to its 96-97 session with a line-up of assorted speakers and subjects. The first of these will be Jack Martin of Texas Utilities Electric Company's Commanche Peak nuclear facility discussing Root Cause Analysis and Human Performance Evaluation techniques. Other speakers planned for the year: Dr. Don Price, a Senior Member of the Technical Staff from TI Systems Group and Adjunct Professor at Southern Methodist University, will furnish insights into thermal analysis case histories; Dr. Mike Pecht of the University of Maryland will provide an overview of semiconductor and electronics manufacturing in the Pacific Rim; Salvatore Bavuso of NASA will present "Aerospace Applications of Wiebull and Monte Carlo Simulations"; Dr. Vallabh Dhudshia of TI Semiconductor Group will present concepts from his book, "High-Tech Equipment Reliability". Other subjects slated for the year are reliability in the communications industry, FLASH memory endurance and reliability, and HALT/HASS of electronic equipment. The chapter continues to attempt to provide a wide variety of subjects to attract audiences from various industries and disciplines.

The idea is to grow our membership by expanding interest from engineers in various disciplines and more than one or two companies. Also, we will be trying a new method for attracting participation and serving our members -- to provide a signed card to attendees that includes the subject, speaker, and date for each meeting. Each card, then, would furnish the attendees a convenient "proof of attendance" for use as part of the recertification process for ASQC Certified Reliability Engineers.

Joe Childs, P.E.
Chairperson, Dallas Chapter

Philadelphia Chapter

16 April 1996: Multimedia in Engineering Education - Dr. Brian P. Butz

> Dr. Butz's presentation was focused on the use of multimedia in engineering education: the meaning of multimedia, what its role in education might be, how it could be used and how it can complement, rather than replace, more traditional education delivery mechanisms. An overview of what type of multimedia development resources are available and how a multimedia module is constructed was given. Examples of interactive multimedia modules for engineering education was presented.

Some Suggestion for Modifying Qualification Requirements for Safety-Related Equipment - Dr. Salvatore P. Carfagno

Dr. Carfagno talked about how requirements for qualification of safety-related equipment for nuclear power plants have remained relatively stable for more than two decades, but in spite of extensive research, we are still struggling with the problem of simulating, in a short time, the degradation of equipment during long periods of service - a process called accelerated aging. Part of the problem can be attributed to the dominant role played by the so-called qualified life (the aging period simulated by accelerated aging). It is suggested that the problem can be alleviated by reducing the emphasis on qualified life and giving a stronger role to condition monitoring. Although there are some disadvantages to modifying the qualification requirements, they are outweighed by the advantages, which include a simpler approach to license renewal, significant reduction of concerns related to the major uncertainties associated with accelerated aging, and an increase in the technical defensibility of the qualification process.

Fulvio E. Oliveto,
Philadelphia Chapter

Swiss Chapter

The course on "Failure Mechanisms and Failure Analysis of Semiconductor Devices, which had to be held twice, on April 23-25 and May 21-23, has been a great success. In each session there were 14 enthusiastic participants and some further people had to be refused due to space limitations. Therefore the Swiss Reliability Chapter has the pleasure to announce that it will organize, in collaboration with the Reliability Lab. of the Swiss Federal Inst. of Technology, an "International Course on the Sample Preparation Techniques for Failure Analysis of Silicon and III-V Semiconductor Devices". The aim of this course is to introduce the participants into the wet-etch techniques for failure analysis of Silicon, GaAs, and InP semiconductor devices. The most important etches will be prepared and the related techniques practically demonstrated in small working groups.

Because of limitations imposed by the practical demonstrations, the number of participants of each class will be limited to 10 people. Two classes are planned, the first one on February 19-20, the second one on March 5-6. The course fee will be SFr. 600 for IEEE members (SFR. 800 for non-members). For further information, please contact the course director: Mauro Ciappa, Reliability Lab., Swiss Federal Inst. of Technology, e-mail:ciappa@zuv.ee.ethz.ch, tel. +41(1)632-2436, fax +41(1)632-1258.

Professor Alessandro Birolini, Chairman
E-mail: Birolini@zuv.ee.ethz.ch

AcCom Meeting Minutes

AcCom Meeting Minutes, San Jose, 20 July 1996

The meeting was called to order at 11:00 AM , introductions were made, and an Agenda was agreed too. Attendance was taken and the following 8 voting members were present (A minimum of 7 make a quorum): Loretta Arellano, Richard Doyle, Paul Gottfried, Dennis Hoffman, Art Rawers, Thad Regulinski, O. D. (Bud) Trapp, Michael Cushing. Non Voting Members Present were: Bob Gauger, Bob Wangemann, Kris Mohan.

The previous AcCom Meeting Minutes were accepted as they were E-mailed out. The Financial Report was approved as presented.

John Adams was authorized to develop a promotional brochure

like the 1985 Reliability brochure. In addition John was asked to initiate a campaign for a member get a member. The new member will get a $10 discount on their first years reliability society membership. John Adams should talk with Bob Wengemann as to how this might be implemented.

Sections Congress attendees (Denver, November 1996) as representatives of the Reliability Society will be John Adams, Loretta Arellano, Bob Gauger and Bud Trapp (as Alternate).

"In order to achieve a broader geographical representation of Adcom membership, it is moved that Adcom elections commencing in 1997 be on a regional basis, and that a committee be appointed by the president to propound an implementation plan for Adcom's deliberation and vote at the next Adcom meeting." This will also require that the By-laws be rewritten and published in the newsletter before this procedure can be implemented. Thad Regulinski was assigned as committee chairman, The committee will consist of: Loretta Arellano, Dennis Hoffman, Thad Regulinski, and Bud Trapp

Tom Weir will work with TABARC to develop the following awards:

> A.) Company of the year award given each year by each chapter (a Plaque),
> B.) A Service Award,
> C.) Best paper award, one award or $250 and a Plaque.

Adcom will select new IRPS Representatives to Adcom.

A search committee was established to find a replacement for Mike Pecht, who has resigned as editor of the Reliability Society Transactions after many years of service. The committee will consist of: Loretta Arellano, Dick Kowalski, Tom Weir, Val Monshaw, and Paul Gottfried (non-voting). This new person must be in place by the first of the year.

Loretta Arellano and Bob Gauger will attend the PACE Conference (USAB) in Phoenix on August 30 - 2 September as representatives of the Reliability Society.

OUTSTANDING ITEMS

Proposals will be submitted to AcCom for "Accelerated Testing Video" by Bud Trapp and for "Human Reliability" by Ken LaSala. These would lead to $20,000 commitments each when approved by ADCOM.

Tom Weir will obtain background information on how a Reliability Society Medal awardee would be selected, etc.

Ken LaSalla will provide information on ISO 14,000 (Environmental Regulations and Recycling) to Dick Doyle.

The meeting be adjourned at 5:40 pm.

AdCom Meeting schedule for the next 12 months is as follows:

- October 4th and 5th, Boston, MA (Friday and Saturday)
- January 12, 1997 RAMS, Philadelphia, Pennsylvania (Sunday)
- April 1997 IRPS, Denver, Colorado (Sunday)

AdCom Agenda

AdCom Agenda, Boston, 4-5 October 1996

9:30 am - 12:00 pm Technical Operations Meeting,
12:00 pm - 1:00 pm Lunch (Breakout groups as follows)
        Long Range Planning Committee - T. Weir

New Chapter Chair Training - B. Trapp
1:00 pm - 2:30 pm Technical Operations Workshop
Conducted By - L. Arellano

Friday Afternoon (All AdCom Members and Guests Are Invited):
3:00 pm - 5:00 pm Industrial Plant Tour - D. Hoffman

Friday Evening: AdCom & GUESTS DINNER

Guests:
Officers of Boston Chapter (and Spouse)
Boston Area Reliability Managers (and Spouse)
6:30 pm - 7:00 pm Reception
7:00 pm - 8:00 pm Dinner
8:00 pm - 8:45 pm Technical program by the Boston Chapter:
Philip Tsung, Chair '96-'97 Boston Chapter "Overview"

Saturday Morning (October 5th): General AdCom Meeting

8:00 am - 9:00 am Call to Order,
Agree to Agenda - D. Doyle
Minutes Approval - L. Phaller
Treasurers Report - D. Kowalski
9:00 am - 10:30 am Vice Presidents' Reports
Meetings - D. Hoffman
Membership - J. Adams
Publications - P. Gottfried
Technical Operations - L. Arellano
10:30 am - 10:45 am Junior Past President's Report T. Weir
Long Range Planning Report
Medal and Service Awards Report
Nominations Comm. Report
10:45 am - 11:00 am Senior Past President's Report S. Keene
Video Program Status, Software Tutorial
New Video Program (1996), Concurrent Engineering
New Video Programs (for 1997)
11:00 am - 11:30 am Report on Standards Activities - M. Cushing
11:30 am - 11:45 am Report on Chapter Activities - B. Trapp
Report on Sections Congress 96
11:45 am - 12:00 pm Report PACE Activities - B. Gauger
Report on PACE Conference
12:00 pm - 1:00 pm Group Lunch
1:00 pm - 1:15 pm Report EDUCATIONAL Activities - A. Rawers
1:15 pm - 1:30 pm Report on Transactions Activities - Pecht
1:30 pm - 1:45 pm Report on Technical Activities - D. Doyle
1:45 pm - 2:30 pm Old Business - All
IRP Foundation - B. Trapp
Aries Project - D. Hoffman
Distribution of AdCom - T. Regulinski
2:30 pm - 2:45 pm Boston Chapter Overview Report - All
2:45 pm - 3:00 pm New Business - All
3:00 pm Adjourn

Saturday Evening: Early Dinner, Downtown Boston