Chair’s Message  
by Rick Lewis

One of Statistics Division’s key activities, the Fall Technical Conference, is quickly approaching as I write this message. This year’s FTC is being held in Birmingham, Alabama on Thursday-Friday, October 20-21. In addition to the technical program, which consists of three parallel tracks on statistics, quality control and case studies/tutorials, two full-day short courses will be offered on Wednesday, October 19th. I am particularly looking forward to the W. J. Youden Memorial Address which will be delivered by Past Chair Roger Hoerl.

We cosponsor the FTC together with ASQC’s Chemical and Process Industries Division and the American Statistical Association’s Section on Physical and Engineering Sciences. The sponsorship agreement assigns Statistics Division sole responsibility for the short course program and 1/3 responsibility for the technical program. Many thanks are due to our Short Course Chair Andy Kirsch and our Technical Program Representative Mike Wincek for their excellent efforts. A description of the short courses and a copy of the technical program can be found in the Summer issue of the newsletter.

Statistics Division holds two Council Meetings each year, one at the Annual Quality Congress and one at the FTC. Division members are always welcome to participate in Council Meetings; the Council meeting at the FTC will be held Wednesday, October 19 from 7:30-9:30 p.m. Council meetings provide a great deal of information about Statistics Division’s current and future activities as well as an opportunity to become involved in these activities. The Council will take advantage of being together at the FTC by holding a tactical planning meeting on Saturday, October 22. Please feel welcome to attend this meeting, also.

The agenda for the October 22 meeting will depend greatly on the outcome of a special planning meeting being held in Chicago on September 10. At this meeting the officers and several key committee chairs will finalize a 5-year plan for coordinating and accomplishing the division’s tactical plans: assessing members’ needs, networking for help on statistical questions, expanding the How-To series, helping people understand how statistical tools and techniques fit into statistical thinking, integrating statistical thinking into education, making information on statistical thinking accessible to a wide audience, and upgrading the statistical portion of the CQE exam. Immediate Past Chair Galen Britz deserves the lion’s share of credit for this 5-year plan. In particular, he led the Division through a series of special planning meetings over the past year and developed a consensus on the importance of a 5-year plan.

Finally, during the Annual Quality Congress in Las Vegas we asked people passing by our booth to respond to the following question:

The Statistics Division wants to be the most responsive organization in the universe. What would it take to make this statement real for you?

An affinity diagram (categorization) of the responses appears elsewhere in this newsletter. Please take the time to review the affinity diagram and let us know if you have any additional thoughts on this topic. Your input is greatly appreciated.

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Editor's Corner

Deadline for the Winter issue of the newsletter is November 30, 1994.

The editor's desk continues to receive correspondence from companies requesting that members be dropped from our mailing lists because they are no longer employed there. In most cases, the individuals who have sent these requests did not read the part of the newsletter which states that all change of addresses notifications must be sent to ASQC directly. The Statistics Division does not maintain distribution lists. Prior to each distribution of the newsletter, national ASQC sends mailing labels to the printer, who in turn does both the printing and mailing tasks. It is the responsibility of the individual member to contact ASQC whenever a change of address is warranted. If you leave a place of employment, write or call ASQC and notify them of the change. The address and phone number can be found at the back of the newsletter. Notifying ASQC of your change of address is sufficient for you to get the next edition of the newsletter to your new address. It is not necessary for you to send a notification of change of address to the newsletter editor in addition to ASQC.

The editor's desk is in need of additional mini papers and Basic Tools papers. Please write to me if you have any suggestions on topics that would be meaningful to you. If you would like to author a paper, I would like to hear from you.

Larry

Letters to the Editor
(fall, 1994)

Dear Larry,


Enclosed is a sample copy of our SPC Users Group Newsletter and a brochure describing our Users Group.

Donna M. Mangold
Supervisor, GATF SPC User Group

Send all letters EXCEPT FOR CHANGE OF ADDRESS to:
Larry Sue
Motorola SPS
2100 East Elliott Rd.
M/D EL 609
Tempe, AZ 85284
Phone (602) 413-3299
For Change of Address contact ASQC Headquarters at 800-248-1946.

VISION
- Our customers' needs will be continuously anticipated and met.
- Our members will be proud to be a part of the Division.
- Our Division's operations will be a model for other organizations.
- We will be a widely influential authority on scientific approaches to quality and productivity improvement.

MISSION
- Promote statistical thinking for quality and productivity improvement.
- Serve ASQC, business, industry, academia and government as a resource for effective use of statistical methods for quality and productivity improvement.
- Provide a focal point within ASQC for problem-driven development and effective use of new statistical methods.
- Support the growth and development of Division members.

STRATEGY
- Our primary customers are Statistics Division members. Other key customers are:
- Management,
- Users and potential users of statistical methods for quality and productivity improvement,
- Educators of the above customers.
- Our orientation to customers is customer focused.
- Our markets, within which we intend to offer products, are weighted as follows: greatest weight on intermediate statistical methods, nearly as much weight on basic methods, and much less weight on advanced methods.
- Our primary products are educational services.

PRINCIPLES
- Focus on a few key things.
- Balance short-term and long-term efforts.
- Recognize that we exist for our customers.
- Value diversity (including geographical and occupational) of our membership.
- Be proactive.
- View statistics from the broad view of quality management.
- Apply statistical thinking ourselves (that is, practice what we preach).
- Uphold professional ethics.
- Continuously improve.
Reliability and Maintainability Symposium

ASQC Reliability Division in cooperation with 9 other Technical Societies is sponsoring the 1995 Annual International Reliability and Maintainability Symposium in Washington, D.C. from January 16-19, 1995. The conference is an international symposium on product quality and integrity, and will cover a broad range of commercial and government assurance science topics. For additional information on conference topics and registration, contact Alfred M. Stevens, Lockheed Space Op. Co, 200 Cordoba Court, Merritt Island, FL 32953. He can be reached by phone at (407) 861-5922.

The 1993 Thomas L. Saaty and Jacob Wolfowitz Prizes

The 1993 Jacob Wolfowitz Prize has been awarded to Professor Dean P. Foster (University of Chicago, U.S.A.) and Professor Rakesh V. Vohra (The Ohio State University, U.S.A.) for their paper “A Probabilistic Analysis of the K-Location Problem,” which for a location problem important in operations research that is NP-hard provides asymptotics of random solutions and their implications for empirical tests of solution methods.

The 1993 Thomas L. Saaty Prize has been awarded to Professor K. E. Rosing (Erasmus University Rotterdam, The Netherlands and University of Manitoba, Canada) for his paper “The Optimal Location of Steam Generators in Large Heavy Oil Fields,” which adjoins combinatorial problems with budgetary calculations and a real problem in the oil industry having major financial impact, and has superb readability as well as quality and applicability.

The Prize winning articles both appeared in Vol. 12 of the AMERICAN JOURNAL OF MATHEMATICAL AND MANAGEMENT SCIENCES, and also in LOCATION MODELING IN PRACTICE: APPLICATIONS (SITE LOCATION, OIL FIELD GENERATORS, EMERGENCY FACILITIES, POSTAL BOXES), THEORY, & HISTORY (ISBN 0-935950-33-8), published by American Sciences Press, Inc. The Awards Committee consisted of distinguished researchers in the mathematical and management sciences. The authors receive a monetary award and suitably engraved certificate.

Deming Conference on Applied Statistics
December 12-16, 1994

The 50th Deming Conference on Applied Statistics will be held in Atlantic City, NJ from December 12 - 16, 1994. This conference is jointly sponsored by the Statistics Division of ASQC and the Biopharmaceutical Section of ASA. The three day conference is scheduled from Dec. 12 - 14, 1994, and 2-day short courses are offered on December 15 - 16, 1994.

The two short courses offered are in methods for analysis of clustered categorical data and in response surface methodology. Four tracks are offered simultaneously during each session of the conference. Registration information can be obtained by contacting Fred Balch at Bristol-Myers Squibb, Pharmaceutical Research Institute, 5 Research Parkway, Wallingford, CT 06492-7660. His phone number is (203) 949-3553 and his FAX is (203) 949-3524. Hotel reservations can be made directly with the Merv Griffin's Resorts Casino Hotel by calling 1-800-336-MERV, and must be received by November 15, 1994. You must identify yourself as an ASQC participant to obtain negotiated rates.

Statistics Division Strives To Be More Responsive

As we mentioned in the last issue of the newsletter, the Statistics Division had a booth activity at AQC. We asked conference participants to respond to this question, "The Statistics Division wants to be the most responsive organization in the universe. What would it take to make this statement real for you?" Responses were collected on stick notes and placed on a large board. These notes were then grouped into an affinity diagram. This affinity diagram appears on the next 5 pages.

We know many of our members were unable to attend the AQC. So, here is an opportunity to add your input. The individual ideas are grouped under sub-headers and/or headers. Please review these and let us know if there is any major themes we have missed. Please send these to Nancy Belunis, Merck & Co., Inc., One Merck Drive, P.O. Box 100, Whitehouse Station, NJ 08889-0100; FAX: 908-735-1107.

Now that we have all these ideas you may be wondering what we plan to do with them. During our planning meetings, we will be quantifying these ideas into actionable items. We will be following the process described in Part I of Don Emeding’s Basic Tools column which appeared in the summer issue. In future issues of the newsletter, we will share with you the status of this process.
The Statistics Division wants to be the most responsive organization in the universe. What would it take to make this statement real for you?

**Have a Customer Focus**
- Anticipate customer needs
  - Identify the response mechanism
  - Define critical factors of success
  - Know who you want to respond
- Listen to our customers
  - Have a greater knowledge of customer needs
  - Keep on getting member input
  - Care about the needs of people
  - Good service
  - Benchmark responsiveness against McDonald's
  - Use member ideas to emphasize the different bodies of knowledge
  - Be less concerned with being responsible to customer wants and concentrate on what you stand for
- Communicate with our customers
  - Establish regular feedback mechanisms
  - Communicate all concepts to the universe
  - Find a way to measure it
  - Open minded to customer’s concerns & follow up
  - Network with members
  - Recheck the mailing list
- Excel in service
  - I perceived no value from my membership
  - Make people the top priority
  - Make members feel unique
  - Benchmark continuously against the best in each country
- Listen to your customers
  - List your customers

**Provide an Accessible Forum for Communication**
- Provide problem-referral service
  - Have a central contact point
  - Create a problem referral or help network
  - Allow for ease of input i.e., teleconference
  - Provide an application “hot line”
  - Provide communication on new procedures, practices and success stories on statistics
  - Establish regular feedback mechanisms
  - Communicate all concepts to the universe
  - Find a way to measure it
  - Open minded to customer’s concerns & follow up
  - Network with members
  - Recheck the mailing list
- Provide information on what the division can do for me
  - Provide accurate, direct & timely feedback to customer
  - Provide consulting services
  - Maintain & improve the quality
  - Practical (not theoretical) articles
  - Present examples of the theory using industrial data
  - More How-to's, basic articles
  - More articles/info on SPC
  - More case studies in statistical methods, insight or guidance
  - Publish your newsletter more frequently
- Continually improve the newsletter
  - Improve the mini-paper section
  - Maintain & improve the quality
  - Provide practical (not theoretical) articles
  - Present examples of the theory using industrial data
  - More How-to's, basic articles
  - More articles/info on SPC
  - More case studies in statistical methods, insight or guidance
  - Publish your newsletter more frequently
- Provide opportunities for personal networking
  - Networking & seminars
  - Provide a network for statisticians
  - Job bank for statisticians
  - Benefit from networking
  - Have a job posting and interviewing area at conferences
  - Network with organizations with similar visions worldwide
- Provide on-line services
  - Work with ASQC to set up database structure and analysis to track customer satisfaction
  - Have an Internet bulletin board
  - Facilitate communication between members thru Internet
  - Provide assistance via E-mail
  - Responsiveness is synonymous with communication and timeliness
  - Place papers on a computer database which is easily accessible
  - On-line E-Mail address in my hometown
  - On-line database of ASQC articles

ASQC STATISTICS DIVISION NEWSLETTER, VOL. 15, NO. 1

Made using Memory Jogger Plus+ PC™ software for the Seven Management and Planning Tools, Goal/QPC.
The Statistics Division wants to be the most responsive organization in the universe. What would it take to make this statement real for you?

**Provide Assistance in Choosing Statistical Software**

- Recommend Stat/SPC software that is truly user-friendly/powerful/cost-effective
- Provide a list of statistical software to all ASQC members
- Evaluate statistical software (user exchange?). Not just a "table" in your Progress
- Provide user-friendly SPC availability listings
- Review statistical software periodically

**Provide Training Materials**

- Provide cheap videos of great talks at Stat Div conferences
- Develop a correspondence course for advanced degree in Quality Process Control
- Provide innovative ideas on how to tell statistics in an organization (ex. games, fun material)
- More information on new tools & techniques (Mgt/Planning, Tools)
- Provide recommendation on software for on-line SPC and data analysis

**Use of real-time analysis methods via video/other method**

- Provide proven case examples
- Expand self-teaching manuals for DOE and SPC for engineering personnel and managers
- Journal of Industrial Statistics - Methods and Applications
- Develop a standard manual for basic industrial statistics
- Develop training for service industries in SPC

**Advanced Statistical Training**

- Provide visible support for training the mass workforce
- Give more information and education to all members
- Continue to develop training and educational materials so that we can keep up-to-date on new technology
- Use hands-on tools (eg, catapults) to teach all aspects of statistics
- Carry examples of exercises and students reaction to them

**Manage the Division Well**

- Offer courses on what is available to new members
- Provide the best speakers and subjects at Fall Tech Conf
- Just keep on your current course
- Become recognized as the technical authority
- Send out timely information to members
- Make it simple to add input to Division
- Strive to continuously improve
- Common Sense Communication Planning Training Common Sense
- It must contain a vision

**Operate More on Local Level**

- Provide more opportunities for members to actively participate
- Be very interactive with membership & solicit information from all areas
- Help to provide easy "How To" seminars at all levels
- Offer more local meetings focusing on the Statistics Division
- Provide "user group" format for members geographically
- Provide training at section level
- Provide canned seminars to sections
- Proactive approach to involving all members
Four Basic Tools For Organizing and Quantifying "IDEA DATA". - (Part 2)

by Don Emerling, 3M Company, St. Paul, MN

In the first part of this basic tools paper I presented the following process for using these tools to collect, organize, and quantify "idea data."

Step 1. Gather together the right team of people.
Step 2. Brainstorm ideas on the central theme.
Step 3. Complete an Affinity diagram of the collected ideas.
Step 4. Complete an Interrelationship digraph (ID) of the headers from the Affinity diagram.
Step 5. Complete a tree diagram, using the analysis of the Affinity diagram and the ID.
Step 6. Prioritize the information in the tree diagram, using a Prioritization matrix.
Step 7. Take action on the critical few!

In Part 1, I discussed the first four steps of the process. These steps included most of the creative process for organizing "Idea Data". Steps 1 and 2 are the critical steps for collecting many ideas in a brief time. Steps 3 and 4 result in the creative synthesis of the brainstormed ideas into a few key themes.

In Part 2 of the paper I will discuss the last three steps of the process. Steps 5 and 6 are the more logical steps of the process, which lead to the quantification of the "Idea Data". Once the data has been quantified it will be easier to identify an action plan for optimum use of limited resources in Step 7.

Step 5. Complete a tree diagram, using the analysis of the Affinity diagram and the ID.

The tree diagram builds on a central theme or idea by continually asking the question, "What must be done to complete this idea?" It is designed to map out in increasing detail all of the tasks and activities needed to achieve the primary goal. Often, the initial idea or theme of your project will be the "trunk" of the tree and the major branches will be identified by analyzing the Affinity diagram and the ID. However, you shouldn't assume this to always be true. Sometimes analysis of the Affinity diagram and the ID will identify the key "trunk" of the tree.

The tree diagram is the direct link from the "idea data" to more quantitative data. Once your ideas are in the form of a tree, you will be able to use a prioritization process to develop quantitative values for each level of the tree.

The process for completing the tree diagram is:

1. Decide on the primary goal (i.e. The trunk of the tree). This goal will almost always come from either the analysis of the ID or, less often, the analysis of the Affinity diagram. In most cases, there will be an obvious "driver" identified in the ID that is the most important goal of your project. There could be two or three of these "drivers" in which case they usually are the main branches of a tree that starts with the original theme of the project. There is no easy "This is the way it is" answer to the question, "Where should we start the tree?". Every project is unique and experience and discussion is your best tool when making this decision.

2. Discuss the relationships in the ID and the Affinity and identify the major branches of the tree by asking, "What are the ideas or tasks needed to complete the idea or task to the left?".

3. Repeat step 2 for each of the major branches. You should take all branches of the tree to the same level of detail. This will allow for prioritization at the next step.

Continued on page 10
Often, when the tree is near completion, more information will have to be added that was not in the initial Affinity. Create new cards to fill in the details at each level of the Tree diagram. The branching to the right of a goal must always include enough information to achieve the goal to the left.

4. Review the completed tree for logical flow from left to right. This tool is designed to present a logical map of the steps needed to accomplish the goal at the trunk of the tree. Have the team review the tree and discuss the likelihood that these steps will actually lead to achieving the goal. Also discuss whether you really need to do all of the steps. My experience shows a tendency for the teams to want to include everything on the tree that was in the ID and the Affinity diagram. Often there is information in the ID and the Affinity diagram that is not required to complete the goal.

The following tree diagram was developed by the Statistics Division to identify the critical needs of the members.

Step 6. Prioritize the information in the tree diagram, using a Prioritization matrix.

The prioritization matrix is the tool that helps you focus on the most important or critical options or actions to pursue. The purpose of the prioritization step is to agree on a quantitative importance or weighting for each of the elements at a given level in the Tree diagram. With this data you can plan your actions based on what are the most important or critical activities. There are several ways to prioritize the information in the Tree diagram. I have had success using a simple prioritization matrix, which lists the options to be prioritized on both the vertical and horizontal axes of an "L-matrix" and then compares each option with each of the other options. For a more complete discussion of other methods of prioritization refer to the "Memory Jogger Plus+", Chapter 4. They describe this method in more detail and two alternative methods for prioritization. For a complete theoretical discussion of prioritization, refer to Thomas L. Saaty's book, Decision Making for Leaders, University of Pittsburgh, 1988.

Continued on page 11
The process for prioritization is:

1. Agree on the criteria against which to prioritize. This is generally a statement such as, "Is Option A more important to achieving the goal (the "trunk" of the tree) than Option B?" Make sure your team takes the time to discuss and agree on this question. The clearer the criterion is the easier the prioritization of the elements will be.

2. List the elements on both the horizontal and vertical axes of an "I-matrix." Record a series of ones (1) down the diagonal where the options are compared to themselves (i.e., A to A, B to B, etc.).

3. Asking the question developed in 1. above, start with the first row and compare the importance of that option to every other option in the columns using some type of numerical scale. For example, I generally use to scale: 1 = Equally important, 5 = Strongly more important, 9 = Extremely more important, 1/5 = Strongly less important, 1/9 = Extremely less important. You can also use 3 and 7 to increase the options or you can decide to choose any other scale that makes sense to you. As you decide each importance rating for a given row and column, record the inverse of the rating in the mirror image location of the matrix. For example, if you record a 5 in Row A/Column B, you would record a 1/5 in Row B/Column A. This is simply stating that Option A is strongly more important than Option B (Row A/Column B), which means Option B is strongly less important than Option A (Row B/Column A).

Continue the analysis row by row until the entire matrix is complete. This data is represented on the top line of each cell in the matrix below.

Question: How important are these needs toward improving customer satisfaction from the perspective of technically-focused members?

<table>
<thead>
<tr>
<th></th>
<th>Improve Processes</th>
<th>Be an Effective Leader</th>
<th>Have Effective Teamwork</th>
<th>Plan for Quality</th>
<th>Prioritized Weights</th>
<th>Normalized Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage/Improve</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>1.33</td>
<td>0.32</td>
</tr>
<tr>
<td>Processes</td>
<td>.32</td>
<td>.39</td>
<td>.31</td>
<td>.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be an Effective</td>
<td>1/7</td>
<td>1</td>
<td>1/5</td>
<td>1/5</td>
<td>0.22</td>
<td>0.06</td>
</tr>
<tr>
<td>Leader</td>
<td>.05</td>
<td>.06</td>
<td>.06</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have Effective</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1.22</td>
<td>0.31</td>
</tr>
<tr>
<td>Teamwork</td>
<td>.32</td>
<td>.28</td>
<td>.31</td>
<td>.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan for Quality</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1.22</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>.32</td>
<td>.28</td>
<td>.31</td>
<td>.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column Totals</td>
<td>3.14</td>
<td>0.18</td>
<td>3.2</td>
<td>3.2</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

4. Sum each column and divide each cell in the column by that sum. Record this value below the importance rating. For example, in the matrix above, Manage/Improve Processes is 0.32 of the sum of 3.14 for that column. Continue this step for each column of the matrix.

5. Sum each row from step 4. This leads to the Prioritized weights listed above.

6. Finally, normalize the Prioritized weights using the method described in Step 4.

Continued on page 12
7. The process can easily be repeated for the next level of the tree diagram. To do this, build a matrix for each of the branches of the tree using the "leaves" of that branch in the matrix. When all of the "leaves" have been normalized, you can assign the normalized portion of the branch total (i.e., Plan for Quality has a normalized weight of 0.31). This weight can be divided up by the normalized weight of each of the leaves on that branch. Thus, when the leaves are added up they will total 0.31.

You are now in a position to identify which of the major projects to take action on. In this example, three of the four were weighted almost the same. It would be important to develop action plans for all three in this case. More often you will discover one or two dominant themes in your analysis.

**Step 7. Take action on the critical few!**

We all have tools and techniques to apply in the action step. Usually our problem is waiting to take action until we have identified what to take action on. Using this process you will have identified what is important and be in a much more informed position to go for it!

**Case Studies**

How can this be applied? What can I use the process on? These are the types of questions I am asked about the process.

The statistics division has used this process several times. We first used it to develop the "House of Education," which is described in the spring special edition of the newsletter. If you are interested in a case study with examples, this is the example I would recommend.

I have used this process in both strategic and operational planning for a business unit. We had always been good at product planning, but didn't often spend the time to plan for the longer term strategic issues. The process has been very useful in identifying the three to five critical issues facing a business 5 to 10 years into the future. We then use the same process to develop yearly operational plans which link to the strategic plan.

I have an associate who used the process to select the best production alternatives for a community theater group. They had always selected their plays based on who liked what plays in the group. They used this process to compare the needs of the customers, the community, the facility, and the theater group. They came up with a prioritization tree which they now use whenever selecting a new production.

The uses are endless. Whenever you are faced with a situation where people have many ideas or competing issues it will be beneficial to spend the time to follow this process. You will invariably come out with high quality results.

If there was only one piece of advice I could give it would be to **Trust the Process**. Many times when teams are in the middle of Steps 2 and 3 especially, they question what is going on and is it going to do any good. I can only state that **every time** I have been involved in a project using this process the feedback from the entire group was; "Thank goodness we stuck with it, the results were worth the wait."

**References**

Brassard, Michael. "The Memory Jogger Plus+54,0", Goal/QPC, Methuen, MA

Saaty, Thomas L. "Decision Making for Leaders", University of Pittsburgh, Pittsburgh, PA
**Statistics Division Job Openings**

The Statistics Division has several job openings for which we are seeking members willing to do some work for the Division. The openings are as follows:

1. Committee members to work on the Tactical Plan for “Integrating Statistical Thinking into Education.”
2. Authors for Basic Tools and Mini Paper articles for the Newsletter.
3. Authors for “How To” booklets related to process improvement.
4. Standards committee members - Immediate need for revising SPC Standards.

If you have an interest in any of these openings please fill out the form below and return it to Galen Britz, 3M Center, 220-9W-08, St. Paul, MN 55144-1000

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### ASQC STATISTICS DIVISION

**MEMBER INTEREST RECORD FORM**

<table>
<thead>
<tr>
<th>NAME</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPANY</td>
<td>POSITION</td>
</tr>
<tr>
<td>ADDRESS</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHONE (WORK)</th>
<th>(HOME)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAX</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEMBER NUMBER</th>
<th>STATUS (MEMBER/SENIOR)</th>
</tr>
</thead>
</table>

**MEMBER AREAS OF INTEREST**

- REG. COUNCILLOR
- EDUCATION COM
- NEWSLETTER
- STANDARDS COM
- REVIEW NEWSLETTER ARTICLES
- OTHER

**RELEVANT EXPERIENCE/EDUCATION**

**MEMBER TIME AVAILABILITY/COMPANY SUPPORT/TRAVEL ETC.**

**MEMBER TIME AVAILABILITY/COMPANY SUPPORT/TRAVEL ETC.**

**OTHER COMMENTS**
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1994-1995
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