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Sourcing Program

To Identify Outstanding Women and Ethnic Minorities in
Research and Research Management

Sally Huang Nissen

August, 1991

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Sourcing Program

**To Identify Outstanding Women and Ethnic Minorities in
Research and Research Management**

by

Sally Huang Nissen

**Employment Equity and Compliance Center
Lawrence Livermore National Laboratory**

August, 1991

MASTER

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Executive Summary

To meet the challenges of the changing demographics and a projected shortage of technically trained workers in the 21st century, Lawrence Livermore National Laboratory (LLNL) is increasing its commitment to develop a diverse work force with the abilities to carry out the Laboratory's missions. In addition to the recruitment programs already established at LLNL, a sourcing program to identify outstanding women and minorities in research and research management was initiated in the summer of 1990.

A research methodology, time table, selection criteria, and data generation strategy were designed and implemented for this program. Through extensive contacts with R&D facilities, women's and minority professional organizations, national research councils, technical professional societies and universities, other sourcing programs were investigated and evaluated and a network of contacts and resources was developed. By the end of April, 1991 after nine months of vigorous data collection, hundreds of candidates matching the established criteria had been identified. Of these, 320 sent their resumés to participate in this study and agreed to be considered for future openings at the Laboratory.

This report describes the design and implementation of the sourcing program targeting outstanding women and minorities in science and engineering. It details the investigation and evaluation of sourcing programs in other R&D facilities and provides information regarding methods and sources used to identify potential candidates. Conclusions and recommendations are presented.

Sourcing Program

I. Identify Outstanding Women and Ethnic Minorities in Research and Research Management

A. Purpose/Motivation

One of the employment objectives for the Lawrence Livermore National Laboratory (LLNL) is to attract the nation's best and brightest technically trained personnel. It is equally important to the LLNL to develop a highly skilled work force which represents the composition of men, women and ethnic minorities in the national labor force. During the past years, LLNL has had a number of programs aimed at recruiting qualified women and minorities for careers at the Laboratory. To meet the challenge of the changing demographics and the anticipated shortage of engineers and scientists in the 21st century, the Laboratory has a compelling motivation to increase efforts to meet its employment goals and affirmative action commitments.

Despite past efforts, a need still exists for the Laboratory to correct an underrepresentation of women and minorities in senior level research and scientific management positions. Laboratory managers, Human Resources professionals, and the Affirmative Action program specialists have considered a variety of programs in order to fill this need. In addition to continuing our efforts to help women and minority employees advance to management positions, it was desirable to complement this leadership developmental effort with external recruiting efforts. A sourcing program to identify senior-level women and minorities in research and research management was initiated in the summer of 1990. "Sourcing" is a net-working tool used to target a specific pool of candidates for future recruitment activities.

B. Establish Criteria

To gather information to form a basis for establishing appropriate criteria for determining qualities for excellence, the following two methods were used:

(1) Interview Laboratory Personnel--To assure that the candidates would meet Laboratory standards for recruitment, meetings were held with managers and scientific staff across the Laboratory. In addition, conscious efforts were made to include a broad spectrum of view points from diverse groups of people including Caucasian men, women, African American, Hispanic, Native American and Asian managers and employees.

(2) Research and Professional Organization Criteria--Criteria used to judge technical merit by the National Science Foundation for awarding research proposals, by the American Physical Society for electing fellows, and by the Society of Women Engineers for achievement awards were also taken into consideration.

On the basis of the information gathered, the following criteria were established to evaluate the degree of success achieved by the candidates we identified. Candidates meeting all or most of these criteria are considered "outstanding" or "successful."

- Ph.D in science, B.S./M.S./Ph.D in engineering
- A minimum of five years of experience in research or research management
- Elected fellow to professional society
- Scientific award or prize winner determined by the respective professional society
- Major research proposal grantees; e.g. NSF minority research initiatives, women visiting professors

- Professional society's scientific colloquia speakers; e.g. the
 American Physical Society's Physics Colloquia Speakers
 - Extensive publications in refereed journals
 - Patents for outstanding inventions
 - Senior-level position in university or R&D organization
 - Elected member of professional honorary society
 - Member to the Academy of Sciences or Engineering

In the course of data collection, the respondents recommended that the following additional factors be included for consideration:

- Member of a professional journal editorial board
- Chairship of major committee or board
- Major industrial application
- Graduate of quality institution cited by the Gourman Report

II. Evaluate Other Sourcing Programs

To investigate the sourcing programs used by the local R&D organizations, personal contacts with the employment representatives or the affirmative action officers were made. Companies and universities visited included Pacific Bell, East Bay Municipal Utility District, San Francisco City & County Office, Sun Microsystems, Lockheed, Hewlett Packard and Sandia Laboratories-Livermore, UC-Berkeley, Cal Tech, Cal State-Los Angeles. Generally, most organizations engage in the traditional method of sourcing: career fairs, college visits, summer interns, and advertisements in publications or newspapers having potential to reach women and people of color.

Described below are some unique sourcing programs employed by other R&D organizations which differ somewhat from the traditional method.

A. Sandia Laboratories

Being located in Albuquerque, New Mexico, Sandia Laboratories' main branch has had opportunities to develop long-standing relationships with the Hispanic and Native American graduates from the area. In addition, since the Kirtland Air Force Base is also located in Albuquerque, young retirees from Kirtland become another viable candidate source for Sandia.

Under the auspices of the Affirmative Action Department, Sandia Laboratories has a number of outreach programs aimed at attracting qualified women, African Americans, American Indians, and Hispanics in science and engineering. About two years ago, Sandia added an Asian Leadership and Outreach Committee, composed of interested employees throughout the company. The objective is to expand their scope of minority outreach activities. This year, Sandia has added two more outreach programs targeting veterans and physically impaired candidates.

In the past, Sandia has actively supported the minority student organizations on college campuses. This year Sandia is funding a full-time minority engineering program administrator to become part of the staff in the Engineering Department at the University of New Mexico to work with all the minority student groups on campus.

Additionally, Sandia shares with AT&T (their corporate connection) a subscription to kiNexus, which is a commercial, computerized candidate sourcing program. A complete description of kiNexus appears in Appendix G.

B. Sun Microsystems

In addition to the traditional recruiting methods, Sun Microsystems also develops their applicant pool from their employee referrals since it has already achieved a balanced and diverse work force. A cash reward (\$1,000 for an exempt employee, \$500 for non-exempt) is offered to the employee who is instrumental in bringing a new hire to Sun. Other methods of recruiting include the services of search firms and head hunters for specially needed talents. Sun actively supports community affairs and makes financial contributions.

Sun uses RESUMIX software to scan, extract, and load resumes into their computer candidate data tracking system. RESUMIX runs on a UNIX platform using SUN 19" workstations and has the capability of skill search. For further information regarding RESUMIX, contact:

Resumix Inc.
3140 De La Cruz Blvd., Suite 200
Santa Clara, CA 95054
(408) 727-9894

C. Chevron

Chevron has been a major sponsor of INROADS, a nationwide program whose mission is to develop and place talented underrepresented minority youth in business and industry to prepare them for corporate and community leadership positions. Chevron has sponsored INROADS summer interns throughout their corporate structure for a number of years. These monitored summer experiences are designed to introduce the student to the many dimensions of corporate life. Chevron supervisors prepare a Career

Development Plan for each student assigned to them. The plan spans the four working summers and defines the student's development goals for that period. Students work a 40-hour week in professionally-oriented paid positions, and all are seen as potential Chevron employees.

Established in 1970 in Chicago, INROADS has expanded to 36 locations throughout the United States. It has approximately 3,568 minority college students pursuing degrees in business, engineering, computer science and other related fields and are interning at over 1,000 companies. The sponsorship fee for each intern ranges from \$2,500 to \$3,000, depending on the location of the INROADS affiliate office.

III. Methodology and Potential Sources for Data Generation

Extensive outreach strategies were required to identify potential sources likely to provide the necessary information to meet the objectives of this program. Personal visits, telephone calls and a massive amount of letters were used to contact a wide variety of organizations. These included technical professional societies, minority professional organizations, universities, national laboratories, and large R&D facilities.

One of the most effective means to establish rapport and build working relationships with employment representatives and affirmative action officers was to offer information about the Laboratory's affirmative action and recruiting programs designed to attract technically trained women and minorities. When a candidate was identified, he or she was invited to participate in this program by sending his/her resumé to be included in the database. In addition, the candidate was requested to identify other outstanding women and minorities in research and research management. This specific request to recommend others resulted in developing a network system and generated referrals from many sources.

Of all the organizations contacted, those described below provided the most useful information in identifying the candidates for this program.

A. National Minority Professional Organizations and their Conferences

There are several nation-wide professional organizations whose primary mission is to advance educational and professional opportunities for ethnic minorities in science and engineering. Appendix B is a list of minority organizations, addresses, and contact names.

(1) One of the largest organizations is the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers

(NOBCCChE), whose membership is more than 3,000 African American chemists and chemical engineers. Founded in 1973, NOBCCChE's mission is to develop programs to assist African Americans in realizing their full potential in the fields of chemistry and chemical engineering.

(2) Another large-scale organization is the Southeastern Consortium for Minorities in Engineering (SECME), whose purpose is to increase the number of minority students qualified for entering and completing studies in engineering, math, and science. SECME was established in 1975 through a grant by the Sloan Foundation with the Georgia Institute of Technology being the host institution. Subsequently, SECME has established branches at the University of South Carolina, the University of Alabama, Memphis State University, and the University of Central Florida. Currently, SECME has 28 university members.

(3) The National Council of Black Engineers and Scientists is a major organization with branches across the United States. Individual chapters define their own goals and objectives; however, the general theme is to develop an awareness in the Black community of career opportunities in engineering, and to promote educational and professional development for its membership.

(4) The Society of Hispanic Professional Engineers (SHPE) is another national organization whose purpose is to advance Hispanic professional engineers in employment, education, and economic and social welfare.

Most of the above-described organizations acknowledge achievement by granting awards which are conferred at annual conferences. These conferences are valuable opportunities to identify candidates. However, the normal career fairs and resume books sold in these conferences generally include only the resumé of new graduates. Since our purpose for this

special sourcing program is to focus on experienced, senior-level candidates, it became necessary to reach out to award recipients, keynote speakers, program presenters, and recommendations from the board of directors of individual organizations. The minority professional conferences attended this year included the following:

SACNAS Annual Conference
(Society for Advancement of Chicanos and
Native Americans in Science)
January 4-7, 1991
Costa Mesa, CA

APAHE 4th Annual Conference
(Asian & Pacific Americans in Higher Education)
February 22-24, 1991
Oakland, CA

NSBE 17th Annual National Conference
(National Society for Black Engineers)
March 28-31, 1991
Los Angeles, CA

Other major national professional conferences by people of color include the following:

NOBCCHE - National Organization for the Professional
Advancement of Black Chemists and Chemical
Engineers

SHPE - National Society of Hispanic Professional
Engineers

MAES - Society of Mexican American Engineers &
Scientists

NSBP - National Society of Black Physicists

AISES - American Indian Science and Engineering Society

(5) The National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (GEM) is a tax-exempt, non-profit corporation, based at the University of Notre Dame in Notre Dame, Indiana. Originally, it was created as an outgrowth of corporate and university concerns to increase the number of underrepresented ethnic/racial groups to enter and complete the engineering master's degree. GEM now offers doctoral fellowship opportunities in both engineering and the natural sciences.

GEM has developed a National Minority Engineering and Natural Science Data Base designed to identify and increase the known pool of under-represented minority engineers and scientists qualified for professional and research positions. It is an on-line system that matches a) academic programs, b) career opportunities, c) funding sources and d) under-represented ethnic/racial minority candidates. Through asynchronous dial-up communication ports, employers will be able to access the data base to identify minority candidates. For detailed information regarding the GEM candidate database, contact Robert Isaac Lewis, II, Coordinator, (219) 287-1486.

(6) Founded in 1926, the National Technical Association (NTA) is one of the oldest technical professional associations of minority scientists, engineers, architects, math/science educators and other related technical professionals. NTA's mission is to provide exchanges of information and ideas among minorities in technological fields of study and work.

NTA has developed a Job Referral System by using an Electronic Bulletin Board System (EBBS). It is a personal computer running communication software that disseminates information regarding nation-wide job openings via the phone line. Information regarding a subscription to the NTA Job Referral System can be found in Appendix H.

B. Women's Professional Organizations

Appendix C lists several women's professional organizations and addresses.

(1) The Society of Women Engineers (SWE) is a professional organization founded in 1948 to enhance the position of women in engineering and to encourage other women to pursue engineering-related careers. In 1952, SWE established an Achievement Award to confer its highest tribute to women engineers for significant contributions in the field of solar energy. The recipients are selected by the society based on its consultation with nationally prominent engineers, business executives, and educators from outside the Society. Thus, the recipients of the Achievement Awards are another source of viable candidates. Information regarding the recipients of these awards can be obtained from the Society of Women Engineers. SWE has organized career counseling conferences and published a "Role Model" pamphlet profiling successful women engineers to encourage young women to find their role models. This list became yet another source of information for this project.

(2) The Association for Women in Science and Engineering (AWIS) is a non-profit organization affiliated with the American Association for the Advancement of Science (AAAS) and Federation of Organizations for Professional Women (FOPW). AWIS has a computerized file of several thousand women in all areas of science and engineering organized by scientific specialty. AWIS publishes a newsletter six times per year with a circulation of 3,500 addressees. Employers can publicize job openings in the AWIS Newsletters to solicit applicants.

(3) The American Physical Society has a Committee on the Status of Women in Physics (CSWP), which recently announced a grant program to encourage schools to invite female physicists as colloquium speakers. The Physics Colloquium Speakers List was published in CSWP's newsletter Gazette. The speaker list is organized in two Sections: Section I lists speakers by geographic areas, with addresses and phone numbers; Section II provides talk titles by physics subfields, with speakers' names and affiliations. The CSWP Physics Colloquium Speakers List became a valuable source of candidates.

C. Other Professional Organizations

A number of technical professional societies acknowledge outstanding achievements by granting elected fellowships or awards to their members. These acknowledgments are published in award brochures and professional journals. While the awards booklets can be a source of valuable information, the recipient names are not grouped by ethnicity or gender. In the journal publications, however, photographs of the recipients are often included, making identification by ethnicity and gender possible. Appendix D is a list of those professional societies and research organizations contacted.

Described below are methods of obtaining information from the professional societies to identify potential candidates:

(1) The American Physical Society (APS)--APS' Committee on Minorities in Physics (COM) has established a Roster of Minorities in Physics. The roster is used as a mailing list for the C.O.M. . . . MUNICATIONS Newsletter and is a source of potential employees for various organizations. COM is approximately two years old and has a roster of 316 minority physicists: 230 Black, 75 Hispanics; 11 Native Americans. The roster is organized by ethnic

group or degree, not physics subfield. Therefore, mailings may only be sent to Ph.Ds, MS, or BS degree holders, or to the complete roster. There were a total of 141 Ph.D physicists on the roster as of August 1990. Since the established policy of the Committee on Minorities is to guarantee confidentiality, the roster is not made available to the public. However, by following specific APS procedures, position announcements can be mailed to the APS Office for distribution to the members of the minority roster for a handling fee of \$100 plus postage.

An announcement about LLNL's sourcing program requesting ethnic minority physicists to identify outstanding candidates was sent to the APS Office to be mailed to the 141 Ph.D physicists on their Minority Roster. As a result of this effort, 14 candidates nominated themselves and submitted their resumes, representing a 10% return.

APS also has a database containing approximately 1000 women physicists. Unlike the minority roster, it is organized by physics sub-fields. The roster can be searched by the sub-field, and the number of candidates can then be ascertained. The same APS procedures applied to their minority roster would be applicable in making contacts with the female candidates.

(2) The American Chemical Society (ACS)-- At the present time ACS does not have a special minority roster as such. However, a sub-division of Chinese American Chemical Society (CACS) was established about 10 years ago.

One of the ACS awards recognizing significant achievements by women chemists is the Garvan Medal. The Garvan Medalist booklet was a significant candidate source for this study. Information regarding the Garvan Medalist as well as other ACS Award brochures can be obtained from the ACS main office.

In addition, ACS has a National Employment Clearing House which provides members and employers career and employment services. Recently, ACS's employment services have been expanded to include several options--the individual search plan, annual retainer plan, and search retainer plan. To subscribe to the ACS services, an employer fills out a request form containing specific descriptions of a position and the qualifications desired. Based on the information provided, ACS's clearing house conducts a computerized search for suitable candidates in its database. It then provides the employers with a list of suitable candidates for them to contact. The search fee ranges from \$80-\$100, depending on the number of files provided. The person in charge of the ACS's Employment Services is Joan Wheeland (1-800-ACS-5558, press 4).

(3) The American Society of Mechanical Engineers (ASME) is in the process of compiling biographical sketches on prominent women and minority scientists and engineers. ASME has a Board on Minorities and Women which is scheduled to review the preliminary research in November, 1991, and the information will be available after that date.

D. Research Organizations

(1) American Association for the Advancement of Science (AAAS) provides extensive information regarding women and minorities in science in their publications and is a valuable resource from which to draw. AAAS has a branch called "Office of Opportunities in Science" (OOS). In 1988 OOS published a directory called "MESHwork", which is an acronym for Mathematics, Engineering, Science and Health--a network of minority professional associations. Another useful publication by OOS is "Women in

Science, Engineering, Mathematics, and Medicine: Associations and Committees."

(2) National Research Council created two standing committees in the Office of Scientific and Engineering Personnel (OSEP): the Committee on Women in Science and Engineering, for which Linda Dix is the Staff Officer; and the Committee on Minorities in Science and Engineering, for which Cheryl Leggon is the Staff Officer. These committees monitor progress in efforts to increase the participation of women and people of color in science and engineering careers. Both committees were devoting the remainder of the year to raising funds and were expected to begin operations in January 1991. OSEP also administers graduate fellowship programs that target awards to women and minorities: the National Science Foundation Graduate and Minority Graduate Research Fellowship Programs, and the Ford Foundation Doctoral and Postdoctoral Fellowship Programs for Minorities.

(3) National Science Foundation (NSF) has numerous programs designed to enhance educational and career opportunities for women and other disadvantaged persons. Two programs on behalf of women in science provided candidate sourcing for this project: Visiting Professorships for Women and Research Opportunities for Women. The visiting professors and research proposal grantees provided another resource. In 1981 NSF established a "Minority Research Initiation (MRI) program whose primary goal is to assist the advancement of talented minority scientists and engineers in academic research careers. Over 95 percent of MRI awardees over the past eight years have remained in academia. Many awardees now hold key administrative positions at their institutions. The awardees are those underrepresented ethnic minorities in advanced levels of science and engineering. These include American Indians, Blacks, Hispanics, Native

Alaskans, and Native Pacific Islanders. MRI published a booklet in 1990 titled "Models of Excellence" which is a profile of the awardees in their personal struggles and triumphs to become successful researchers.

The successful awardees of the above-described programs were contacted, and a number of them responded by sending their resumés to be included in this project

Mandated by the Science and Technology Equal Opportunities Act (Public Law 96-516) of 1980, NSF has provided an annual report to Congress regarding the status of representation by women, racial and ethnic minorities, and persons with physical disabilities in science and engineering. NSF conducted large scale surveys and employed many consultants to collect data for this report. The names of the individuals in the study were considered proprietary information and were therefore not released. However, in the initial stage of scoping and strategy planning for this project, the information from this report and the statistical summaries were found to be valuable in assessing the current status.

(4) Library of Congress has a National Referral Center which provides bibliographical data on published material regarding women and minorities in science. This can conceivably be a viable source of data. However, because the Library of Congress list contains books and periodicals published a few years ago, it was considered not immediately relevant to this project.

E. U. C. System--HispanData

The Office of the President early in 1990 subscribed to a one-year trial corporate membership to HispanData to provide unlimited use of a resume database service by all University campus and Laboratory employment offices. HispanData is a national resume database consisting of several

thousand resumes of Hispanic professionals experienced in many career fields. HispanData will pre-screen potential candidates from their database to fill a specific position and provide resumes to the requesting organization. However, the database belongs to HispanData and cannot be released to other organizations. For complete information regarding HispanData, refer to Appendix E.

F. Universities

Some universities publish minority faculty listings which provided an additional source of candidates for this project.

G. Publications and Organizational Newsletters

Special publications and newsletters devoted to specific ethnic populations can be useful to identify candidates, as occasionally some of these publications profile outstanding or successful people (e.g., Black Collegian). One of the outreach tools is to advertise in these publications. Generally, specific job descriptions and fees are required to subscribe to these services. For a listing of some of these publications, refer to Appendix F.

A publishing company called "Career Communications Groups, Inc." organizes a national achievement awards conferences for two ethnic minority groups, African American and Hispanic engineers. Sponsored by corporate America, these annual conferences are designed to acknowledge achievements by African Americans and Hispanics in engineering. These national conferences can provide valuable opportunities to identify outstanding candidates. To get on their mailing list, contact the following:

Career Communications Groups, Inc.
729 E. Pratt Street, Suite 504
Baltimore, MD 21202-3113
Tel.: (301) 244-7101
Fax: (301) 752-1837

H. Commercial Programs

The two commercial computerized candidate sourcing programs investigated were the Minority Graduate Database and kiNexus. Both of these nation-wide computer database programs offer large numbers of undergraduate or new graduate candidates. For the purpose of this special sourcing project which focuses on senior-level researchers or engineers, the services of these two programs were not utilized. Information regarding these programs are provided in Appendix G.

I. Other

Last, but by no means the least, Employment Representatives and Affirmative Action Officers are useful contacts to search for candidate data.

IV. **Barriers to Data Collection**

Due to the Federal Privacy Act of 1974 (Public Law 93-579), many of the organizations contacted declined to release information regarding their rosters of women or minorities in science. This situation created an immediate obstacle in our ability to collect candidate data for this program.

The second barrier concerned the philosophical disagreement some of the candidates had with the "perceived mission" of the Laboratory. Thus, it became necessary to launch into a lengthy discussion or written reply to

describe the diverse research programs of the Laboratory. In a sense, the search to identify potential candidates entailed a considerable amount of public relations for the Laboratory.

Another barrier to attracting some of the successful scientists and engineers is their professed contentment in their current careers. However, this is a situation which may change. Hence, these candidates need to be pursued in the future.

Finally, the high cost of living in California became yet another barrier in our search for the pool of outstanding women and minorities in science and engineering.

V. Data Analysis and Summary

A. Candidate Database

During the nine-month period of data collection, hundreds of candidates had been identified as matching the criteria of excellence in research or research management. By the end of April, 1991 approximately 320 resumé's from people interested in future employment at LLNL had been collected. This database represented 165 Caucasian women, 73 African Americans, 46 Asian Americans, 29 Hispanics, and 6 Native Americans. With the exception of the group of Caucasian women, the other groups included both men and women candidates. Almost all of the candidates have completed Ph.D programs; many also completed master of science or engineering degrees. The majority of them are currently employed either in the academic world, research laboratories, or industry. A small number function as consultants, visiting professors or are semi-retired.

B. Data Summary

The format, style of writing and the content varied greatly among the 320 resumés. In the interest of summarizing the data in a succinct yet useful manner, a MacIntosh personal computer and EXCEL software were selected to design a computerized candidate database containing information from the resumés. The data in this abbreviated version include name, undergraduate and graduate degrees, years of graduation and institutions, fields of study, current position, current employer, number of technical publications, awards and honors received.

Since the database represents very focused groups of individuals in specific scientific and engineering disciplines of current and future interest to the Laboratory, it is not a random sample. Therefore, statistically relevant comparisons and conclusions cannot be drawn. However, it is interesting to note the educational and career patterns of the candidates which are shown in Tables 1, 2, and 3 in the following pages.

Table 1

Educational Patterns

Undergraduate Field of Study

FIELD	CAUCASIAN WOMEN		AFRICAN AMERICAN		HISPANICS		ASIAN AMERICAN		Native American	
	%	#	%	#	%	#	%	#	%	#
Physics	0.35	59	0.21	15	0.26	7	0.40	16	0.00	0
Chemistry	0.23	40	0.31	22	0.11	3	0.10	4	0.00	0
Biology	0.15	25	0.14	10	0.07	2	0.03	1	0.33	2
Mathematics	0.12	21	0.13	9	0.22	6	0.05	2	0.00	0
Computer Science	0.00	0	0.01	1	0.00	0	0.00	0	0.00	0
Engineering	0.08	14	0.15	11	0.33	9	0.25	10	0.33	2
Geology	0.02	3	0.00	0	0.00	0	0.05	2	0.00	0
Other	0.05	9	0.04	3	0.00	0	0.13	5	0.33	2
Total	1.00	171	1.00	71	1.00	27	1.00	40	1.00	6

Table 2

Educational Patterns

Graduate Field of Study

FIELD	CAUCASIAN WOMEN		AFRICAN AMERICAN		HISPANICS		ASIAN AMERICAN		Native American	
	%	#	%	#	%	#	%	#	%	#
Physics	0.37	63	0.23	16	0.22	6	0.48	19	0.00	0
Chemistry	0.23	39	0.35	25	0.11	3	0.15	6	0.00	0
Biology	0.15	26	0.15	11	0.11	3	0.03	1	0.33	2
Mathematics	0.08	13	0.06	4	0.19	5	0.05	2	0.00	0
Computer Science	0.01	2	0.01	1	0.00	0	0.00	0	0.00	0
Engineering	0.10	17	0.18	13	0.37	10	0.25	10	0.33	2
Geology	0.01	2	0.00	0	0.00	0	0.03	1	0.00	0
Other	0.05	9	0.01	1	0.00	0	0.03	1	0.33	2
Total	1.00	171	1.00	71	1.00	27	1.00	40	1.00	6

Table 3

Career Patterns

FIELD	CAUCASIAN WOMEN		AFRICAN AMERICAN		HISPANICS		ASIAN AMERICAN		Native American	
	%	#	%	#	%	#	%	#	%	#
Academic Track										
Dean or Department Head	0.11	19	0.17	12	0.11	3	0.05	2	0.00	0
Professor	0.25	43	0.18	13	0.30	8	0.58	23	0.33	2
Associate Professor	0.16	28	0.14	10	0.15	4	0.13	5	0.17	1
Assistant Professor	0.19	32	0.14	10	0.19	5	0.10	4	0.00	0
Visiting Scholar/Consultant	0.05	9	0.08	6	0.04	1	0.03	1	0.00	0
Technical Track										
R&D Manager/Consultant	0.04	7	0.11	8	0.11	3	0.05	2	0.33	2
Project Leader	0.01	2	0.03	2	0.00	0	0.03	1	0.17	1
Researcher/Engineer	0.18	30	0.14	10	0.11	3	0.05	2	0.00	0
Other	0.01	1	0.00	0	0.00	0	0.00	0	0.00	0
Total	1.00	171	1.00	71	1.00	27	1.00	40	1.00	6

C. Data Analysis--Point System for Criteria Test

For data reduction purposes, a point system corresponding to the criteria established at the onset of this project was devised as a tool to sort the database into three tiers. Table 4 shows the distribution of these points. This point system was sent to several Laboratory managers, scientists and engineers for a field test to insure its appropriateness. The suggestions from these reviewers were incorporated into the final, revised version.

Using this point system as a basis, the 320 resumés were carefully reviewed and appropriate points were assigned to each candidate. Based on the points assigned, the total database was then sorted and divided into three tiers, with the first tier being those having the most achievement points. Table 5 shows the distribution of the three tiers.

Appendix A is a complete candidate database developed thus far.

Point System

Educational Path	Point	Rating
Graduate with honors	1	
Undergrad school-*Gourman List	1	First Tier=11 and over
Grad school-Gourman List	1	Second Tier=6-10
		Third Tier=5 and under
Current Career - Technical		
Director/President	3	
R&D management position	2	
Senior-level researcher	1	
Current Career - Academic		
President of an institution	3	
Dean/Department head	2	
Professor	1	
Professional Achievement		
>20 refereed journal publications	3	
10-20 refereed journal publications	2	
>5 important patents/inventions	3	
Honorary society member	2	
Elected Fellow by professional society	2	
Achievement award or prize	2	
Major contribution to employer	2	
Extra-curriculum		
Served on journal editorial board	1	
Chaired major committee or board	1	
Experience		
Over 10 years after PhD	2	
Between 5-9 years after PhD	1	

*The Gourman Report - A Rating of Quality Learning Institutions
by Dr. Jack Gourman, National Education Standards

Table 5

Distribution of Tiers

Tier	CAUCASIAN WOMEN		AFRICAN AMERICAN		HISPANICS		ASIAN AMERICAN		Native American	
	%	#	%	#	%	#	%	#	%	#
First Tier	0.22	38	0.10	7	0.11	3	0.23	9	0.00	0
Second Tier	0.50	85	0.68	48	0.70	19	0.70	28	0.00	0
Third Tier	0.28	48	0.23	16	0.19	5	0.08	3	1.00	6
Total	1.00	171	1.00	71	1.00	27	1.00	40	1.00	6

VI. Potential Benefits

A. Laboratory Image

The special effort to develop a sourcing program targeting outstanding women and ethnic minorities in science and engineering touched many people in the minority and women's professional organizations, in industry, and in the universities. Many of the respondents expressed strong endorsement to this program. Clearly, it enhanced the opportunity for the Laboratory to project a positive image to the outside world.

B. Recruiting Pipeline

A great deal of effort was required to earn candidate trust and establish network. As a result of this special sourcing program, a significant number of viable candidates have been identified who may likely fill current and future openings at the Laboratory. It is recommended that continued effort be extended to maintain contact with the candidates in the database, as they will be helpful in forming a recruiting pipeline for future candidates. For example, Laboratory journals, brochures and periodic letters with news about technical programs can be mailed to the candidates. Another method of keeping in touch is to invite several candidates at one time to meet with key managers for technical briefings about Laboratory programs.

C. Network with Professional Colleagues

In the course of collecting data for this project, a wide range of counterparts and professional colleagues had to be cultivated to gain information. As a result, a professional network was developed which can conceivably be useful in the future.

D. Career Counseling and Science Education Outreach

Another potential payoff for the data is in the areas of external science education outreach and internal career counseling of Laboratory employees. A concrete list of a large number of successful women and ethnic minorities in science and engineering is a positive evidence that they, too, can succeed. It is recommended that this report be shared with Laboratory human resource professionals involved in the programs mentioned above.

VII. Conclusions and Recommendations

It is significant to note the interest and concern expressed by many of the candidates who responded with telephone calls and letters. An overwhelming majority of the respondents expressed strong interest in and support of our efforts to identify outstanding women and ethnic minorities in the fields of science and engineering. Many of them recommended their peers and associates for inclusion in the database. Others offered additional assistance in the future. On the other hand, there were some concerns.

Some of their questions are listed below:

- Where did you get my name?
- What are you going to do with the data you collect?
- Who is funding this study?
- Who will have access to your report?
- What is the racial mix of your total employee population?
- What percentage of your female and minority employees are represented in the management positions?

In the course of collecting data for the sourcing program, numerous letters and discussions with individuals have shed some light on the

challenges facing employers today. In this age of declining numbers of highly skilled and talented workers, competition from industry, the national laboratories, universities and government for this small pool of available candidates will become increasingly fierce. For the Laboratory to compete successfully in attracting the best candidates, it is necessary for LLNL to become an employer of choice. Based on the concerns expressed by the candidates, it is obvious that the best way for any organization to attract quality candidates is to have a nurturing working environment where employees can succeed. It is, therefore, recommended that effective career development programs be initiated at the Laboratory to enable all employees, especially women and people of color, to overcome barriers to career development.

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Appendix A

				*Abbreviated Resumes Hispanics in Science							
ID	Sex	Deg.	Yr.	Field	School	Grad	Year	Field	School	Current Position	Current Employer
H1	F										
H10	F	B.A.	74	Appl. Math	UC-Berkeley	MS/PhD	76/80	Phys Chem	U of Minnesota	Research Scientist	NASA Ames Research
H11	M	B.S.	57	Physics	New Mexico State	MA/PhD	59/66	Math/Eng. Sci	UC-Berkeley	Prof of Physics	U of Arizona
H12	M	B.S.	61	Math	U of New Mexico	PhD	65	Math	UCB/U of Wisconsin	Dean-Gr. Studies & Prof.-Mat	U of New Mexico
H13	M	B.S.	77	ME	UC-Berkeley	PhD	83	ME	UC-Berkeley	Assoc. Prof. of ME	UC Berkeley
H14	M	B.A.	72	Physics	Balseiro Physics Inst	PhD	82	Physics	Brown Univ	Visiting Scholar at Harvard	U of Puerto Rico
H15	M	B.S.	71	Civ Eng	New Mexico State	MS/PhD	73/76	Civ Eng	NM State/Virg.Polytech	Prof. Civil Engineering	NM State
H16	M	B.S.	57	Physics	Fordham	MS/PhD	60/65	Physics/Math	Catholic U	Prof. of Physics	North Dakota State
H17	M	B.S.	80	ME	U of New Mexico	MS/PhD	83/86	ME	Purdue	Assist. Prof	Colorado School of Mine
H18	M	B.S.	70	Math	Texas A&I	MS/PhD	71/75	Math/Statistics	Texas A&I	Professor-statistics/Dean	New Mexico State
H19	M	B.S.	65	EE	U of Puerto Rico	MS/PhD	67/72	Nuclear Engineering	U of PR/MIT	Director of Environ. Safety, H	Sandia Lab
H2	M	B.A.	33	Math/Phys.	Drew U	MA/PhD	35/50	Math/Physics	Syracuse/Stantl.	President	Vivamos Mejor/USA
H20	M	B.S.	76	EE	Natl Polyt Inst, Mex	MS/PhD	78/-	EE	U of Colo/New Mex State	Assist. Prof	CSU Northridge
H21	F	M.Sci	58	Chemistry	U of Buenos Aires	PhD	1964	Theo.Org. Chemistry	U/Buenos Aires & Chicago	St. Research Sci/Assoc.Prof	Center for Supercond., U of Illinois
H22	M	B.A.	66	Biology	U of St. Thomas	MA/PhD	70/74	Biology/Endocrinol.	Sam Houston State/UCB	Professor of Biology	UC-Santa Cruz
H23	M	B.A.	61	Math	UCLA	MA/PhD	66/67	Math	UCLA	Prof. of Math Sci	Rice University
H25	M	B.A.	65	Math	Texas A&I	MS/PhD	66/69	Applied Mechanics	Lehigh Univ	Assoc.Prof./ME-EM Dept	Michigan Tech Univ
H26	M	B.S.	85	Chem Eng	U of NM	MS/PhD	86/90	Chem Eng	U of Mich, Ann Arbor	Lecturer and Research Assoc	U of Texas, Austin
H27	M	B.S.	61	Physics	New Mex In of Min/Tel	DO/MS/P	63/66	Nuclear Engineering	U of New Mexico	Division Leader	LLNL
H28	M	B.S.	85	Chem Eng	UNM	MS/PhD	86/90	Chem Eng	Michigan	Lecturer & Research Assoc.	U of Texas-Austin
H29	M	B.S.	71	Biochemistry	CSULA	PhD	76	Biology	UC San Diego	Professor	UC Irvine
H3	M	B.Sc	73	Physics	Stanford	PhD	79	Astrophysics	U of Colorado	Assoc. Prof.	UC Berkeley
H4	F	Licend	64	Fisica	U. Nacional de Tucuman	PhD	1974	Physics	U. de Paris	NSF Visiting Professor	The Johns Hopkins
H5	M	B.S.	70	Civ Eng	Inst Tech y de Estudios	MS/PhD	73/77	Civ Eng/Env. Eng	NM UCIT	Professor Civil Eng	NM State U
H6	M	B.S.	44	biology	U of Puerto Rico	MA/PhD	59/66	Molecular Biology	Duke/U of Miami	Prof. of Molecular Biol	U of Puerto Rico
H7	M	B.A.	59	Physical Sci/Hor	Cal State-Chico	PhD	68	Biochemistry	Oregon State	Associate Dean/Arts & Sci	New Mexico State
H8	M	B.S.	82	EE	NM State U	MS/PhD	87/87	EE	U of Illinois	Assist Professor	NM State U

				Caucasian Women in Science							
I.D.	Deg.	Yr.	Field	Honors	School	Degree	MS	PhD	Field	School	Current Position
W1	B. S.	74	Eng. & App. Sci.		Yale	MS/PhD	75	79	EE & Com. Sci.	Stanford/Princeton	Scientific Officer
W2	B. A.	78	Genetics	X	U of Dublin	PhD		84	Biology	U of Michigan	Assistant Prof.
W3	B. A.	54	Mathematics		SUNY - Albany	MA	57		Mathematics	U of Michigan	Senior Manager/Parallel software
W4	B.Sc.	76	Physics		U of Lancaster	PhD		81	Earth & Planetary Sci.	MIT	Assistant Prof./Astrophysics--
W5	B. S.	67	Physics		Duke	MS/PhD	69	72	Solid State Physics	N. Carolina/U of Manchester	Adjunct Prof./Elec. Engineer
W6	B. A.	77	Geoscience		Queens College	Ph.D.		82	Geological Sci.	UC-Santa Barbara	Sr. Scientific Officer
W7	B. A.	56	Biology	X	Swarthmore	MS/PhD	58	61	Biochemistry	U of Pittsburgh	Prof. & Chair/Interim Dir
W8	B. A.	75	Biology	X	Evergreen State	Ph.D.		82	Biochemistry	UCSF	Assistant Prof.-Biology
W9	B. A.	53	Nuclear Physics		Barnard	MS/PhD	55	58	Nuclear Physics	Columbia	Professor
W10	B. A.	51	Physics	X	Mount Holyoke College	MS/PhD	53	55	Physics	Penn. State	Research Physicist
W11	B. S.	67	Physics	X	U of Rochester	Ph.D.		72	Physics	U of Maryland	Prof. of Physics
W12	B. S.	76	Math. Science		Stanford	Ph. D.		83	Operations Research	MIT	Assistant Professor
W13	B. A.	69	Biology		U of York England	M.A./PhD	70	75	Biology	Harvard	Assoc. Prof.-Pharmacology
W14	B. S.	63	Mathematics		Simmons College	Ph.D.		68	Mathematics	MIT	Res. Sci. & Prof. Math & Comp
W15	A. B.	61	Astronomy		Mount Holyoke College	Ph.D.		66	Astronomy	UC-Berkeley	Professor, Chair, Astronomy
W16	B. S.	77	Math		Purdue	Ph.D.		82	Geochemistry	UC-Berkeley	Principal Research Scientist
W17	B. S.	78	Physics	X	Michigan State	MS/PhD	80	83	Physics/ME	Michigan State	Associate Professor
W18	B. S.	71	Microbiology		Purdue	PhD		76	Microbiology/Biochem	Purdue	Professor/Molecular Biology
W19	B. S.	67	Applied Math		Colorado State	MBA/PhD	73	79	Operations Research	UCLA-Grad.Sch.of Mgmt	Professor/Assoc.VP
W20	B. S.	77	Chemistry		U of Delaware	Ph.D.		83	Biochemistry	Michigan State	Assistant Professor
W21	A. B.	70	Bacteriology		UC-Berkeley	MS/PhD	72	76	Org.Chem/Biochem	U of Alabama/Vanderbilt	Assoc. Prof./Biochemistry
W22	B. A.	74	Chemistry	X	Hope College	Ph.D.		79	Chemistry	UC-Berkeley	Professor of Chemistry
W23	B. S.	58	Physics		Kansas State	MS/PhD	63	73	Physics	Kansas State	Professor
W24	B. S.	56	Bacteriology	X	Purdue	MS/PhD	58	61	Genetics	Purdue/U of Wash	Prof./Maryland Biotech. Inst
W25	B. A.	75	Physics	X	Brandeis	PhD		81	Physics	MIT	Associate Prof.
W26	B. S.	70	Civil Eng		Nat. tech. U of Athens	MS/PhD	71	73	Theoret. Appl. Mech	Northwestern University	Professor
W27	B. S.	74	Microbiology	X	U of Georgia	MS/PhD	76	84	Microb.Biochem.Genet.	U of GA/Duke University	Assistant Professor
W28	B. S.	78	Physics		MIT	MS/PhD	81	83	Physics	Cornell	Technical Staff
W29	B. A.	60	Physics		Miami U	Ph.D.		76	Physics	Stanford	Resear./Adj.Assoc. Prof. Phy
W30	B. S.	78	Chemistry		U of Copenhagen	Ph.D.		85	Organic Chemistry	Harvard	Assist. Professor
W31	B. S.	82	EE		MIT	MS/PhD	82	87	EE	MIT	Assistant Prof./EE & Comput
W32	B. S.	73	Biolog. Sci	X	UC-Irvine	Ph.D.		80	Biology	UC-San Diego	Assoc.Prof./Biochemistry
W33	B. A.	69	Chemistry	X	U of South Florida	MS/PhD	74	77	Phys Chemistry	Texas Wom U/Georgetown	Res. Phys. Sci/Ad.Prof-Chem
W34	S. B.	58	Chem Eng		MIT	ScD	66		Chem Eng	MIT	Assoc.Dir.-New Energy Tech
W35	B. S.	44	Mathematics		U of Chicago	MS/PhD	51	55	Mathematics	Michigan State	Professor/Computer Science
W36	A. B.	37	Biochemistry		Hunter College	M. S.	41		Biochemistry	New York U	Scientist Emeritus
W37	A. B.	75	Astronomy	X	Princeton	M.A/PhD	77	79	Astronomy	Harvard	Associate Professor
W38	B. S.	63	Physics		Penn State University	M.S./PhD	66	70	Theoretical Physics	Penn State Uni	Teacher
W39	B. S.	7	Physics		U of Michigan	MS/PhD	?		Engineering-Economic	Carnegie-Mellon/Stanford	Principal
W40	B. A.	66	Physics	X	Swarthmore College	Ph.D		72	Astronomy	Harvard	Professor/Astronomer
W41	B. S.	79	Physics		Miami U	2MS/PhD	81/86	89	Physics-EE	Illinois/USC	Assistant Prof./Researcher
W42	B. S.	79	Mathematics		Villius State U USSR	MS/PhD	83	87	Mathematics	Technion-IT Israel	Assistant Professor-Statist
W43	B. A.	63	Chemistry		Wellesley	PhD		68	Physics	UC, Livermore DAS	Sr. Research Scientist
W44	A. B.	61	Chemistry		Bryn Mawr	Ph.D.		65	Chemistry	Stanford	Dept.Chair & Professor
W45	B. S.	66	Biology		Sweet Briar Col.	Ph.D.		70	Zoology/Genetics	U of South Carolina	Professor of Biology
W46	B. A.	73	Biology		St. Andrews College	MS/PhD	80	82	Biomed. Math & Eng	U of North Carolina	Assoc. Prof./Biomed.Eng.
W47	B. A.	77	Physics		Princeton	MA/PhD	81	84	Physics	Columbia/U of Chicago	Assistant Prof. of Physics
W48	B. S.	42	Physics		U of Minnesota	MA/PhD	44	50	Physics	U of Minnesota	Professor of Physics
W49	BS-A.	73	Biology		Stanford	Ph.D.		79	Oceanography	U of Rhode Island	Associate Professor of Biol
W50	B. S.	70	Mathematics		Case Inst. of Tech	MS/PhD	72	75	Mathematics	Cornell	Professor/Dept.of Math.
W51	B. A.	65	Zoology	X	Barnard college	MP/PhD	68	70	Biology	Yale	Professor Biology
W52	B. A.	75	Civil Eng		U of Toronto	PhD		79	Geotechnical Eng	Cambridge U	Assoc. Prof.-Geotechnical En

Caucasian Women in Science											

Appendix B

Appendix B

Minority and Professional Organizations

- **National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)**

Dr. Clarence Tucker, Chair of Executive Board
8 Longmeadow Road
Westboro, MA 01581
(617) 684-4682

Chief Elected Officer: James Evans, President

- **American Association of Blacks in Energy (AABE)**

Mary Helen Thompson, Executive Director
1220 L Street, N. W., Suite 605
Washington, DC 20005
(202) 898-0828

Chief Elected Officer: W. James Sams, Chairman

- **American Indian Science and Engineering Society (AISES)**

Norbert S. Hill, Jr., Executive Director
1310 College Avenue, Suite 1506
boulder, CO 80302
(303) 492-8658

- **Southeastern Consortium for Minorities in Engineering (SECME)**

R. Guy Vickers
Executive Director
/o Georgia Institute of Technology
Atlanta, GA 30332-0270
(404) 894-3314

- **National Society of Black Physicists**

Dr. Kennedy Reed, President
Lawrence Livermore National Laboratory
P. O. Box 808, L-296
Livermore, CA 94550
(415) 423-1112

- **Society for Advancement of Chicanos and Native Americans in Science (SACNAS)**

P. O. Box 30040
Bethesda, MD 20814

Chief Elected Officer: Dr. George Castro, President

- **Society of Hispanic Professional Engineers (SHPE)**

5400 East Olympic boulevard, Suite 120
Los Angeles, CA 90022
(213) 725-3970

Chief Elected Officer: Jesus Vargas, President

- **Chinese American Chemical Society**

CACS
Y. H. So
Dow Chemical Building 1702
Midland, MI 48674

- **The National Action Council for Minorities in Engineering (NACME)**

3 West 35th Street
New York, NY 10001
(212) 279-2626

- **Society of Mexican-American Engineers and Scientists (MAES)**

Box 1180
Placentia, CA 92670

- **National Technical Association (NTA)**

Dr. Mildred Fitzgerald-Johnson, Executive Director
P. O. Box 7045
Washington, DC 20032-7045
(202) 829-6100

- **Asian Pacific Americans in Higher Education (APAHE)**

Dale F. Shimasaki, President
c/o Japanese American Citizens League
1765 Sutter Street
San Francisco, CA 94115-3297
(415) 921-5225

- **National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM)**

Howard Adams, Director
GEM Center
P. O. Box 537
Notre Dame, IN 46556
(219) 287-1097

- **National Physical Science Consortium (NPSC)**

L. Nan Snow, Executive Director
National Physical Science Consortium
New Mexico State University
Box 30001, Department 3NPS
Las Cruces, New Mexico 88003-0001

- **Committee on the Status of Minority Microbiologists
American Society for Microbiology**

Christina M. Johnson, Coordinator-MSSCSP
American Society for Microbiology
1325 Massachusetts Avenue, N. W.
Washington, DC 20005
(202) 737-3600

Appendix C

Appendix C

Women's Organizations

- **National Network of Minority Women in Science (MWIS)**

Yolanda S. George, Coordinator
Office of Opportunities in Science
American Association for the Advancement of Science
1333 H Street, NW
Washington, DC 20005
(202) 326-6674

- **The Society of Women Engineers (SWE)**

National SWE
United Engineering Center, Room 305
345 East 47th Street
New York, NY 10017
(212) 705-7855

UCB SWE
105 Naval Architecture Building
University of California, Berkeley
Berkeley, CA 94720

- **Women in Energy (WE)**

600 New Hampshire Avenue., NW, Suite 600
Washington, DC 20037

- **Sigma Delta Epsilon**
Graduate Women in Science, Inc.
Box 4748
Ithaca, NY 14852

Chief Elected Officer: Dr. Harriet Kagiwada, President

- **Committee on the Status of Women in Physics (CSWP)**
American Physical Society

Midred S. Dresselhaus, Chair
The American Physical Society
335 East 45 Street
New York, NY 10017

Appendix D

Appendix D

Research Organizations & Professional Societies

National Research Council
Office of Scientific & Engineering
Personnel
2101 Constitution Avenue
Washington, DC 20418
(202) 334-2000

National Science Foundation
1800 G Street, NW
Washington, DC 20550
(202) 357-7734

Dr. Margrete S. Klein
Program Director for
Visiting Professorships for Women
and
Program Coordinator for
Research Opportunities for Women

Dr. Roosevelt Calbert
NSF Minority Research Initiation Program
(202) 357-7350

Library of Congress
Science Reference Section
Science and Technology Division
10 First Street, S. E.
Washington, DC 20540
(202) 426-5670

American Physical Society
Charlene Borsach, Administrator
335 E. 45th Street
New York, NY 10017
(212) 682-7341

American Chemical Society
Eileen Reilley, Staff Liaison
1155 - 16th Street, N. W.
Washington, DC 20036
(202) 872-4456

**American Association for the
the Advancement of Science**
Shirley M. Malcom
1333 H. Street, N. W.
Washington, DC 2005
(202) 326-6680

**The Institute of Electrical
& Electronics Engineers, Inc.**
Maureen Quinn, Award Administrator
345 E. 47th Street
New York, NY 10017-2394
(212) 705-7882

**The American Society of
Mechanical Engineers**
Lori Benard, Coordinator
345 E/ 47th Street
New York, NY 10017
(212) 705-7722

Appendix E

PROCEDURES

UNIVERSITY OF CALIFORNIA CAMPUS AND LABORATORY ACCESS AND USE

HISPANDATA RESUME DATABASE SERVICE

What is HispanData?

HispanData is a national resume database consisting of several thousand resumes of Hispanic professionals experienced in many career fields. Many candidates who are not available through usual recruiting methods are accessible in job searches through HispanData.

How HispanData Works

A University campus or Laboratory employment office provides HispanData with pertinent information about a specific professional and/or management-level job vacancy. HispanData will search its computer database to find matching qualified resumes. Once potential applicants have been identified, each candidate is pre-screened for availability and interest in the particular job opening. HispanData will FAX copies of resumes of potential job candidates to requesting offices.

How to Request HispanData Resume Database Service

1. Complete the HispanData Resume Request form.
2. You may also attach your campus or laboratory "Job Vacancy Listing" for the particular position for which you are recruiting.
3. Mail or FAX the above items as specified on the form to:

HispanData
360 Hope Ave., Suite 300 C
Santa Barbara, CA 93105
FAX (805) 687-4546
Telephone (805) 682-5843

General Guidelines

1. You must fill-out the HispanData Resume Request Form. This form requests information consistent with HispanData database search format. You may supplement information on the form by attaching the Job Vacancy Listing for the vacancy. However, the "Job Vacancy Listing" may not be used in lieu of the Request form.

2. HispanData will begin immediately to search its database, contact potential applicants, print and mail/FAX a resume to the campus/laboratory. However by agreement, HispanData is allowed up to three weeks to provide this service. If you have a need for expedited service, please contact HispanData by telephone at (805) 682-5843.
3. Resumes generated by HispanData beyond the recruitment closing date, may be received. You may want to review your existing procedures to determine if accommodations are necessary for this method of search.
4. By agreement, the University may not request a resume from HispanData solely to create or enlarge its own resume database.
5. Each campus/Laboratory will assign one individual to act as the contact person for HispanData.

Candidate Disposition Information Sheet

Our agreement with HispanData requires the completion of the "Candidate Disposition Information Sheet" each time a HispanData candidate is interviewed for the position. All dispositions require an accompanying explanation, in conformance with University policy and practice. In the case of non-selection of the candidate, detailed information is required, in conformance with University policy and practice.

HispanData Contract Administration

Matters related to the quantity and quality of the services provided by HispanData should be referred to:

Bill Espinosa
Office of Employee Relations
(415) 987-0803

or

Barbara J. Thomson
Office of Business and Employment Affirmative Action
(415) 987-9214

UNIVERSITY OF CALIFORNIA
HISPANDATA RESUME DATABASE REQUEST

Date: _____

Campus/Laboratory Location: _____

University Contact Person:

Name: _____

Title: _____

Telephone: (____) _____

FAX Number: (____) _____

Job Vacancy Listing (Attached):

Job Title: _____

Job Vacancy #: _____

Recruitment Opens: _____

Recruitment Closes: _____

Minimum Qualifications (Education/Training/Experience/Skills):

Special Requirements:

Desirable/Preferred Requirements:

Annual Salary Range: \$ _____ Start: \$ _____ Start Date: _____

Work location if different than campus/laboratory site: _____

Mail this request form to:
HispanData, 360 Hope Avenue, Suite 300 C, Santa Barbara, CA 93105
Telephone: (805) 682-5834 FAX: (805) 687-4546

UNIVERSITY OF CALIFORNIA

HISPANDATA CANDIDATE DISPOSITION INFORMATION SHEET

Date: _____

Please provide the following information for **each** candidate you interview and return this form to HispanData after the interview.

Campus/Laboratory Location: _____

Your Name: _____ Title: _____

Telephone: (____) _____ FAX Number: (____) _____

Candidate's Name: _____

Date of Interview: _____ By Telephone? _____ In Person? _____

Hired: _____ Date Hired: _____ Position: _____

We did not hire the candidate for the following reasons (please elaborate including such reasons as the candidate declining the offer):

Return this form to:

HispanData, 360 Hope Avenue, Suite 300 C, Santa Barbara, CA 93105

Telephone: (805) 682-5834 FAX: (805) 687-4546

Appendix F

Appendix F

Ethnic Minority Publications

Hispanic Magazine

Hispanic Publishing Corp.
111 Massachusetts Ave., N. W. Suite 410
Washington, DC 20001
Editor: Alfredo J. Estrada

American Visions

The Visions Foundation
Carter G. Woodson House
Smithsonian Institution
Publisher/Editor: Gary Puckrein

Winds of Change

University of Arizona
Tucson, AZ 85721

Hispanic Engineers

Society of Hispanic Prof. Engineers
5400 E. Olympia Blvd. Suite 120
Los Angeles, CA 90022
(213) 725-3970

Black Issues in Higher Education

Cox, Matthews & Associates, Inc.
10520 Warwick Ave., Suite B-8
Fairfax, VA 22030
(703) 385-2981

Hispanic Engineers Association Journal

280 South Sadler Avenue
Los Angeles, CA 90022
Editor: Carmyla Mellado

Hispanic Times

701 South First Ave. #385
Arcadia, CA 91006

NSBE National Society of Black Engineers Magazine

344 Commerce Street
Alexandria, VA 22314
(703) 549-2351

Sci Tech

(Black Scientists and Engineers)
P. O. Box 12161
Oakland, CA 94604

The Hispanic Outlook in Higher Education

13 Carlos Drive
Fairfield, NY 07004
(201) 882-5571

Appendix G

Now scan records of more than 25,000 qualified minority and women job candidates right from your computer.

- More than 100 disciplines.
- All college graduates. Many with advanced degrees and professional experience.
- Fully IBM-PC compatible.
- Quarterly updates maximize your hiring capabilities.
- Easily customized to meet your specific needs.
- Special operating program included.

1-800-762-2023
(202) 483-4107
Fax: (202) 328-8572

**McClure
Lundberg
assoc.**

The Minority Information/EEO-AA Training Specialists
1515 U Street NW
Washington, DC 20009

The Minority Graduate Data Base™ effectively cuts the cost of your minority recruitment.

Fully IBM-PC compatible and updated quarterly, the Minority Graduate Data Base enables you to scan the pertinent data on more than 25,000 qualified job candidates in over 100 disciplines. In mere minutes. Right from the computer terminal on your desk.

Used by major national corporations and government agencies for over four years, the Minority Graduate Data Base is the largest single source for qualified, talented minority and women candidates ever compiled.

The Minority Graduate Data Base can sort and select candidates with any given characteristic or set of characteristics you desire. You determine the qualifying factors and parameters to identify and select the candidates you need.

What's more, order the Minority Graduate Data Base today and we'll customize it to meet your particular needs, **ABSOLUTELY FREE**. And we'll include our special operating program that enables you to maximize usage of the Minority Graduate Data Base. Plus, we'll provide free troubleshooting hotline assistance.

Comply with all your EEO and affirmative action requests for Blacks, Asian Americans, Hispanics and/or Native Americans . . . at the push of a button. Instead of costly junkets to far-flung colleges and universities and a host of time-consuming interviews.

Order the Minority Graduate Data Base on IBM-PC compatible disks today.
Call 1-800-762-2023.

McClure Lundberg assoc.

The Minority Information/EEO-AA Training Specialists
1515 U Street NW
Washington, DC 20009

1990 PRICE LIST

MINORITY GRADUATE DATA BASE™

The MGDB includes thousands of registrants encoded by name, permanent home address, minority group, gender, academic major, degree, GPA, preferred work location, previous degrees and work history (if any), and other factors. A new Data Base is assembled every academic year. Data can be made available to you in the following ways.

I. MAILING LABELS: \$1.50 EACH

You may wish to do a one time mailing to potential minority candidates. Mailing labels are available for groups of registrants you select by one or more of the data elements listed above. Call the MGDB Coordinator to discuss which factors are best applied to recruit for your specific vacancies. A back-up control list is available upon request!

II. SELECTIVE DATA BASE (SDB): YEARLY SUBSCRIPTION

Under this set of options you may construct a data base designed to suit your specific recruitment needs. You may select registrants to be in your SDB by applying any one or any combination of the following criteria: ethnic group, gender, Department and/or major (see reverse), GPA, degree level, preferred work location, home address, and work experience for Alumni. You tell us who you want in your SDB. A Selective Data Base is priced according to what percentage of the total MGDB your SDB will add up to. The Selective Data Bases are priced as follows:

Level 1. Up to 15 percent of the MGDB	\$1,500.00
Level 2. From 16 to 30 percent of the MGDB	\$2,500.00
Level 3. From 31 to 70 percent of the MGDB	\$5,000.00

III. FULL MINORITY GRADUATE DATA BASE: YEARLY SUBSCRIPTION \$8,000.00

If you represent a large full-function agency, company, or jurisdiction you may want to purchase the full MGDB (which is defined as 71 percent or more of the current data).

IV. DISCOUNT FOR DATA FROM PREVIOUS YEARLY EDITIONS OF THE MGDB:

For more mature candidates, in terms of age and experience, we offer a 25 percent discount on Items II. and III. above on data from the three previous editions of the MGDB. This combined resource contains listings on over 30,000 college trained minority group members.

V. DIRECTORY OF MINORITY COLLEGE GRADUATES: YEARLY SUBSCRIPTION \$975.00

Hard copy, spiral bound Directory listing all potential candidates by major. Directory list most of the other data elements from the MGDB, i.e. Race, Gender, GPA, Home Address, etc. Updates for any given year's Data Base automatically sent. The 1989 Directory is still available for \$500.00.

All data are shipped on 5 1/4" floppy disks. All data disks are formatted for use by any off-the-shelf MS-DOS data base management program. For the balance of the year, purchasers of any Selective or Full MGDB will receive all relevant up-dates as additional data are received and entered. The Mini Data Base Management Program comes with the Selective or Full MGDB free of charge.

CONTACT: MGDB Coordinator
McClure-Lundberg Associates, Inc.*
1515 U Street, N.W., Washington, D.C. 20009
(202) 483-4107, FAX (202) 328-8572

Please call the MGDB Information Line if you have any questions
or to place your order at 1-800-762-2023.

*A minority owned small business with SBA 8(a) certification.

June 25, 1990

Mail Station L 716

Ext 2-9512

TO: Art Wong
FROM: Sally Nissen *SN*
SUBJECT: kiNexus Candidate Database

During the past two weeks, I made a series of telephone inquiries and learned about an electronic recruiting information management system, kiNexus, recommended to me by Dan Brewer, Sandia/Albuquerque recruitment manager. I have devoted some time to review kiNexus and found the system a rather interesting resource to add to our existing sourcing programs. I am sending the kiNexus presentation diskette as well as an example of candidate information profile for your review. Some of the highlights of kiNexus which I found interesting are shown below:

- endorsed by the National College Placement Council
- includes experienced as well as new graduate candidates
- can identify members of minority groups via a search capability
- can customize the system for our own internal use
- has regional training sessions for users
- currently the database has 2000 candidates
- plans to launch a nation-wide promotion program to reach 1 million candidates by fall, 1990
- 200 colleges have ordered and are implementing kiNexus system
- current major subscribers include Bellcore, AT&T (shared with Sandia), IBM, Hewett Packard, Naval Research Lab, Defense Mapping, etc.
- has telephone hotline service 9-7 daily

The kiNexus presentation diskette requires a DOS-based IBM PC or equivalent to access. To achieve maximum effect, a color monitor is recommended. The diskette contains tremendous amount of information, much of which is advertising verbiage. I believe this recruiting tool has merit, and I would be interested in your comments about kiNexus.

University of California

Lawrence Livermore
National Laboratory

Candidate information on *kiNexus*

EMPLOYMENT	ACADEMIC	INDIVIDUAL
Career Objectives (Text) Work/career interest* Type (e.g., Financial Analyst) Industry Location Position sought Entry/Experienced Full/Part Time, Intern, etc Salary sought Employment Availability Date Experience: Type (e.g., Programmer) Industry Total years work experience Years career experience Years experience relevant to employment interests Salary - Last Career Experience (Text) *Up to 3 entries each.	School where registered Degree Classification* (e.g., Bachelors) Degree Type (e.g., BSC) School Academic Field (e.g., Business) Graduation Date Major GPA (cumulative) GPA (major) Minor (Text) Study Mode (Full/Part Time) Non-Degree Courses*: Academic Field School Completion Date Study Mode (Full/Part Time) Description & Duration Academic Achievements (Text) *Up to 3 entries each.	Name Contact Address Home Address Phone #/s (2) US Cit. US work authorization Social Security # Age Race Sex Marital Status Physically Impaired Military Service Language Skills & Proficiency - primary - secondary Personal Attributes (Text) Personal Achievements (Text) Unique <i>kiNexus</i> ID # Any Notes You Append Your Custom Access Codes

kiNexus benefits your organization in many important ways:

CONTROL

kiNexus puts you in the driver's seat. You set the specifications; you select the candidates; you initiate contact.

FAST

kiNexus saves the time you spend searching through mountains of paper resumes for candidates that match your needs.

TIMELY AND SELECTIVE

kiNexus automatically sends you new and updated information each month. You can select candidates based on any combination of 30 separate criteria.

SHORTENS RECRUITMENT CYCLE

kiNexus promotes early contact via fast identification and pre-screening. You can compare candidates across campuses and across the country.

LABOR SAVING

Paper resumes typically exact expensive paper responses. With *kiNexus*, there are no implicit obligations to respond to candidates whose information you receive.

EXPANDED SERVICE

kiNexus supports diverse hiring needs: experienced, entry level, co-op and summer.

SAFE AND SURE

kiNexus eliminates "human errors." Candidate records cannot be misplaced or removed. That means every candidate is always available for selection.

PAPER ON DEMAND

kiNexus takes paper out of the process until it becomes the logical medium for decision making. A touch of a key and a paper resume is ready for your use.

A Rose by Any Name

The name *kiNexus* derives from the combination of the Latin words "kinetics," the science of dealing with the movement of masses - and "nexus," a connection, link or tie between individuals in a group. Thus, *kiNexus*, a scientific approach to the movement and interconnection of information in recruitment.

kiNexus is a complete candidate management service that.

- Collects electronic candidate information directly from students and alumni in a standard format.
- Delivers this information to your DOS based personal computer.
- Provides powerful inquiry software to identify candidates based on your specifications.

With this service, you will be able to identify candidates who meet your requirements and move earlier and more deliberately to initiate contact with those you choose.

**kiNexus expands and refines
your recruitment possibilities. You get:**

NEW OPTIONS

- *More* data on candidates - over 50 separate fields of critical candidate information for improved selection and comparison.
- *More* schools than those you are likely considering at present.
- *More* candidates - including underclassmen and alumni.

NO DISRUPTIONS

Your contact with colleges and candidates is largely unchanged. *kiNexus* eliminates paper resumes and helps you to pinpoint the candidates you're looking for while bypassing the rest.

JUST ONE LOW PRICE - NO HIDDEN FEES

kiNexus is a subscription service with updates provided monthly. Powerful information management software for your personal computer is included with your subscription. The low subscription price covers all service and use costs.

HOW *kiNexus* IS DIFFERENT

In addition to collecting standard candidate registration via college campuses and a national central registry, *kiNexus* provides:

- Graduating seniors, underclassmen and alumni. PLUS
- More than 50 fields of information to pinpoint who you're looking for. PLUS
- A notepad feature to append comments and status of candidates. PLUS
- Custom access codes to retrieve annotated candidate records. PLUS
- The potential to eliminate a significant portion of the paper resumes you currently receive.

***kiNexus* doesn't cost you - IT PAYS!**

CPC ENDORSED

kiNexus comes to you with the full, exclusive participation of the College Placement Council. CPC is the national professional association for career planning, placement, and recruitment. Over three thousand or-

ganizations are CPC members ...virtually all of the major colleges in the nation and some 1,500 employers (including most of the Fortune 1,000 and Federal Government agencies).

June 7, 1990

Ms. Sally Nissen L-296
LAWRENCE LIVERMORE NATIONAL LABORATORY
P.O. Box 808
Livermore, CA 94550

Dear Sally:

The following is being sent in response to your request of June 4, 1990.

Recruitment in the '90s has moved from a tactical to a strategic issue and requires action from executives with strategic vision.

Competition for college educated talent is increasing. You have a shrinking labor supply and tighter budgets. Seldom will you be offered an opportunity that is so urgent, carries such impact and requires so little investment.

I would like to introduce you to a totally new concept that will change the face of recruitment: *kiNexus*, the electronic national candidate identification service.

Easy To Use, Low Cost

Using our powerful software and national database of candidates, *kiNexus* operates on a personal computer in your office. It is easy enough for everyone to use. The service is updated monthly. Many leading employers nationally such as IBM, AT&T, J&J, EDS, and Hartford Insurance plus the Naval Research Lab, Defence Mapping, Peace Corps, FDIC and other government agencies have been subscribing to and actively enjoying the benefits of the service.

Flexibility

kiNexus supports a broad array of hiring requirements - candidates for entry level and experienced positions, co-op, part time, and consulting; Affirmative Action programs; regional, national and international needs; and much more. It is offered through an exclusive partnership with the College Placement Council, the national professional association for career planning, placement and recruitment for the college educated workforce.

Access

kiNexus resides in your office, use it as often as you wish. The database is regularly refreshed and expanded throughout the subscription period.

Expansion

Our national awareness campaign this Fall will reach over 1,000,000 candidates. On-going promotion throughout the school year, free software for colleges, free disks to candidates, public advertising by subscribers and a broad and growing subscriber base all foretell the success of the service. Everyone will have access to kiNexus. A free registration disk can be requested via our toll free 800 number or from a college career center.

The majority of our present subscribers have started campaigns themselves. One approach asks candidates to submit a *kiNexus* electronic resume in response to their recruitment ads, (companies like AT&T are doing so this fall). The other asks colleges and alumni groups to install *kiNexus* and get their candidates into the service.

Budget Saver

kiNexus lets you tap a reservoir of latent savings by replacing paper resumes with electronic profiles. With the cost of processing reaching \$15 to \$20 for each paper resume you receive, you could eliminate tens or even hundreds of thousands of dollars of expense in a single year.

Why You Should Act Now

- *kiNexus* is setting the standard.
- Major employers are already using it.
- Non-users will be at a competitive disadvantage.
- In-house efforts cost 10 to 100 times more and will never have the expanse of candidates. *kiNexus* works now.
- Start now to build the paperless recruitment office.
- Your two year subscription for as little as \$5,000.

Your review of all of the benefits and uses of *kiNexus* in the enclosed Brochure and on the Presentation Disk should prove beneficial.

Please call us at 201-587-8586 and we will be happy to answer your questions and discuss how *kiNexus* can work for you.

Yours truly,

Daniel J. Sager
VP, Marketing

ORDER FORM

NATIONAL CANDIDATE DATABASE SUBSCRIPTION

Please enter my order for the subscription type checked below:

- A. ☐ National Candidate Database Subscription PLUS personal computer package.
Price: \$8,500*. If order is received by June 30, 1990: \$6,500*.
- ☐ Substitute 24-Pin Letter Quality Printer in above computer package.
Price: \$135* additional.
- ☐ Substitute Laser Printer in above computer package.
Price: \$825* additional.
- B. ☐ National Candidate Database Subscription (without personal computer).
Price: \$6,000. If order is received by June 30, 1990: \$5,000.

I understand that my subscription includes the initial database, operating software and monthly updates through June, 1992. Information provided under this agreement includes student and alumni candidate information from participating colleges as well as the *kiNexus* central registry, as described in the *kiNexus* Employer Presentation disk. All colleges using *kiNexus* have the option to include their data in this National Database. Where they are not included, *kiNexus* will advise me of their separate availability.

TERMS AND CONDITIONS

Use of the candidate information provided with this service is limited to the subscriber's internal recruitment activities only. Such data may not be used for commercial purposes nor passed onto any third party outside of the subscriber's organization in any form.

Use of the service is restricted to the subscriber's physical site only though such use may be for the benefit of other parties within the

subscriber's organization at other locations within the U.S.A..

KINEXUS, INC. will: a) work with the candidate sources to maximize the volume of candidate participation, b) provide the system's operating software and c) assemble and distribute candidate information to subscribers. All will be on a best efforts basis. The information provided will be as the candidates themselves produce.

Name: _____

Title: _____

Company: _____

Address: _____

Telephone: _____ FAX: _____

Disk Size: Circle one: 5 1/4" 3 1/2"

Signature: _____ Date: _____

☐ Yes, I would like to know more about the option to recommend that candidates use *kiNexus* in response to my college recruitment advertising. Please send information on how I can implement this no cost program.

Mail To: KINEXUS, INC.
Computer Learning Center
160 E. Route 4
Paramus, NJ 07652
(201) 587-8586

FAX To: (201) 587-8924

Note: National Candidate Database Subscription prices subject to change.

*Plus taxes and shipping.

Appendix H

Minneapolis/St. Paul Chapter National Technical Association

February 12, 1991

Ms. Sally Huang Nissen
Employment Equity and Compliance Center
Lawrence Livermore National Laboratory
P.O. Box 808, L-716
Livermore, CA 94550

Dear Ms. Nissen,

Thank you for your letter requesting help in locating qualified minorities for technical employment. I believe that the Job Referral System of the National Technical Association would be of interest to you. Enclosed, please find a short summary user's guide and a more concise user's guide to the NTA Electronic Bulletin Board System (EBBS). Your cost to participate is \$25.00 per month for 100 Kbytes of storage for your job orders. Since most job orders are between 1 to 2 Kbytes, this amount of memory gives you a potential of between 50 to 100 job listings. If you need additional storage, a discounted rate can be worked out with you.

No charges will be incurred by you until you are confident that your area on the NTA EBBS is organized to your satisfaction, and you are confidently uploading job orders and getting your E-mail messages. This "breaking in" period can take up to a month to complete.

If you prefer, your typed job orders can be mailed to us at the following address:

Minneapolis/St. Paul Chapter
National Technical Association
P.O. Box 4544
St. Paul, MN 55104

There is an additional charge of \$15.00 per 10 job orders to help cover the cost of a clerical person entering the orders.

Please fill out the enclosed response form and return it in the self-addressed stamped envelope. If you have any questions about the information you have received, please call at 612 733-6001 during the day or 612 459-4093 during the evening. Thanks for your participation and support of the NTA EBBS.

Sincerely,

Russell Parham, System Operator
NTA EBBS

cc.: Kathy Lewis, President
Dr. Mildred Fitzgerald-Johnson, Executive Director

P.O. Box 4544, St. Paul, Mn. 55104

NTA JOB REFERRAL SYSTEM RESPONSE FORM

Agency or
Company Name: _____

Address: _____

City, State Zip: _____

Contact Person: _____

Voice Telephone: _____

Fax Telephone: _____

Name or Code Number to appear on the NTA EBBS:

(Due to the confidential nature of many job orders, you may not want your Agency and/or Company name to appear in the system. Job listings under and inquiries to a confidential name or code number will be managed by the System Operator to make sure pertinent information gets to the proper party.)

Method of payment, (please check one):

Monthly: ____ Quarterly: ____ Annually: ____

(Make checks or money orders payable to: NTA, Mpls/St. Paul Chapter.) Our address: Minneapolis/St. Paul Chapter, NTA
P.O. Box 4544, St. Paul, MN 55104.

Would you like to provide users of the NTA EBBS with monthly career development-type information and/or news? _____

THANKS FOR YOUR SUPPORT OF THE NTA EBBS

ON-LINE GUIDE TO THE NTA ELECTRONIC BULLETIN BOARD SYSTEM

What It Is

The NTA Electronic Bulletin Board System (EBBS) disseminates information vital to NTA members electronically. The EBBS is a personal computer running communication software that handles the following information via the phone line:

- * *current job openings, nationwide;*
- * *your local chapter news and minutes;*
- * *other local chapter news and minutes;*
- * *national minutes and reports;*
- * *latest NTA newsletter items and NTA Journal papers;*
- * *Public and private E-mail;*
- * *public domain software for most personal computers;*
- * *utility for sending/receiving reports and documents;*

EBBS Service Times

The NTA EBBS is available for members 24 hours a day, 7 days a week, except for the following times: two minutes before midnight, daily, minor system maintenance is performed, and all the E-mail message queues are updated. System backup is performed once per week.

How To Use the EBBS

The EBBS can be accessed via a phone line and with the following equipment: a personal computer using a modem and running a communications software package, or a dumb terminal and modem, or a main frame/microcomputer network that has access to an outside phone line. You will get the most benefit from a system that has file transfer capability. Follow the next steps:

1. Make sure all phone and modem cable connections are secure.
2. Turn on system and make sure the modem is communicating with the computer or terminal.
3. Set the modem to 300/1200/or 2400 baud, no parity, 8 data bits, 1 stop bit. 2400 baud is recommended.
4. Using your modem, dial the NTA EBBS at (612) 458-1151. Consult your user's guide on how to dial out using your modem.
5. When you connect you will see the NTA logo. If you are a first time caller, you will be asked some basic questions along with selecting your personal password. Just follow the instructions.

Problems?! Just call Russell Parham, system operator, (sysop) during the day at 612 733-6001, or at night at 612 459-4093.

IT'S YOUR MEMBERSHIP BENEFIT. USE IT, AND BENEFIT US ALL!

END

**DATE
FILMED**

11 104191