ATP AWARDS TO IRI MEMBER COMPANIES

Company	Awards	Millions of $
Air Products	1	2.0
Allied Signal	5	2.0, 2.0, 1.7, 2.0, 2.0
American Cyanamid	1	2.4
Amoco	5	1.3, 10.3, 3.6, 2.5
Armstrong	1	1.9
AT&T	2	2.0, 13.8
Boeing	2	1.8, 5.2
BP	2	8.1, 5.2
Caterpillar	2	2.0, 2.8
Chevron	1	8.1
Digital Equipment	3	5.5, 5.2, 13.8
Dow	3	0.5, 6.7, 2.5
Du Pont	4	1.6, 6.1, 6.7, 9.6
Eastman Kodak	2	5.5, 5.4
Eaton	1	4.3
Elf Atochem	1	2.5
Exxon	1	8.1
Ford	5	5.3, 1.8, 3.8, 19.8, 3.3
Gencorp	1	2.0
General Electric	4	5.8, 1.7, 5.3, 4.3
General Motors	7	5.8, 1.8, 3.8, 4.9, 19.8, 3.0, 3.3
Hercules	6	1.7, 2.4, 3.6, 1.4, 3.0, 2.4
Hewlett Packard	3	7.4, 5.5, 5.2
Honeywell	2	2.4
Hughes	4	1.3, 1.8, 5.2, 10.3
Ingersoll Rand	1	1.9
Kennametal	2	2.5, 2.0
Arthur D. Little	1	5.2
Martin Marietta	1	5.2
Mobil	2	8.1, 2.5
Norton	1	2.0
Philips Electronics	2	2.0, 6.1
Phillips Petroleum	1	2.5
Praxair	3	5.2, 1.2, 0.8
3M	4	3.2, 3.5, 2.4, 6.1
Shell	4	8.1, 3.6, 1.4, 2.5
Texaco	2	8.1, 2.4
Texas Instruments	5	3.8, 19.8, 13.8, 2.2, 2.0
Timken	1	3.0
TRW	2	7.4, 4.3
United Technologies	2	19.8, 0.5
Westinghouse	2	2.5, 2.4
Xerox	1	8.9
TOTAL	**43** companies have 106 projects	

TRP AWARDS TO IRI MEMBER COMPANIES

	# Leads	# Sub	Project Award Millions
Air Products	0	1	$ 1.3
Akzo	0	1	12.6
Allied Signal	2	7	112
Amoco	0	3	59
AMP	0	1	12.6
Apple Computer	1	1	24.6
ARCO	0	1	5.2
Ashland Oil	0	1	3.1
AT&T	0	6	114
Babcock & Wilcox	1	1	7.0
Bellcore	1	0	14.4
Black & Decker	0	6	1.2
Bellcore	1	0	12.7
Boeing	2	6	80
Caterpillar	0	5	70.7
Ciba-Geigy	0	2	10.9
Corning	0	1	.40
David Sarnoff	0	1	29.2
Deere & Co.	0	1	4.9
Digital Equipment	0	4	8
Dow	0	1	9.8
DuPont	0	2	12
Eaton	0	1	4.9
EPRI	0	1	11.8
FMC	0	1	18.6
Ford	0	4	45.1
G.E.	1	5	76.9
General Motors	0	11	72
Grumman	1	0	1.4
GTE	0	2	32
Hercules	0	1	21.0

Hewlett-Packard	1	4	45
Honeywell	0	10	122
Hughes	6	11	170
Johnson & Johnson	1	0	3.1
Kaiser Aluminum	0	1	1.5
Lockheed	1	1	28
Lord Corp.	0	1	5.5
Martin Marietta	2	12	119.85
Merck	0	1	1.2
Monsanto	0	1	6.9
Olin	0	1	20
P&G	0	1	3.1
Philips Electronics NA	0	1	11.9
Phillips Petroleum	0	1	6.9
Raytheon	0	4	65
Rockwell Int'l	4	7	82
SmithKline	0	1	1.2
Southwestern Bell	0	1	1.2
Texas Instruments	2	2	105
3M	1	2	19
Toyota	0	2	5.3
TRW	1	1	33.8
United Technologies	0	12	108
Westinghouse	3	0	38.1
Xerox	0	1	7.5
56 companies	18 companies have the lead in 32 projects	55 companies have subsidiary roles in 155 projects	

October 1994
trpaward

FEDERAL SCIENCE & TECHNOLOGY COMMITTEE MEETING

INDUSTRIAL RESEARCH INSTITUTE
1550 M Street, NW, Washington, DC
First Floor Conference Room
January 12, 1995

AGENDA

8:30 - 9:00 a.m.	Peter Boer, FST Chair Introductions, Announcements, Future Issues
9:00 - 9:30 a.m.	Anita Jones Department of Defense
9:30 - 10:15 a.m.	Skip Johns OSTP
10:15 - 10:30 a.m.	Break
10:30 - 11:00 a.m.	David Goldston Council on Competitiveness
11:00 - 11:45 a.m.	Arati Prabhakar NIST
11:45 - 12:15 p.m.	Darius Sankey RAND/CTI Activities
12:15 - 12:45 p.m.	WORKING LUNCH Pat Windham, Senate Commerce Committee Discussion on Congressional Issues
12:45 - 1:30 p.m.	Anne Petersen (for Neal Lane) NSF
1:30 - 2:00 p.m.	David Nelson (for Martha Krebs) DOE
2:00 - 3:00 p.m.	Federal Lab Discussion Topics: Industrial Fellows Program Update (P. Lyons) NTTC Initiatives (L. Rivers) FST/FGLC roles concerning industrial interactions with Fed labs (ALL)
3:00 - 3:30 p.m.	Meeting wrap-up; Adjourn

FEDERAL SCIENCE & TECHNOLOGY COMMITTEE MEETING
IRI HEADQUARTERS
WASHINGTON, DC
JANUARY 12, 1995

EXPECTED ATTENDANCE

Allgaier, Glen	Eaton
Appleton, Bill	Oak Ridge/Martin Marietta
Blair, John	Emeritus/Raytheon
Boer, Peter	W. R. Grace
Dickens, Doug	BFGoodrich Co.
Elson, Don	Black & Decker
Fusfeld, Herb	Emeritus/The Fusfeld Group
Goldston, David	Council on Competitiveness
Grucza, Margaret	IRI
Jackson, Auzville	The Jackson Group, Inc.
Johns, Skip	OSTP
Jones, Anita	DOD
Knowlen, Dave	Boeing
Larson, Chuck	IRI
Lyons, Peter	Los Alamos National Lab
MacLachlan, Al	Emeritus/DOE
Nelson, David	DOE
Owczarski, Bill	Babcock & Wilcox
Paton, Neil	Howmet Corp.
Paulus, Nancy	Apple
Petersen, Anne	NSF
Pettifor, Andy	Rockwell International
Prabhakar, Arati	NIST
Quicksall, Carl	Mallinckrodt Chemical
Rivers, Lee	NTTC
Rudd, James	Dexter Corp.
Sankey, Darius	RAND
Seltzer, Ray	CIBA-GEIGY
Simon, Bob	Senate Energy & Natural Resources Cmte.
Stone, Phil	DOE
Vermont, George	Emeritus/OSTP
Westwood, Bert	Sandia/Martin Marietta
Windham, Pat	Senate Commerce, Science & Trans. Cmte.

1/11/95
KRR

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

November 15, 1994

To: Members, Federal Government Liaison Council

Mary L. Good	Neal F. Lane
Siegfried S. Hecker	William Madia
Lionel S. Johns	Arati Prabhakar
Anita K. Jones	Gregory M. Reck
Martha A. Krebs	

Subject: **ASSESSMENT OF GOVERNMENT R&D PROGRAMS THAT CAN BENEFIT COMMERCIAL TECHNOLOGY**

Please discard the sheet sent to you November 8 with the IRI assessment of government R&D programs that can benefit commercial technology. The form on which the results of our follow-up assessment were shown was the one used at our Annual Meeting last May.

Enclosed is the form used for our follow-up assessment in July, with the percentage of responses for the value of each type of program, the examples of government R&D programs that accompanied the form when it was sent to our membership, and the comments offered on each program.

Sorry for the mix-up!

Chuck

Charles F. Larson
Executive Director

CFL:pt
Enclosures
Copies to E. A. Womack, F. P. Boer, and A. H. Pettifor

GOVERNMENT R&D PROGRAMS THAT BENEFIT COMMERCIAL TECHNOLOGY*

*See enclosed program examples.

PROGRAM TYPE	PROGRAM CHARACTERISTICS	COMPANY VALUE	PERCENTAGE OF RESPONSES
Mission Driven, Intramural R&D	Funded by Federal agency (little competition for funds)	HIGH	3
	Conducted by Federal laboratory	MEDIUM	11
	Designed to meet Federal agency needs	LOW	86
	Defined by Federal agency		
Mission Driven, Extramural, Contract R&D	Funded by Federal agency (strong competition for funds)	HIGH	18
	Conducted by company, Federal laboratory, or university	MEDIUM	53
	Designed to meet Federal agency needs	LOW	30
	Defined by Federal agency, influenced by proposals		
Technology Development Grants	Funded by Federal agency and company jointly (strong competition for funds)	HIGH	63
	Conducted by company	MEDIUM	28
	Designed for unique technology with commercial potential	LOW	9
	Defined by company		
Consortia	Funded by Federal agency and companies jointly (moderate competition for funds)	HIGH	43
	Conducted by consortium and others consortium selects	MEDIUM	54
	Designed to meet Federal agency needs and have commercial potential	LOW	3
	Defined by consortium members		
Cooperative work by company & Federal lab	Funded by Federal agency and companies jointly (strong competition for funds)	HIGH	33
	Conducted by Federal laboratory and company	MEDIUM	59
	Designed to meet Federal agency needs and have commercial potential	LOW	8
	Defined by Federal agency and company		
Technology Centers	Funded by Federal agency, universities, and companies (moderate competition for funds)	HIGH	17
	Conducted by university, Federal laboratory, or company	MEDIUM	54
	Designed to advance new technology	LOW	29
	Defined by University or Federal agency		
Manufacturing Technology Extension Centers	Funded by Federal agency and local government jointly (strong competition for funds)	HIGH	28
	Conducted by extension center	MEDIUM	44
	Designed to meet needs of small & medium business	LOW	23
	Defined by Center based on companies' needs		
Small Business Grants	Funded by Federal agency (strong competition for funds)	HIGH	56
	Conducted by private company	MEDIUM	29
	Designed for unique technology with commercial potential	LOW	15
	Defined by company		

Examples of Government R&D Programs

MISSION DRIVEN, INTRAMURAL R&D

- Performed by Federal Laboratories, Depots, and Test Centers
- Not specifically directed at commercializing technologies
- Funded through each agency

MISSION DRIVEN, EXTRAMURAL (CONTRACT) R&D

- **Air Force Office of Scientific Research (AFOSR)**
- **DoD Manufacturing Technology Program (MANTECH)**
- **DOE Energy Research**

TECHNOLOGY DEVELOPMENT GRANTS

- **Dept of Commerce Advanced Technology Program**

Year Authorized: 1990 - present
Funding (1994): Approximately $200 Million
Description: The Department of Commerce manages the ATP through it's National Institute for Standards and Technology (NIST). The ATP provides funds for the early phases of technology development to industry on a cost-shared basis. The technical areas for proposals can be either chosen wholly by the proposer or can be proposed within technical areas chosen by NIST based on extensive industry input. ATP projects are competitively selected by NIST based on bothe the business and technical merits of the proposals, including the evidence that the proposer is significantly committed to commercializing the results of the project.

- **Technology Reinvestment Project**

Year Authorized: 1993 - present
Funding (1994): Over $500 Million for technology development and deployment
Description: Led by the Defense Department's Advanced Projects Research Agency (ARPA), funds are available on a competitive, cost-shared basis for projects with commercial and defense impact. TRP funds are available for three key areas: technology development, to create new technologies with the potential for commercialization within 5 years; technology deployment, to disseminate existing technology for near-term commercial and defense products and to support improved use of technologies in small businesses; and manufacturing education and training, to strengthen engineering and workforce capabilities necessary for a competitive industrial base. The TRP selects technical areas deemed to have both commercial and military impact and single companies or teams which may include universities and other entities submit proposals for projects within these technical areas.

GOVERNMENT/INDUSTRY CONSORTIA

- Advanced Research Projects Agency (ARPA): **SEMATECH**
- **DOE Clean Coal Technology**

(OVER)

COOPERATIVE AGREEMENTS BETWEEN FEDERAL LABS AND PRIVATE COMPANIES OR CONSORTIA

- **Cooperative Research and Development Agreements**

Year Authorized: 1986 - government owned and operated labs
1989 - government owned, contractor-operated labs

Funding (1994): Over $200 Million (DOE appropriation only) All other labs are authorized to use mission research funding if the projects fit within appropriated funds authorization.

Description: Under a CRADA, a federal entity (lab, repair depot, test center, etc) may conduct joint research with a private firm, sharing facilities, labor, and data. It may also grant patent licenses or assign any inventions made in whole or in part by a government employee. The only substantial restriction is that the government may not provide direct funding to another entity under a CRADA. Although direct funding may not be provided to industry, the government's contribution to the shared research effort may be paid for by mission funds. The work may be done by any combination of government and industry personnel, in either facility, under a shared research project.

- **National Institutes of Health Cooperative Agreements**

TECHNOLOGY CENTERS

- **National Science Foundation's Engineering Research Centers (ERCs)**
- **Navy Joining Center**

TECHNOLOGY EXTENSION

- **Manufacturing Extension Centers (MTCs)**
- **Extension Programs**

SMALLL BUSINESS GRANTS

- **Small Business Innovation Research (SBIR)**

Year Authorized: 1982 - present

Funding (1994): Over $700 Million

Description: Each federal agency with an extramural budget for research or research and development contracting in excess of $100 million must establish an SBIR program. The agencies determine the research objectives to be funded, and small high-tech businesses are eligible to submit proposals. Phase I projects are wholly funded by the agency for up to $100,000 for the purpose of evaluating the scientific and technical merit and feasibility of an idea.
Phase II projects are wholly funded for up to $750,000 to further develop the proposed idea for one or two years.

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

October 19, 1994

Honorable Mary L. Good
Under Secretary for Technology
U.S. Department of Commerce
14th & Constitution NW Room 4824
Washington, D.C. 20230

Dear Mary:

It is my privilege, as President of the Industrial Research Institute, to send you the enclosed IRI Position Statement on United States Economic and Technology Policy, as revised and accepted by our Board on July 12, 1994. Our first position statement on the topic, issued in 1992, was a message to the Presidential candidates. This statement is addressed to the President and Members of Congress.

The purpose of issuing this statement is to emphasize the importance of technological innovation to our nation, to stress the linkages between economic policy and technology policy, and to urge that industry representatives be involved in government deliberations that establish policies affecting innovation in industry.

We ask that the recommendations outlined in the statement be given careful consideration. We also stand ready to work with the Administration and the Congress to help implement the recommendations.

With kindest regards.

Sincerely yours,

Allen

E. Allen Womack, Jr.
President

EAW:mcc
Enclosure

OCT 21 1994

Industrial Research Institute Position Statement on United States Economic and Technology Policy

Introduction

Innovation is the creation of new knowledge and the transformation of this knowledge into technologies, processes, products, and services that meet market needs. Innovation creates new businesses and new jobs; it is the fundamental source of growth and wealth in our society.

Although innovation is primarily the responsibility of private enterprise, the environment created by government can either encourage or inhibit its intensity and speed. If government is effective in encouraging innovation, then jobs are created, national wealth increases, and the country is more competitive in global markets.

Recommendations to the President and Members of Congress

Based on recent input from R&D executives representing all major industrial sectors, IRI recommends that the President and Members of Congress act to:

1. **Increase the formation and availability of capital for long-term investment by the private sector in new, wealth-creating products, processes, and services.**

   The issues below reflect the reality that innovation is inextricably tied to the overall effectiveness of economic policy. Without increasing the tax burden, government should take specific actions to:

   a. Encourage investment in R&D and new manufacturing equipment by appropriately accelerated depreciation, investment tax credit, and tax deduction schedules.

   b. Modify tax rates on capital gains to promote long-term, productive investment.

   c. Revise current legal and regulatory barriers as necessary to encourage, rather than inhibit, long-term institutional capital investment in industrial enterprises.

   d. Maintain stable, reasonable interest rates as well as consistent fiscal and monetary policies, and control inflation by stimulating productive investment.

   e. Address issues of product liability and tort reform to minimize current negative impacts on the development of new products/processes and on financial resources to fund development.

   f. Relax or eliminate anti-trust prohibitions on co-production arrangements where adequate non-U.S. enterprises exist to assure competition.

-over-

2. **Increase private sector involvement in deliberations that establish policies affecting innovation, and that determine major government R&D investments.**

IRI believes that the President and Members of Congress must act aggressively to improve communication, harmony, and--most importantly--trust between the business community and the federal government. These relationships are presently impeded by unnecessarily restrictive criteria for government service and by conflict of interest in obtaining private sector advice and assistance.

It is especially important to improve industry relations with federal organizations whose primary responsibility includes the management or oversight of federal technology policy. Where science and technology policy management are combined, it is essential that balance between them be maintained, and that the President and Members of Congress secure advice from industry as well as from the non-commercial science community.

Many IRI members are available to assist in the development of technology policies that will help stimulate the pace of successful innovation and commercialization within the private sector in the United States.

3. **Increase the innovative productivity of the over $70 billion in federal funds being spent annually for research and development.**

IRI urges a redirection of government R&D spending, especially at federal laboratories, toward industrial innovation and environmental technology. IRI members are willing to assist in reviewing existing federal R&D establishments and helping to identify and develop new missions and programs.

* * *

About the Industrial Research Institute

The Industrial Research Institute is an organization of more than 260 major industrial firms having common interest in the effective management of research and development to stimulate technological innovation. IRI member companies represent some 80% of the Nation's privately funded R&D effort. These companies, spanning diverse industries, compete in the global marketplace and provide jobs for more than 10 million of America's workers. Together they generate well over $2 trillion in annual sales, representing some 30% of our gross domestic product.

IRI welcomes the opportunity to discuss further its views on these important issues. For additional information, please contact Mr. Charles F. Larson, Executive Director, Industrial Research Institute, Inc., Suite 1100, 1550 M Street, NW, Washington, DC 20005-1708 (tel. 202-872-6350; fax 202-872-6356).

Originally issued: June 30, 1992
Revised: July 12, 1994

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

December 9, 1994

To: Federal Science and Technology Committee Members

Subject: **JANUARY 12, 1995 MEETING**

The FST Committee will meet on Thursday, January 12, 1995 from 8:30 a.m. to 3:30 p.m. at IRI Headquarters in the first floor conference room.

The agenda will include:

• Federal Government Liaison Council Issues/Updates	FGLC members (see enclosed roster)
• Council on Competitiveness Report	Erich Bloch
• Critical Technologies Institute Activities	Darius Sankey (RAND)
• National Technology Transfer Center Update	Lee Rivers
• Informal Lunch Discussion on Congressional Issues	Pat Windham (invited) (Senate Commerce, Science & Transportation Committee)

A more detailed agenda will be sent to you the first week in January. Please return the enclosed fax to Margaret Grucza at IRI before **January 4, 1995**. Feel free to contact me (407-362-1831) if you want to discuss potential agenda items.

Best wishes for the holidays. I look forward to seeing you at our January meeting in Washington.

F. Peter Boer

F. Peter Boer, Chair
Federal Science & Technology Committee

FPB:krr
Enclosures
FGLC Roster
Meeting RSVP Form
Minutes from Williamsburg

FEDERAL SCIENCE & TECHNOLOGY COMMITTEE MEETING

INDUSTRIAL RESEARCH INSTITUTE
1550 M Street, NW, Washington, DC
First Floor Conference Room
January 12, 1995

AGENDA

8:30 - 9:00 a.m.	Peter Boer, FST Chair Introductions, Announcements, Future Issues
9:00 - 9:30 a.m.	Anita Jones Department of Defense
9:30 - 10:15 a.m.	Skip Johns OSTP
10:15 - 10:30 a.m.	Break
10:30 - 11:00 a.m.	David Goldston Council on Competitiveness
11:00 - 11:45 a.m.	Arati Prabhakar NIST
11:45 - 12:15 p.m.	Darius Sankey RAND/CTI Activities
12:15 - 1:00 p.m.	WORKING LUNCH Pat Windham, Senate Commerce Committee Discussion on Congressional Issues
1:00 - 1:45 p.m.	Anne Petersen (for Neal Lane) NSF
1:45 - 2:15 p.m.	David Nelson (for Martha Krebs) DOE
2:15 - 3:15 p.m.	Federal Lab Discussion Topics: Industrial Fellows Program Update (P. Lyons) NTTC Initiatives (L. Rivers) FST/FGLC roles concerning industrial interactions with Fed labs (ALL)
3:15 - 3:30 p.m.	Meeting wrap-up; Adjourn

FAX SIGN UP SHEET: Please return to IRI before **JANUARY 4, 1995**

TO MARGARET GRUCZA at IRI FAX NO: 202-872-6356

PHONE NO: 202-872-6355

NAME: Lionel S,.Johns COMPANY: Office of Science and Technology Policy, The White House

FAX NO: 202-456-6023

FEDERAL SCIENCE & TECHNOLOGY COMMITTEE MEETING

IRI Headquarters
Washington, DC
January 12, 1995
8:30 a.m. - 3:30 p.m.

__x__ I plan to attend. Mr. Johns will have to leave at noon for an afternoon mtg

_____ Sorry, I cannot attend.

_____ The following person from our company will attend: _____

Topics I would like the Committee and/or FGLC members to address:

_____

_____

Please note that Mr. Johns is not a Doctor, however, because he has been Senate-confirmed, he should be addressed as the Honorable Lionel S. Johns.

_____

_____

Federal Government Liaison Council (FGLC) Members

Dr. Mary L. Good
Under Secretary for Technology
U.S. Department of Commerce
14th and Constitution Ave., NW
Room 4824
Washington, DC 20230
Tel: 202-482-1575
Fax: 202-482-6184

Dr. Siegfried S. Hecker (Sig)
Director
Los Alamos National Laboratories
M/S. A100
Los Alamos, NM 87545
Tel: 505-667-5101
Fax: 505-667-2997

Dr. Lionel S. Johns (Skip)
Associate Director for Technology
Office of Science & Technology Policy
Executive Office of the President
Washington, DC 20500
Tel: 202-395-6175
Fax: 202-395-4155

Dr. Anita K. Jones
Director of Defense
Research & Engineering
U.S. Department of Defense
3030 Defense Pentagon
Washington, DC 20301-3030
Tel: 703-697-5776
Fax: 703-693-7167

Dr. Martha A. Krebs
Director, Office of Energy Research
Department of Energy
1000 Independence Ave.
Room 7B2222
Washington, DC 20585
Tel: 202-586-5430
Fax: 202-586-9520

KRR
12/07/94

Dr. Neal F. Lane
Director
National Science Foundation
4201 Wilson Blvd.
Arlington, VA 22230
Tel: 703-306-1000
Fax :703-306-0109

Dr. William J. Madia
Director
Pacific Northwest Laboratory
Battelle Blvd., P.O. Box 999
Richland, WA 99352
Tel: 509-375-6600
Fax: 509-375-6844

Dr. Arati Prabhakar
Director
National Institute of Standards and Technology
Admin. A1134
Gaithersburg, MD 20899
Tel: 301-869-8972
Fax: 301-975-2300

Mr. Gregory M. Reck
Acting Associate Administrator
Office of Advanced Concepts & Technology
NASA Headquarters
Code C
Washington, DC 20546
Tel: 202-358-0701
Fax: 202-358-3084

Invited:

Dr. Robert J. Huggett
Assistant Administrator for R&D
EPA
401 M Street, SW
Washington, DC 20460

To: Committee Members
IRI Executive Committee Attendees

MINUTES
FEDERAL SCIENCE AND TECHNOLOGY COMMITTEE MEETING
OCTOBER 23, 1994
WILLIAMSBURG, VIRGINIA

Attendees: List attached

1. Federal Lab Issues

A. Los Alamos Industry Fellowship Program

Peter Lyons gave an update on the Los Alamos Industry Fellowship Program which is starting very successfully. Thirty-five companies expressed interest in the program as did forty professionals within Los Alamos National Laboratories. Six organizations are serving as hosts: the Delco Division of General Motors; Dow Chemical; Lockheed/Martin Marietta; the Association of American Railroads; Allied-Signal and Eaton. It is too early to evaluate actual results from the program, but Peter Lyons will be visiting these companies for follow up and is planning regular discussions with the IRI to update us on its progress.

B. Future Spotlight Proposals

Margaret Grucza gave a brief description of the reasons why the spotlight proposal to visit Lawrence Livermore National Laboratory (with a focus on parallel processing computing at all three weapons labs) did not draw sufficient interest, resulting in cancellation of the program. Nonetheless, there appeared to be interest among some members in other spotlight proposals, such as an environmentally oriented meeting at Oak Ridge National Laboratory. It was agreed that the IRI should do more "market research" internally to determine the actual level of interest among the representatives and alternates before engaging one of the laboratories in developing a new spotlight program and publicize it thoroughly within IRI. It was also suggested that future visits could be an excellent opportunity to provide industry feedback to the labs, i.e., to use IRI as an ad hoc "visiting" committee.

C. Pacific Northwest Laboratory (PNL)

Bill Madia, recently appointed director of the laboratory, reviewed the unique relationship of PNL with the Battelle Institute, which has invested over $70 million in its own laboratory co-located with the Pacific Northwest Laboratory and which is set up to facilitate cooperation with industry. The Department of Energy allows industry access to the laboratory through an existing "use permit agreement." Approximately one-third of the industrial interactions of PNL are through Battelle and the other two-thirds are direct.

D. Federal Laboratory Consortium (FLC)

Beverly Berger gave an update on the FLC, which was chartered by Congress in 1986 and which now constitutes a group of some 600 federal laboratories. The group was established to help the labs help each other. FLC has created extensive descriptive information, which Beverly made available to the FST members. Copies may be obtained from FLC.

2. Federal Government Liaison Council (FGLC)

A. Office of Science and Technology Policy (OSTP)

Skip Johns of OSTP described the administration's achievements in reducing the number of federal laboratories and a major initiative to consolidate the federal laboratory organizations. He also updated us on communication and information infrastructure planning and told us that federal information is now available via the Internet. Other White House initiatives include high-performance computing, which will get investments upwards of $1 billion, and the establishment of a national space transportation policy, including the utilization of excess missile assets and an inventory of national aeronautical resources. A fourth subject included education and training programs emphasizing a small R&D effort to use high technology to improve the productivity of education. The latter programs are sponsored by the Department of Energy and the National Science Foundation. Finally, Skip reminded us of the Critical Technologies studies that have been performed under the committee chaired by John Young.

B. The Department of Commerce (DOC)

Graham Mitchell reported on the use of Federal resources to undertake R&D with the private sector, and indicated that in the past there were three fairly independent approaches involving trade policies, economic policies, and technology policies. But today the pressures of international competitiveness require the coordination of all three of these policy areas, with the health of the private sector being a measure of success and the views of the customer, i.e. American industry, absolutely critical to the effort.

Another important need is to develop a government-industry partnership that goes beyond R&D itself, dealing with important areas such as regulations, capital formation, and tort reform. Graham discussed the TRP and ATP programs which have been oversubscribed by a ratio of about ten to one. The numbers imply that DOC needs to perform some reexamination, because the costs of preparation of proposals may be approaching the value of the grants. Graham was very enthusiastic about the ATP because it creates a forum for new ideas and new combinations of players.

C. Department of Energy (DOE)

Martha Krebs gave us an update on the Galvin Committee regarding the national laboratories and the new National Science & Technology Council functioning within the Administration. She noted ironically that while there were many committees in the group, none of them dealt with Energy. She reemphasized that there was need both to build a strong economy and to protect the environment, and that both goals would be mediated by technology. She also addressed the equity concept, particularly in regard to rich and poor countries and the impacts and programs to control greenhouse gas emissions. She described the four "core" business lines of the DOE as industrial competitiveness, national security, energy resources, and environmental quality. She also reported on the fact that the DOE has far exceeded its goal of issuing 1000 CRADAs by fiscal year 1995 and has already surpassed this number. DOE has halved the time necessary to complete agreements with industry.

The Office of Energy Research's CRADAs represent $216 million of the nearly $2.1 billion in DOE CRADAs. The focus in CRADAs is now moving to consortia, both horizontal and vertical. Martha noted that David Roessner has

been asked to help analyze the data base for CRADAs and other interactions within DOE.

D. The National Science Foundation (NSF)

Anne Petersen represented NSF Director, Neal Lane. She saw NSF as a catalyst in fostering strategic links between education, industry and other groups. She regards universities as NSF's primary customers. Anne also acts as a "Chief Operating Officer-COO" in terms of government accountability initiatives.

Examples of industrial partnerships include co-sponsorship of the Forum on Science in the National Interest and the use of research centers as catalysts for industrial/university interactions. She noted an initiative on precompetitive research for reducing pollution at its source, sponsored by the Council for Chemical Research and involving some 20 grants. CCR helps the linkups to occur. She also described the "Agile Manufacturing" initiative sponsored by NSF and ARPA, funded to the extent of some $18 million. These are programs to assist manufacturing to adjust more rapidly to customer needs.

There was a lively discussion of the 14% increase being devoted to the academic infrastructure, with concern expressed by some of the IRI representatives that too many research universities might be competing for what is fundamentally limited funding. It was felt that many professors do not understand the degree to which the world is changing with regard to the availability of funds for them via the Congress. All agreed we need to move with caution in this area because the research universities are a great national asset.

E. The Army Research Laboratory (ARL)

Ed Brown gave an update on this new organization. It has seen some significant shrinkage in its budgets, which have declined from $750 million to $410 million while people are decreasing from 4300 to a (planned) level of 2600. ARL is seeking more "dual-use" technologies in its portfolio and is increasingly relying on out-sourcing of R&D.

An important and innovative Army concept is the "Digital Battlefield." Battlefield communications are now the key to military success

and there will be greater emphasis on them at all levels, including the use of sensors, the distribution of information, and the analysis of that information. Ed noted that the real technological power in these areas actually exists in the commercial sector and hence some 60-80% of the Digital Battlefield will be outsourced through "cooperative agreements." Cooperative agreements were described as being something between a contract and a grant with a 5-10 year duration.

Ed also described the "Federated Laboratory" Concept which will leverage the private sector to be an intellectual crossroads for the Army. Finally, he noted that ARL is a pilot study under the Government Performance and Results Act, which is an attempt to bring metrics into the measurement of government research performance, an area in which all IRI members have great interest.

3. The report from the Council on Competitiveness to be delivered by Eric Bloch was cancelled because he was unable to attend the meeting.

4. Our next meeting will occur on January 12, 1995 at the IRI Headquarters in Washington, from 8:30 a.m. to 3:30 p.m.

FPB/mlg 11174FB1

October 23, 1994
FST Committee Meeting Attendance
Dr. F. Peter Boer, Chair

Appleton, Bill	Martin Marietta/Oak Ridge National Lab
Berger, Beverly	FLC
Blair, John	Emeritus/Raytheon Company
Boer, Peter (Chair)	W.R. Grace
Brown, Edward	Army Research Laboratory
Brown, Stanley	Engelhard
Garfinkel, Marvin	GE
Grucza, Margaret	IRI
Hanneman, Rod	Reynolds Metals
Jackson, Auzville	Emeritus/Robertshaw Controls Co.
Johns, Lionel (Skip)	OSTP
Johnson, Ted	Boeing
Kettler, Dave	BellSouth
Krebs, Martha	DOE
Larson, Chuck	IRI
Leavitt, Fred	Emeritus/Dow
Lyons, Pete	Los Alamos
Madia, Bill	Battelle
Mitchell, Graham	DOC
Nemeth, Ed	Aristech
Petersen, Anne	NSF
Pettifor, Andrew	Rockwell International
Quicksall, Carl	Mallinckrodt Chemical
Redmond, John	GTE
Scheuing, Dick	Emertius/Grumman
Vermont, George	OSTP-Emeritus/Mallinckrodt
Via, Francis	Akzo-Nobel
Werber, Frank	Emeritus/USDA

FEDERAL SCIENCE AND TECHNOLOGY COMMITTEE MEETING

October 23, 1994
North Ballroom, 2:00 p.m.
Williamsburg Lodge, Williamsburg, Virginia

AGENDA

2:00 - 2:10	**Introductions/Agenda Review**	P. Boer/All
2:10 - 2:50	**Federal Lab Issues**	
	1. Los Alamos Industry Fellow Program	P. Lyons
	2. Future Spotlight proposals Livermore/	P. Boer/M. Grucza
	3. Pacific Northwest Laboratory	B. Madia
	4. FLC Fed Lab Consort. Gen Labs Fed.	B. Berger
	5. Other Topics	All
2:50 - 4:30	**Federal Government Liaison Council (FGLC) Updates/Discussion (~25 minutes each)**	P. Boer
	1. OSTP	S. Johns
	2. Dept. of Commerce	G. Mitchell
	3. Dept. of Energy	M. Krebs
	4. NSF	A. Petersen
4:30 - 4:50	~~**Report from Council on Competitiveness**~~	~~E. Bloch~~
4:50- 5:00	**Plans for January 12, 1995 FST Meeting**	P. Boer
5:00	**Adjourn**	

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

November 8, 1994

To: Members, Federal Government Liaison Council

Mary L. Good	Neal F. Lane
Siegfried S. Hecker	William Madia
Lionel S. Johns	Arati Prabhakar
Anita K. Jones	Gregory M. Reck
Martha A. Krebs	

Subject: **IRI POSITION STATEMENT ON U.S. ECONOMIC AND TECHNOLOGY POLICY; ASSESSMENT OF GOVERNMENT R&D PROGRAMS THAT CAN BENEFIT COMMERCIAL TECHNOLOGY**

In July, our member company Representatives and Alternates were sent summaries of the industry workshops conducted at the 1994 IRI Annual Meeting and were again asked to assess the value of government R&D programs that can benefit commercial technology.

Since that time, the IRI Position Statement on "U.S. Economic and Technology Policy" has been revised (to reflect comments and suggestions offered at the industry workshops) and sent to President Clinton and Members of Congress. Two copies are enclosed for your information.

Also enclosed are results of the follow-up assessment of government R&D programs, along with comments on each type of program. The follow-up assessment does not differ markedly from that developed in the industry workshops during our Annual Meeting in May, thus confirming IRI's evaluation of these programs.

With best regards.

Charles F. Larson
Executive Director

CFL:pt
Enclosures
Copies to E. A. Womack, F. P. Boer, and A. H. Pettifor

TYPES OF GOVERNMENT R&D PROGRAMS THAT CAN BENEFIT COMMERCIAL TECHNOLOGY

PROGRAM TYPE	CHARACTERISTICS	VALUE	PERCENTAGE OF RESPONSES
Mission Driven, Intramural R&D	Federal agency funds Conducted by government laboratory Selected on agency need Agency defines work	H M L	3 11 86
Mission Driven, Extramural, Contract R&D (AFSOR; DOD-ManTech; DOE-Energy Research)	Federal agency funds Conducted by private company Selected on agency need Agency and contractor define work	H M L	18 53 30
Technology Development Grants (NSI-Maritech; TRP)	Federal agency & private company jointly fund Conducted at private company selected by peer review process Selected on commercial potential and technical uniqueness Private company defines work	H M L	63 28 9
Government/Industry Consortia (DOC-ATP; ARPA; DOE-Clean Coal Technology)	Federal agency & consortium of private companies jointly fund Conducted at central private facility, private companies, universities, and government-owned laboratories Selected on agency need and commercial potential Consortium members define work	H M L	43 54 3
Cooperative agreements between Federal labs & private companies or consortia (CRADA, NIH)	Federal agency and private companies/consortium fund Conducted at federal lab and private company/consortium Selected on agency need and commercial potential Agency and private company/consortium jointly define work	H M L	33 59 8
Technology Centers (NSF-ERC's; Navy Joining Center)	Federal agency, universities, and private companies fund Conducted at university, federal laboratory, or private company Selected on public need and commercial potential University or agency defines work	H M L	17 54 29
Technology Extension (MTC's; Extension Programs)	Federal agency, states, and local government jointly fund Conducted at extension center, usually state owned Selected on basis of company need Private companies define work	H M L	28 44 28
Small Business Grants (SBIR)	Federal agency funds Conducted at private company Selected on commercialization potential & uniqueness of technology Private company defines work	H M L	56 29 15

Mission Driven, Intramural R&D

S-Maybe long term commercialization spin-off.
S-Good for test and & evaluation.
W-Not directed to industry.
-No interest to most of U.S. industry.
-Federal agencies and labs have only a partial view of industry/market needs.
W-Weak in original research for commerce.
-Essentially zero spin-off for industry.
-Cost/performance of end result not competitive in real world.
-Generally poor alignment.
W-little overlap between agency needs and company values.
W-Lack of cost control.
-Of little relevance to industry, unless by chance.
-Agencies must work harder pro-actively transfer the technology.
-Poor match between company needs and fed lab targeted skills.
-Usually not industry relevant or transferable to commercialization.
-Usually limited in scope to agency needs.
-Typically undertaken as more of an academic endeavor.
-Low commercial value.
-Very agency oriented: little commercial value.
-Unique technical needs may spur commercialization in other areas.
-Gov't needs may not have commercial market.
-Procurement system stifles innovation and cost containment.
-Intellectual property a concern.
-Little knowledge of this work in industry.
-Not focused on industry needs.
-No industry input.
-Justification is utility to agency. Little relevance to industry needs.
-Needs competition to ensure optimum progress.

S = Strength
W = Weakness

Mission Driven, Extramural Contract R&D

S-Challenging projects.
S-Fully funded.
S-Can select.
-Program added little value to company. It did extend tech capability.
-Helps aerospace/defense companies, not the rest of mfg. sector.
-Federal agencies are not being influenced by industry needs sufficiently.
-Good for scheduled programs with firm deliverables.
-Essentially zero spin-off for industry.
-Financially terrible. Got out of this area 6 years ago, sold division.
-Too slow. Misses window of opportunity in market.
-Inexpensive, can select appropriate subjects.
W-Little overlap with needs.
W-Need to establish contract infrastructure.
-Federal agency needs to become self-perpetuating, even where there is no commercial benefit.
-Agencies must work harder to proactively transfer the technology.
-Funding limited, below critical mass for success in many cases.
-Negotiations/intellectual property take too long, not favorable to industry.
-Too much paper work.
-Precompetitive generic research limited to commercial value.
-Need real product development programs.
-Some industry input.
-Needs not always clear.
-Of value to a rather narrow group of energy & defense companies.

S = Strength
W = Weakness

Technology Development Grants

W-Long time to set up.
-Joint developments of mutual need has high value.
-Industry driven!
-Good program because industry/market needs drive in the program.
-Current aawards seem to divide into many small awards. Difficult to create a real commercial market.
-ATP better than TRP. ATP based on economic potential...TRP based on dual value, questionable.
-Directly relevant to defined industry needs.
-Too early to tell.
-Highly focused, well-??????, good partnering.
S-Leveraging.
W-Overhead and uncertainty in getting awards.
-Focus, business purpose clear.
"Old Boys Club" more or less.
-Ownership of itellectual property and competitive issues are possible weaknesses.
-By definition, high perceived value or industry would not put up high cost share.
-Too de-focused (too many proposals in one pot).
-Too complicated (teaming, agreements, etc.)
-Perhaps too generic for real results.
-Too much paper work.
-Precompetitive generic research, limited commercial value.
-Need real product development programs.
-Supports high risk, step out R&D.
-significant industry cofunding must be maintained to keep focus on commercial opportunity.
-Value depends on extent of gov't willingness to award grant and let industry get on with it, with minimal auditing or interference.

S = Strength
W = Weakness

Consortia

S-Participative agenda.
W-Too many interests too broad an agenda.
-Conducts generic R&D with input from industry.
-Consortia generally have not emerged as an effective approach with excellent leadership; there are a few noteworthy exceptions.
-Encourages vertical integration for rapid commercialization.
-Useful, but tends to lack focus & urgency.
-Trying again!! New area of interaction is USABC.
S-Inexpensive sharing the learning with others.
W-Intercedes, and is therefore control diluted.
S-Programs defined by more than one company.
S-Leveraging.
W-Time to finalize contracts.
-Again, weakness is the design for federal agency needs. This always limits their utility to industry.
-Too complicated (agreements, etc.)
-Too long to negotiate, not necessarily favorable to industry regarding intellectual property.
-DOE best managed, workshops, etc.; best likelihood of real progress.
-Consortia means you no longer have unique technology to give your product a differential advantage.
-Potential competitors among the consortia members make these arrangements self-limiting.
-Industry driven.
-Good for industry-wide problems.
-Focus diminished by large number of participants.
-Some agencies now forcing consortia where they are not needed.
-Weakness is bureaucracy involved in settling patent, data rights issue.

S = Strength
W = Weakness

Cooperative Work by Company & Federal Lab

S-Shared responsibilities.
-Good way to couple federal lab intellect and industry needs.
-Difficult to negotiate. Fed lab technologies not of utility in most cases.
-Could work out provided that agency & company goals are mutually attainable.
-Encourages vertical integration for rapid commercialization.
-Encumbered by bureaucracy & reports.
S-Can be focused, good leveraging.
S-Good new technology.
W-Individual success often lab and/or people dependent.
W-Effort to identify program areas.
W-Time to finalize contracts.
-Federal labs have not shown ability to be truly relevant. Their concerns are too parochial.
-Unlikely that the lab has something commercializable.
-In most cases, only benefits lab by providing them funds.
-Again, too long, too complicated and too unfavorable to industry in many cases.
-Too much paper work.
-Good way to leverage research resources. Good personal relationships key to success on both sides.
-Projects will never be the key, critical projects needed by a company.
-Joint program development.
-Should be pre-competitive.
-DOE needs a rational process for CRADAS & funding.
-Ownership of intellectual property is a key issue.
-High, if labs don't try to hog all the funding!

S = Strength
W = Weakness

Technology Centers

-University efforts have limited practical applications.
-Forces universities to seek industrial input.
-Industry does not play a sufficiently strong role in terms of needs pull of the technology.
S-Good to include university, best for basic research.
W-Can become unfocused, longer time horizon.
W-University or Federal agency defines program.
S-Specialized equipment.
-Good for general advances in technology.
-Good programs if R&D folks listen to industry.
-Only seems to work for small businesses in very selected areas, i.e. welding.
-Larger centers seem to produce no real benefit.
-Too little industry input.
-Lack of coordination with company programs.
-No concern for product or profitability.
-Duplication of internal R&D programs sometimes.
-Support high-risk, step-out R&D.
-Strengthen university research.
-May be hard to retain critical need basis (pork barrel effects).
-To date, most of these have had marginal impact, high if focused on R&D directly of interest, this is not often the case.

S = Strength
W = Weakness

Manufacturing Technology Extension Centers

-Help the "little' guy who normally does not have aaccess to such technology.
-Meets an important national need.
-Possibly of value to small companies.
S-Good leveraging; opportunity for small/medium companies.
W-Not good for big co.'s, less definition by co.
-Makes technology available to small firms.
-Too diffuse, unfocused.
-Only work for small businesses in selected areas.
-Larger centers produce no real benefit.
-No experience with, nor need to deal with.
-Rehash of our own corporate R&D (duplication of programs).
-Likely to be wasteful; too politically driven.
-Of value to small companies.
-High if focused on R&D directly of interest--this is not often the case.

S = Strength
W = Weakness

Small Business Grants

-SBIR program critical for many small, high technology start-ups.
S-Highly focused, driven by commercialization.
W-Limited to small co.,s, may not have big impact.
W-A lot of grantsmanship.
S-Marketplace incentive.
-Selection seems to be a bit of the "old boys club."
-Again, only applies to small businesses.
-Only available to small businesses.
-Many innovative ideas, uncertain commercialization.
-Commercial success rate is very low.
-Likely to be wasteful.
-Too politically driven.
-Anti-competitive.
-Of value to small companies.
-Not applicable except as partners.

S = Strength
W = Weakness

Industrial Research Institute Position Statement on United States Economic and Technology Policy

Introduction

Innovation is the creation of new knowledge and the transformation of this knowledge into technologies, processes, products, and services that meet market needs. Innovation creates new businesses and new jobs; it is the fundamental source of growth and wealth in our society.

Although innovation is primarily the responsibility of private enterprise, the environment created by government can either encourage or inhibit its intensity and speed. If government is effective in encouraging innovation, then jobs are created, national wealth increases, and the country is more competitive in global markets.

Recommendations to the President and Members of Congress

Based on recent input from R&D executives representing all major industrial sectors, IRI recommends that the President and Members of Congress act to:

1. **Increase the formation and availability of capital for long-term investment by the private sector in new, wealth-creating products, processes, and services**.

   The issues below reflect the reality that innovation is inextricably tied to the overall effectiveness of economic policy. Without increasing the tax burden, government should take specific actions to:

   a. Encourage investment in R&D and new manufacturing equipment by appropriately accelerated depreciation, investment tax credit, and tax deduction schedules.

   b. Modify tax rates on capital gains to promote long-term, productive investment.

   c. Revise current legal and regulatory barriers as necessary to encourage, rather than inhibit, long-term institutional capital investment in industrial enterprises.

   d. Maintain stable, reasonable interest rates as well as consistent fiscal and monetary policies, and control inflation by stimulating productive investment.

   e. Address issues of product liability and tort reform to minimize current negative impacts on the development of new products/processes and on financial resources to fund development.

   f. Relax or eliminate anti-trust prohibitions on co-production arrangements where adequate non-U.S. enterprises exist to assure competition.

-over-

2. **Increase private sector involvement in deliberations that establish policies affecting innovation, and that determine major government R&D investments.**

IRI believes that the President and Members of Congress must act aggressively to improve communication, harmony, and--most importantly--trust between the business community and the federal government. These relationships are presently impeded by unnecessarily restrictive criteria for government service and by conflict of interest in obtaining private sector advice and assistance.

It is especially important to improve industry relations with federal organizations whose primary responsibility includes the management or oversight of federal technology policy. Where science and technology policy management are combined, it is essential that balance between them be maintained, and that the President and Members of Congress secure advice from industry as well as from the non-commercial science community.

Many IRI members are available to assist in the development of technology policies that will help stimulate the pace of successful innovation and commercialization within the private sector in the United States.

3. **Increase the innovative productivity of the over $70 billion in federal funds being spent annually for research and development.**

IRI urges a redirection of government R&D spending, especially at federal laboratories, toward industrial innovation and environmental technology. IRI members are willing to assist in reviewing existing federal R&D establishments and helping to identify and develop new missions and programs.

* * *

About the Industrial Research Institute

The Industrial Research Institute is an organization of more than 260 major industrial firms having common interest in the effective management of research and development to stimulate technological innovation. IRI member companies represent some 80% of the Nation's privately funded R&D effort. These companies, spanning diverse industries, compete in the global marketplace and provide jobs for more than 10 million of America's workers. Together they generate well over $2 trillion in annual sales, representing some 30% of our gross domestic product.

IRI welcomes the opportunity to discuss further its views on these important issues. For additional information, please contact Mr. Charles F. Larson, Executive Director, Industrial Research Institute, Inc., Suite 1100, 1550 M Street, NW, Washington, DC 20005-1708 (tel. 202-872-6350; fax 202-872-6356).

Originally issued: June 30, 1992
Revised: July 12, 1994

Industrial Research Institute Position Statement on United States Economic and Technology Policy

Introduction

Innovation is the creation of new knowledge and the transformation of this knowledge into technologies, processes, products, and services that meet market needs. Innovation creates new businesses and new jobs; it is the fundamental source of growth and wealth in our society.

Although innovation is primarily the responsibility of private enterprise, the environment created by government can either encourage or inhibit its intensity and speed. If government is effective in encouraging innovation, then jobs are created, national wealth increases, and the country is more competitive in global markets.

Recommendations to the President and Members of Congress

Based on recent input from R&D executives representing all major industrial sectors, IRI recommends that the President and Members of Congress act to:

1. **Increase the formation and availability of capital for long-term investment by the private sector in new, wealth-creating products, processes, and services**.

   The issues below reflect the reality that innovation is inextricably tied to the overall effectiveness of economic policy. Without increasing the tax burden, government should take specific actions to:

   a. Encourage investment in R&D and new manufacturing equipment by appropriately accelerated depreciation, investment tax credit, and tax deduction schedules.

   b. Modify tax rates on capital gains to promote long-term, productive investment.

   c. Revise current legal and regulatory barriers as necessary to encourage, rather than inhibit, long-term institutional capital investment in industrial enterprises.

   d. Maintain stable, reasonable interest rates as well as consistent fiscal and monetary policies, and control inflation by stimulating productive investment.

   e. Address issues of product liability and tort reform to minimize current negative impacts on the development of new products/processes and on financial resources to fund development.

   f. Relax or eliminate anti-trust prohibitions on co-production arrangements where adequate non-U.S. enterprises exist to assure competition.

-over-

2. **Increase private sector involvement in deliberations that establish policies affecting innovation, and that determine major government R&D investments.**

IRI believes that the President and Members of Congress must act aggressively to improve communication, harmony, and--most importantly--trust between the business community and the federal government. These relationships are presently impeded by unnecessarily restrictive criteria for government service and by conflict of interest in obtaining private sector advice and assistance.

It is especially important to improve industry relations with federal organizations whose primary responsibility includes the management or oversight of federal technology policy. Where science and technology policy management are combined, it is essential that balance between them be maintained, and that the President and Members of Congress secure advice from industry as well as from the non-commercial science community.

Many IRI members are available to assist in the development of technology policies that will help stimulate the pace of successful innovation and commercialization within the private sector in the United States.

3. **Increase the innovative productivity of the over $70 billion in federal funds being spent annually for research and development.**

IRI urges a redirection of government R&D spending, especially at federal laboratories, toward industrial innovation and environmental technology. IRI members are willing to assist in reviewing existing federal R&D establishments and helping to identify and develop new missions and programs.

* * *

About the Industrial Research Institute

The Industrial Research Institute is an organization of more than 260 major industrial firms having common interest in the effective management of research and development to stimulate technological innovation. IRI member companies represent some 80% of the Nation's privately funded R&D effort. These companies, spanning diverse industries, compete in the global marketplace and provide jobs for more than 10 million of America's workers. Together they generate well over $2 trillion in annual sales, representing some 30% of our gross domestic product.

IRI welcomes the opportunity to discuss further its views on these important issues. For additional information, please contact Mr. Charles F. Larson, Executive Director, Industrial Research Institute, Inc., Suite 1100, 1550 M Street, NW, Washington, DC 20005-1708 (tel. 202-872-6350; fax 202-872-6356).

Originally issued: June 30, 1992
Revised: July 12, 1994

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

December 9, 1994

To: Federal Government Liaison Council

Mary L. Good
Siegfried S. Hecker
Lionel S. Johns
Anita K. Jones
Martha A. Krebs
Neal F. Lane
William J. Madia
Arati Prabhakar
Gregory M. Reck

Subject: **JANUARY 12TH FST MEETING AT IRI HEADQUARTERS**

Please review the enclosed memo from Peter Boer, Chair of IRI's Federal Science and Technology (FST) Committee, concerning the Committee's meeting scheduled for January 12, 1995 at IRI Headquarters (first floor Conference room, 1550 M Street NW, Washington, DC).

As a member of our Federal Government Liaison Council, we would like you to be with us for the entire day to interact informally with Committee members as well as to give a brief presentation to the group. On the other hand, we recognize the realities of your hectic schedule and that it may not be possible for you to be with us for the entire meeting. Therefore, I would like to coordinate our agenda with your calendar for that date to ensure that you have an opportunity to raise issues of interest to and obtain input from our members.

Please complete the attached form indicating which time slots would work best for your schedule and fax it to me no later than **December 28**. I will confirm a time with your office for a brief presentation by you (plus time for discussion) as soon as I hear from you. Thank you, and I look forward to seeing you in the New Year!

Sincerely,

Margaret

Margaret R. Grucza
Staff Liaison
Federal Science & Technology Committee

MRG:krr
Enclosures

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

June 9, 1994

To: Members, IRI Federal Government Liaison Council

M. L. Good	M. A. Krebs
S. S. Hecker	N. F. Lane
L. S. Johns	A. Prabhakar
A. K. Jones	G. M. Reck

Subject: **FALL MEETING, OCTOBER 23-26, WILLIAMSBURG, VIRGINIA**

Although the program and other details on IRI's Fall Meeting will not be sent to you until August, we wanted to suggest that you put the dates of October 23-26 for the meeting on your calendar now. As usual, the Federal Science & Technology Committee will meet on Sunday, October 23, from 2-5 p.m.

The theme of our Fall Meeting will be "Benchmarking Best Practices." Sessions on Monday and Tuesday will cover recent work of IRI's Research-on-Research Committee on "measuring R&D effectiveness" and "reducing R&D cycle times." One of our Special Interest Sessions on Wednesday morning, October 26, will focus on how IRI and the federal government can work together more effectively. We would like to invite each of you to participate as panelists in this SIS--and to offer remarks at the Federal Science & Technology Committee meeting Sunday afternoon, October 23.

We look forward to having you, or a designated representative, with us at Williamsburg!

F. Peter Boer
Chair, Federal Science &
Technology Committee

Charles F. Larson
Executive Director

CFL:pt
Copy to E. A. Womack, D. C. Knowlen, and A. H. Pettifor

Lawrence Livermore National Laboratory

DIRECTOR'S OFFICE

May 17, 1994

Reminder

Dear IRI Representatives and Alternate Representatives:

Lawrence Livermore National Laboratory would like to invite representatives of IRI member companies to a one-day program which will focus on computer related technology at the Department of Energy's "Weapons Laboratories." The topics will include parallel computation, networking and mass storage (see attached). The aim is to identify areas in which various types of Laboratory/Industry programs can enhance U.S. economic competitiveness.

The meetings will take place in Livermore, California, on Thursday, July 28, from 8:00 a.m. to 4:30 p.m. Individual visits with researchers on computer-related and other topics may be scheduled for the following morning. Please call Margaret Grucza of the IRI at (202-872-6355) or fax (202-872-6356) if you would like to attend. A Livermore representative would then contact you to provide more detailed information and help complete your arrangements. Please call me (510-423-3330) if you would like any additional information on the technical program and/or would like to arrange any specific individual meetings. ASAP!

I look forward to seeing you at the meeting.

Sincerely,

Alan Bennett

Alan J. Bennett
Director of Program Development

AJB:nac
BL-10-94
Enclosure

Recycled

SOME COMPUTATION–RELATED, COOPERATIVE R&D OPPORTUNITIES AT THE DOE WEAPONS LABORATORIES

Lawrence Livermore National Laboratory invites you to a one-day review in Livermore of opportunities for cooperative work with industry. The following half day will be set aside to pursue specific interactions. Work will be described in three areas:

- **Massively Parallel Processing**

  The Lawrence Livermore National Laboratory (LLNL), in recent years, has concentrated its parallel computing efforts in a massively parallel computing initiative to isolate and understand the elements necessary to field a production massively parallel computing system. One of LLNL's ventures in massively parallel computing is a bi-laboratory, multiple-industrial partner cooperative agreement directed at the enhancement of American competitiveness in the world marketplace. The cooperative agreement will bring two powerful Cray Research T3D parallel computers to Los Alamos and to LLNL. On these machines, laboratory scientists, working through Cooperative Research and Development Agreement relationships with industrial partners, will develop complex, scalable 3D codes in fields including environmental remediation, molecular dynamics, structural mechanics and atmospheric chemistry. The Laboratories are considering increasing the size and number of parallel machines and the number of applications and industrial partners. Operating in an unclassified environment, utilizing infrastructure already in place, and leveraged off of computer programs developed in various DOE programs, the approach will result in very advanced computing facilities for science and engineering. The facilities will act as the means for additional cooperation with industry and other research institutions and will enable the development of the very large, highly detailed, 3D computer codes required in the second half of the decade in order to efficiently utilize the parallel machines arriving at that time.

- **National Information Infrastructure (NII)**

  The Administration has enunciated the need for an information superhighway and has initiated legislation to bring it to pass. The DOE National Laboratories have expertise in many of the technological components comprising the NII and have a number of NII-like projects currently underway. The areas of expertise range broadly from the development of component level devices for routing photons onto fiber optics; the testing and benchmarking of large-scale optical switches connecting fiber optics; the integration and operation of high speed networks spanning the continent; the design and implementation of systems for high speed, high

capacity, hierarchical, distributed storage; the software which permits users of the information highway to read the desired data; the architecting of systems to permit electronic commerce, etc. For example, DOE has funded the application of NII technology to network communications for the gas and oil industry. This project developed collaborative and information navigation tools which were demonstrated across a high speed, 45Mb/s, network linking several sites, including Lawrence Livermore National Laboratory (LLNL), Sandia National Laboratories (SNL)/California, and Sandia National Laboratories/New Mexico. Another LLNL NII-like project has been the design and implementation of a highly successful electronic commerce procurement system for the DoD at Wright-Patterson Air Force Base, the logistical headquarters for the Air Force. A third example involves the use of high speed remote access to supercomputing resources. The National Energy Research Supercomputer Center, which is on the LLNL site and managed by LLNL, is a resource for researchers, nation wide, who are funded by DOE's Office of Energy Research. Remote access to this center is via a high speed network, ESnet, whose control center is also located at LLNL. Yet a fourth example is an effort just recently authorized which seeks to link three DOE laboratories, LLNL, SNL, and LANL into one SuperLab, a single virtual campus, by means of high speed networks so that computing resources can be shared and video teleconferencing between collaborators can be enabled.

- **National Storage Laboratory**

  The National Storage Laboratory (NSL) has been organized to investigate, to demonstrate, and to commercialize high-performance hardware and software storage technologies that promise to remove network computing bottlenecks and provide critically needed new functionality to storage systems. This new functionality will: help meet the storage requirements of crucial DOE, other government agency, and industrial applications; provide commercial vendors with new methods of storage-system resource utilization; and help guide the efforts of national storage-system standards groups.

  Large scientific and commercial applications are straining storage and networking facilities, a condition compounded by new supercomputers, massively parallel processors, and high-performance workstations. Today's storage systems can move 1 to 10 million bytes of information per second, but current needs call for systems that can move data at 100 million bytes per second. Future needs will almost certainly reach 500 million to 1 billion bytes per second.

The NSL collaboration, launched in 1992 at Lawrence Livermore National Laboratory (LLNL) with six interested private companies, has grown in one year into a major DOE laboratory/industry collaboration. Besides LLNL, the DOE laboratory partnership includes Los Alamos, Sandia, Oak Ridge, and Argonne national laboratories, with planned participation of other national laboratories in the future. NSL participants provide equipment and/or labor. The NSL's primary prototype equipment site is located within the National Energy Research Supercomputer Center at LLNL. The collaborative software development projects are distributed across the DOE laboratories and other member sites.

Notes on the Industrial Research Institute (IRI) Federal Science & Technology (FST) Committee meeting, Marriott's Desert Springs, Palm Desert, CA, May 1, 1994

Attendance: See attached list.

1. Welcome and Introductions: Andrew Pettifor opened the meeting at 2:05 pm and welcomed the members and guests present. Those present introduced themselves.

2. National Lab Visit
   Andrew Pettifor outlined plans for a visit to Lawrence Livermore National Laboratory to focus on parallel processing and related software, and scheduled for July 28, 1994. Los Alamos, Sandia, and possibly other labs, will also present their capabilities at that time. Individual follow-up visits will be scheduled for July 29 on request. The chairman ruled, in light of the discussion at the previous FST meeting in Washington, that a proposal to include a series of presentations on Livermore's overall S&T capabilities was not appropriate. The next visit will focus on environmental monitoring and sensors, probably at Oak Ridge. It was proposed that if this could not also be scheduled for July, then it should be postponed until after August. The capabilities of Pacific Northwest Labs as well as the EPA in this area were noted. Both Bert Westwood and Wayne Burwell emphasized the importance of focusing on commercial solutions and potential. Wayne noted the importance of signal processing for many of these applications. It was also suggested that industry use these visits to present some of the IRI member's key interests in the area under discussion. Sig Hecker argued that the enormous scope of the labs' computer programs also supports the need for selectivity.

   Action: Members to send Margaret Gruca a list of specific areas of interest in both the parallel processing and the environmental/pollution identification and monitoring areas by June 30.

3. Report from Los Alamos - Dr. Sig Hecker
   Dr. Hecker affirmed the continuing importance of the weapons labs to reduce nuclear dangers in the new global environment. He also argued that the opportunities for civilian spin-offs from defense technologies and lab know-how are significant, and a cost-effective way of dealing with industry's problems.

   Los Alamos has instituted an Industrial Associates program to help it become more familiar with industry's problems. He noted that 24 IRI companies have expressed an interest in participating as hosts of senior LANL managers for approximately one year. Dr. Hecker expects to run a competitive program that will become a sought-after honor; only six LANL managers will be selected for the program in its first year. This invoked a discussion of career planning, so that the time away from Los Alamos for those selected becomes part of LANL's overall strategy, rather than an experience no one knows how to take advantage of. Career integration will be essential for attracting good people to the program.

FEDERAL SCIENCE & TECHNOLOGY COMMITTEE

1994 ANNUAL REPORT

The Federal Science and Technology (FST) Committee serves as the primary liaison between IRI and the Federal Government on policies and programs of national interest. To accomplish this, the Committee:

- Makes available to Federal Agencies the advice and counsel of IRI in the field of industrial research and development.
- Maintains an effective flow of information to and from IRI members on the activities of federal agencies, especially by means of interactions with the key members of the Federal Government Liaison Council.
- Initiates, from time to time, IRI Position Statements or Questionnaires regarding government policies and programs that affect the conduct and application of various aspects of research and development.

Andrew Pettifor of Rockwell was Committee chair in 1993-4. Significant activities during the past year are outlined below.

Federal Government Liaison Council (FGLC)

As a result of the change of Administration, reconstituting the membership of the Federal Government Liaison Council (FGLC) was a top priority during the summer and early fall. Members of the FGLC are:

Mary L. Good, Under Secretary for Technology, Department of Commerce

Siegfried S. Hecker, Director, Los Alamos National Laboratory

Lionel S. Johns, Associate Director for Technology, White House Office of Science & Technology Policy

Anita K. Jones, Director of Defense Research and Engineering, Department of Defense

Martha A. Krebs, Director, Office of Energy Research, Department of Energy

Neal F. Lane, Director, National Science Foundation

Arati Prabhakar, Director, National Institute of Standards & Technology

Gregory M. Reck, Acting Associate Administrator, Office of Advanced Concepts Technology, National Aeronautics & Space Administration

Alan Schriesheim, Director, Argonne National Laboratory

An attempt to expand the scope of the FGLC to include key S&T Congressional staff was unsuccessful because of the potential conflict of interest restrictions. Patrick Windham, senior staff member of the Senate Commerce, Science and Transportation Committee, addressed the January FST meeting, and it is anticipated informal interactions will continue with Congressional staff in the coming year.

Presentations by FGLC members at FST Committee meetings were particularly valuable in outlining the Clinton Administration's emerging S&T policies as well as opportunities for member participation.

IRI Seminar for DOE Lab Directors

At the request of Bill White, Deputy Secretary of Energy, a seminar was presented in January by eight IRI member company representatives. It focused on industry's experience and practices in two areas: R&D portfolio selection and management, and management of R&D operations. It included a presentation by A.D. Little representatives on "Third Generation R&D." Key managers from over sixteen DOE laboratories attended. The seminar was well received and some companies have received individual follow-up visits by DOE and laboratory officials.

Federal Laboratory Interactions

The changing role of the federal laboratories and how industry can improve its interactions was an ongoing theme of the FST Committee this year. At its May 1993 meeting, Professor J. David Roessner from Georgia Tech reviewed findings from the 1992 IRI survey. This led to a Special Interest Session at the 1993 Fall Meeting entitled, "Technology Transfer from the National Laboratories."

At the January meeting, Los Alamos previewed their plans for an Industrial Partnership Program. More than 30 member companies have since responded to the invitation to host senior Los Alamos technical managers in their facilities for up to a year. It is anticipated that a pilot program will get underway this fall.

Successful visits were organized to Sandia and Los Alamos National Laboratories in September, emphasizing materials and manufacturing technologies. At the January Committee meeting, it was agreed these lab visits should be focused on particular technologies and that presentations by industrial specialists from more than just the host laboratory would be encouraged. Lawrence Livermore National Laboratory will host the next visit in July 1994 and focus on parallel processing computing technologies, with participation from at least the other two weapons labs.

CRADAs were a continuing topic of discussion, and the FST Committee heard several presentations on streamlining and speeding up the CRADA process. Efforts in this area are being coordinated with IRI's External Research Directors' Network, which is working with DOE to revise/improve the process.

Lee Rivers, National Technology Transfer Center, and Beverly Berger, Federal Laboratory Consortium, have provided periodic briefings concerning activities of their respective organizations of interest to the Committee.

R&D and Trade Policy

The Committee was briefed by Thomas Ratchford, George Mason University, on the issue of R&D subsidies in the GATT negotiations. IRI participation was sought to in helping develop better relationships between those who develop economic policy and those who develop and market technology. IRI held a late afternoon symposium on this topic in February 1994.

Patent Policy

Auzville Jackson has continued his informative and very timely briefings to the FST Committee on the current and pending changes in the world of patent policy and intellectual property rights (IPR). In particular, the Committee has appreciated his insights into the "ups and downs" of U.S. plans for greater commonality in international patent policies.

FEDERAL SCIENCE & TECHNOLOGY COMMITTEE OF THE INDUSTRIAL RESEARCH INSTITUTE

Summary of Recent Accomplishments

Founded under the auspices of the National Research Council, IRI's third Purpose is "To afford a means for industry to cooperate effectively with the Federal government on matters related to research." This cooperation was strengthened by IRI's relocation from New York City to Washington, DC in 1989. That move has allowed the Institute, through its Federal Science & Technology Committee and the IRI staff, to become an even more effective resource to government. IRI interactions with the Federal government since 1989 are outlined below.

1989

- **Aug.** Rep/Alts asked to prioritize five Federal R&D megaprojects and to provide comments on their technical feasibility, commercial potential, and cost-benefit. The overall rankings were (1) Human Genome Project, (2) National Aerospace Plane, (3) Space Station, (4) Strategic Defense Initiative, and (5) Superconducting Super-collider. Results sent to Rep/Alts and circulated widely in Congress and the Administration.

1990

- **Mar.** IRI issues a Position Statement on "Establishment of a Federal Research Institute." Copies sent to Rep/Alts, the Administration, Members of Congress, other associations, and the media.

- **May** Exhibits illustrating the facilities and expertise available at selected Federal laboratories and consortia at IRI Annual Meeting.

- **May** Special Interest Session on "The Advanced Technology Program: A New Role for the Federal Government in Civilian Technology Development" at IRI Annual Meeting.

- **June** IRI Rep/Alts invited to offer opinions to the National Science Board (NSB) on the "Potential Causes for the Erosion in U.S. Technology Leadership." Responses formed the basis for NSB's report, "The Competitive Strength of U.S. Industrial Science and Technology," issued August 12, 1992.

- **July** IRI officers hosted the President's Council of Advisors on Science & Technology (PCAST) for informal reception and dinner.

- **Sept.** IRI Past President Jules Blake began his 18 months' service as IRI Fellow in the Office of Science & Technology Policy. He was the seventh IRI Fellow to serve in OSTP over an eight-year period. His predecessors were Joe Morone (GE), Ora Smith (Rockwell), Lee Rivers (Allied-Signal), Fred Leavitt (Dow), Bill Owczarski (United Technologies), and Bob Schaefer (Amoco).

- **Nov.** Exhibits illustrating the facilities and expertise available at selected Federal laboratories and consortia at IRI Fall Meeting.

- **Nov.** Special Interest Session on "Opportunities for Technology Transfer with the DOE National Laboratories" at IRI Fall Meeting.

1991

- **May** Two Special Interest Sessions conducted in cooperation with the Department of Commerce, on "Financing of Technology" and "Vertically Linked Industrial Teams," at IRI Annual Meeting.

- **June** Created a 10-person liaison group of Federal laboratory directors and senior government executives responsible for science and technology policies (originally designated as the Federal Advisory Council, now Federal Government Liaison Council). Meets with FST Committee four times each year and provides focal point for closer interaction between industry and government on matters related to science and technology.

- **July** Conducted survey for Department of Defense on member company recommendations for future directions in manufacturing R&D.

- **Aug.** Rep/Alts invited to comment on the report of the National Critical Technologies Panel. Responses provided to OSTP and DOC.

- **Sept.** Selected Rep/Alts invited by Treasury Department to comment on staff analysis of "Foreign Investment in the United States: Unencumbered Access."

- **Oct.** Visits to Argonne National Laboratory and Fermi Lab during IRI Fall Meeting.

- **Dec.** IRI Emeriti provide proposal review from a business perspective for NIST's first awards in its Advanced Technology Program.

- **Dec.** Survey conducted for the U.S. Patent Office on the use of patent information by industry. Results provided to the Patent Office and the IRI membership.

1992

- **Jan.** IRI's Program Committee hosted a dinner with NSF Director Walter Massey. Subsequent meetings were arranged with industry R&D representatives in New York City (September 1992) and Pittsburgh (October 1992).

- **Feb.** IRI officers hosted the President's Council of Advisors on Science & Technology (PCAST) for informal reception and dinner.

- **Mar.** IRI co-sponsored, with CORETECH, a "Presidential Candidates' Forum on Research & Technology Policy " in Washington, DC.

- **June** Conducted survey for Department of Energy on member company interaction with Federal laboratories, for comparison with a similar survey conducted four years earlier. Results presented in Congressional testimony, at an IRI late-afternoon symposium, at the 1993 AAAS Annual Meeting, and in several publications.

- **July** "IRI Day" held at the National Institute for Standards and Technology and co-hosted reception for President's National Technology Institute meeting held at NIST the following day.

- **July** Survey conducted for OSTP to identify member companies interacting with the Former Soviet Union in science and technology, and to list barriers being encountered in this interaction.

- **July** IRI Position Statement on "United States Economic and Technology Policy-- A Message to the Presidential Candidates" sent to President Bush, Governor Clinton, and Mr. Perot, as well as to Members of Congress, the Administration, campaign advisors, Rep/Alts, the media, and other associations.

- **July** Four representatives of IRI participated in the Naval War College's Global '92 program.

- **Aug.** Roundtable meeting to provide industry input on GATT R&D issues held in conjunction with OSTP, DOC, DOE, and USTR.

- **Sept.** Rep/Alts invited to offer suggestions on future directions of National Science Foundation (NSF), in response to a request from the Commission to Study the Future of NSF. Each reply and a summary of the responses were submitted to the Commission in October 1992. These responses also provided the basis for Testimony by IRI President Brian Rushton on future science policy in the U.S. before the House Subcommittee on Science and Technology in March 1993, and a subsequent IRI Position Statement on "Strengthening Industry-University Interactions," issued July 1993.

- **Sept.** Co-sponsored, with AEA, AIAA, AIA, COC, and other organizations, "Washington Conference on America's Industrial Manufacturing Base" in Washington, DC.

- **Oct.** Special Interest Session on "Federal Centers of Excellence" at IRI Fall Meeting.

- **Oct.** IRI representatives participate in a Symposium on "Targeting R&D for Competitive Advantage" at Department of State.

1993

- **Feb.** IRI participates in AAAS Seminar on industrial innovation and technology policy for new Congressional staffers.

- **Feb.** Rep/Alts invited to suggest names of appropriately qualified younger members of their research staffs for consideration as future members of NRC Committees.

- **March** IRI President Rushton testifies on U.S. science policy and the role of NSF before the House Subcommittee on Science.

- **April** IRI representatives participate in a Symposium on "New Directions in Technology Policy" at Department of Commerce.

- **May** Exhibits illustrating the facilities and expertise available at selected Federal laboratories and consortia at IRI Annual Meeting.

- **July** IRI Position Statement on "Strengthening Industry-University Interactions" sent to senior members of the Administration, Members of Congress, agency officials, University Presidents and Deans, media, and other associations.

- **Sept.** IRI sponsors Spotlight on Advanced Materials and Manufacturing Technology at Los Alamos and Sandia National Laboratories.

- **Oct.** IRI Director MacLachlan testifies on S. 1537, "The Technology Commercialization Act of 1993," before the Senate Commerce Subcommittee on Science, Technology, and Space.

- **Nov.** Special Interest Session on "Technology Transfer from National Labs: Learning from Industry's Needs and Experience" at IRI Fall Meeting.

- **Nov.** Rep/Alts invited to comment on Department of Commerce's "Advanced Civilian Technology Strategy," which references IRI's 1992 Position Statement on "U.S. Economic and Technology Policy."

- **Nov.** IRI appeals to U.S. Trade Representative about possible adverse effects of GATT R&D issues.

1994

- **Jan.** IRI co-sponsors, with NSF, Engineering Foundation, and NJIT, 20th Anniversary Conference on "New Directions for Multimember Research Collaborations: The Best Path for Industrial Research?" in Washington, DC.

- **Jan.** IRI conducts Seminar on "R&D Portfolio Selection and Evaluation" for DOE laboratory directors in Washington, DC.

- **Feb.** IRI co-sponsors, with OSTP, AAU, NAE, NAS, IOM, NIA, AAAS, and other organizations, a "Forum on Science in the National Interest: World Leadership in Basic Science, Mathematics and Engineering," in Washington, DC.

- **Feb.** Late-Afternoon Symposium held in cooperation with George Mason University on "GATT R&D Subsidies--Revisited."

- **March** IRI Representative Bush testifies before the Senate Labor and Human Resources Committee on the reauthorization of the National Science Foundation.

- **April** IRI Representative Kravitz testifies before the House Subcommittee on Science and Technology on GATT R&D Subsidies.

- **May** IRI Representatives participate in industry-specific workshops at Annual Meeting, in cooperation with the Department of Commerce, to prioritize recommendations in 1992 IRI Position Statement, to identify and assess critical technologies, and to assess the value of government programs that can benefit commercial technology.

CFL:pt
4/27/94

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

June 30, 1994

To: Federal Science and Technology Committee

Subject: **COMMITTEE CHARGE AND ROSTER**

Each year IRI welcomes newcomers to its committees, and again thanks those members who continue to serve.

One of our responsibilities is to make sure that you have the "Charge" of your committee as it is spelled out in IRI's By-Laws. This "Charge" is included in the enclosed committee procedures. "Guidelines for Committee Chairpersons" are also enclosed for your information.

Keep in mind that the Board representative to your committee is the official link between it and the Board. Any committee recommendations needing Board approval should be sent to your Board representative and to me at least two weeks before the Board meets, or earlier if possible. The Board is scheduled to meet on July 12, on October 26 in conjunction with our Fall Meeting in Williamsburg, on January 28, and again on May 7, before our Annual Meeting at Marco Island.

Also enclosed for each of you is the current roster of your committee. We've used the titles, addresses, and telephone numbers that we have on file. You will note a space for your Fax number. Please fill in your Fax number, if it is not already shown, make any corrections in your address or phone number, and return the roster to me by July 18. We will then reissue the roster with up-to-date information.

Please contact our new Administrative Coordinator, Maria Colantuoni, if you would like a supply of the new IRI letterhead.

Charles F. Larson
Executive Director

CFL:pt
Enclosures: Committee Procedures, Guidelines, and Roster

FEDERAL SCIENCE AND TECHNOLOGY COMMITTEE

Reference:

By-Laws, Article III.

Committee Composition:

There shall be at least 6 appointive members, including the chairperson, who shall be a Past President when feasible. Two members shall be appointed each year for a 3-year term, and, recognizing the special requirements for continuity and experience, any of its members may be reappointed to an additional 3-year term without a lapse of 1 year. Appointive members of the committee must be employees of member companies, but not be current Representatives or Alternates; appointment of such persons must receive approval of the members of IRI's Executive Committee.

Committee Functions:

The Federal Science and Technology Committee shall:

A. Make available to appropriate Federal bodies and the National Academies the advice and counsel of IRI in the field of industrial research;

B. Maintain an effective flow of information to IRI members on activities of Federal bodies in fields of interest; and

C. Cooperate with the government in matters related to research.

GUIDELINES FOR COMMITTEE CHAIRPERSONS

The IRI's Purposes are accomplished principally through the efforts of the various committees. The committees are established by the Board of Directors, and the functions and plans of each committee are approved by the Board.

A Board Representative is appointed to each committee as the official link between the committee and the Board. The Board Representative is accountable to the Board for ensuring that the charge and functions of the committee are realized and that the committee operates in a manner consistent with the policies and practices established by the Board.

Committee chairpersons are responsible for the effective operation of their committees and for the achievement of their functions and plans. They are accountable to the Board through the designated Board Representative.

As a general rule, committee chairpersons are authorized to take whatever steps are necessary and appropriate to achieve the charge and functions of the committee. This includes committing their committee to a project or task, provided the committee concurs and the decision does not involve a real or potential, unauthorized financial obligation for the institute and does not involve establishing and starting an implied position of IRI. In the case where committee activity could involve a financial, moral, or voluntary commitment of the Institute as a whole is to be promulgated, the chairperson is obligated to confer with the Board Representative who shall bring the matter promptly to the attention of the President.

Committee chairpersons should note that copies of all committee correspondence, meeting notices, minutes, etc., should be sent to the President and to the Executive Director, who are ex-officio members of each committee, and to the Board Representative. The Board Representative is responsible for informing the President and Executive Director (or IRI staff liaison) of any additional items committee activities will be presented by the Board or when judged desirable by the committee chairperson and the Board Representative.

This procedure is intended to facilitate understanding in regard to responsibility and authority of committee chairpersons and Board Representatives pertaining to business within the Institute or to interaction with outside organizations.

Federal Science & Technology Committee

CHAIR
DR. F. PETER BOER -- Peter
Executive Vice President
W.R. Grace & Co.
One Town Center Road
Boca Raton, FL 33486-1010
Tel. 407-362-1831
Fax. 407-362-1865
Term Ends: 1996

VICE CHAIR
MR. DAVID C. KNOWLEN -- David
Director
Technical Affairs
Boeing Commercial Airplane Group
P.O. Box 3707, MS 6H-CC
Seattle, WA 98124
Tel. 206-965-3550
Fax. 206-237-1330
Term Ends: 1997

BOARD
DR. ANDREW H. PETTIFOR -- Andy
Director, External Technology
Science Center
Rockwell International Corporation
1049 Camino Dos Rios
Thousand Oaks, CA 91360
Tel. 805-373-4290
Fax. 805-373-4633
Term Ends: 1995

MEMBERS
DR. PRASAD R. AKKAPEDDI -- Prasad
Director of Research
HUGHES Danbury Optical Systems, Inc.
100 Wooster Heights Road
Danbury, CT 06810
Tel. 203-797-6470
Fax.
Term Ends: 1996

DR. ROY A. ALLEN -- Roy
Vice President
Research and Test Department
Association of American Railroads
50 F Street, NW, Suite 7200
Washington, DC 20001
Tel. 202-639-2250
Fax. 202-639-2285
Term Ends: 1996

DR. GLEN R. ALLGAIER -- Glen
Executive Manager, Tech. Development
Eaton Corporation
Corporate Research and Development
4201 North 27th Street
Milwaukee, WI 53216
Tel. 414-449-6165
Fax. 414-449-6221
Term Ends: 1996

DR. BILL R. APPLETON -- Bill
Associate Director
Physical Sciences & Advanced Materials
Oak Ridge National Laboratory
P.O. Box 2008
Oak Ridge, TN 37831-6240
Tel. 615-574-4321
Fax. 615-574-0323
Term Ends: 1995

DR. HARRY ARMEN -- Harry
Director
Corporate Research Center
Grumman Corporation
111 Stewart Avenue, M/S A08-35
Bethpage, NY 11714-3580
Tel. 516-575-5081
Fax. 516-575-7716
Term Ends: 1995

MR. DAVID B. ARNOLD -- Dave
Vice President & Chief Technical Officer
Kennametal Inc.
P.O. Box 231
Latrobe, PA 15650
Tel. 412-539-5885
Fax. 412-539-5814
Term Ends: 1996

MS. LORRAINE M. AULISIO -- Lorraine
President
Center for Applied Engineering, Inc.
10301 Ninth Street, North
St. Petersburg, FL 33716
Tel. 813-578-4381
Fax. 813-576-0318
Term Ends: 1997

Federal Science & Technology Committee

DR. KENNETH R. BAKER -- Ken
Vice President
General Motors NAO R&D Center
General Motors Corporation
30500 Mound Road, Box 9055, Bldg. 1-6
Warren, MI 48090-9055
Tel. 313-986-2500
Fax. 313-986-8695
Term Ends: 1996

DR. DENNY F. BARDOLIWALLA -- Denny
Vice President
Research & Technology
Oakite Products, Inc.
50 Valley Road
Berkeley Heights, NJ 07922
Tel. 908-464-6900
Fax. 908-464-5354
Term Ends: 1996

DR. ISAAC R. BARPAL -- Itzik
Senior Vice President - CTO
AlliedSignal Inc.
101 Columbia Road
Morristown, NJ 07962-1021
Tel. 201-455-2001
Fax. 201-455-3030
Term Ends: 1995

DR. THEODORE F. BIERMANN -- Ted
Director, Research and Development
Polymers
BASF Corporation
1419 Biddle Avenue
Wyandotte, MI 48192-3736
Tel. 313-246-6174
Fax.
Term Ends: 1995

DR. ROBERT V. BLOEDON -- Robert
Director
University Interaction
BNR Inc.
35 Davis Drive
Res. Triangle Pk., NC 27709
Tel. 919-991-7723
Fax. 919-991-7828
Term Ends: 1997

DR. STANLEY M. BROWN -- Stan
Vice President
Petroleum Catalysts, R&D
Engelhard Corporation
101 Wood Avenue, South
Iselin, NJ 08830-2722
Tel. 908-205-5160
Fax. 908-205-5300
Term Ends: 1997

DR. NISSIM CALDERON -- Nissim
Vice President
Corporate Research
The Goodyear Tire & Rubber Company
Technical Center, P.O. Box 3531
Akron, OH 44309-3531
Tel. 216-796-4145
Fax. 216-796-3947
Term Ends: 1995

MR. ROBERT P. CAREN -- Chris
Vice President
Science & Technology
Lockheed Corporation
4500 Park Granada Boulevard
Calabasas, CA 91399
Tel. 818-876-2277
Fax. 818-876-2082
Term Ends: 1995

DR. STUART G. CROLL -- Stuart
Director
Materials Science R&D
The Sherwin-Williams Company
601 Canal Road
Cleveland, OH 44113
Tel. 216-566-2732
Fax. 216-566-2444
Term Ends: 1995

DR. RICHARD J. DEIASI -- Richard
Vice President
Technical Operations
Grumman Aerospace & Electronics Group
111 Stewart Avenue, M/S A01-035
Bethpage, NY 11714-3580
Tel. 516-575-2747
Fax. 516-575-7716
Term Ends: 1996

Federal Science & Technology Committee

DR. VERN G. DEVRIES -- Vern
Senior Director
United States Regulatory Affairs
American Cyanamid Company
Medical Res. Div. - Middletown Road
Pearl River, NY 10965
Tel. 914-732-3458
Fax. 914-735-5073
Term Ends: 1996

DR. THEODORE G. DUCLOS -- Ted
Manager, Advanced Technology
Thomas Lord Research Center
Lord Corporation
405 Gregson Drive
Cary, NC 27511-7900
Tel. 919-469-3443
Fax. 919-460-9648
Term Ends: 1996

DR. LEWIS S. EDELHEIT -- Lonnie
Senior Vice President
Corporate Research and Development
General Electric Company
P.O. Box 8
Schenectady, NY 12301
Tel. 518-387-6901
Fax. 518-387-6633
Term Ends: 1996

MR. DONALD E. ELSON -- Don
Vice President
Research & Applied Technology
The Black & Decker Corporation
701 East Joppa Road
Towson, MD 21204
Tel. 410-716-3410
Fax. 410-716-3653
Term Ends: 1997

DR. FRANKLIN H. FRY -- Frank
Exec. Vice President & General Manager
Filter Products Division
Hollingsworth & Vose Company
112 Washington Street
East Walpole, MA 02032
Tel. 617-668-0295
Fax. 617-668-6526
Term Ends: 1997

DR. ROGER H. GROTHAUS -- Roger
Vice President, WWCP, R D & E
Scientific Support & Government Affairs
S. C. Johnson Wax
1525 Howe Street
Racine, WI 53403
Tel. 414-631-4286
Fax.
Term Ends: 1995

DR. RODNEY E. HANNEMAN -- Rod
Vice President
Corp. Quality Assur. & Tech. Operations
Reynolds Metals Company
6601 W. Broad Street
Richmond, VA 23261
Tel. 804-281-2155
Fax. 804-281-2823
Term Ends: 1996

DR. VICTORIA HAYNES -- Victoria
Vice President
Research and Development
The BFGoodrich Company
9921 Brecksville Road
Brecksville, OH 44141
Tel. 216-447-5342
Fax. 216-447-5981
Term Ends: 1996

DR. TIBOR KALNOKI-KIS -- Tibor
Vice President, Technology
Gould Inc.
35129 Curtis Boulevard
Eastlake, OH 44094
Tel. 216-953-5060
Fax.
Term Ends: 1996

DR. ARTHUR S. KESTEN -- Art
Associate Director of Research
United Technologies Research Center
411 Silver Lane
East Hartford, CT 06108
Tel. 203-727-7337
Fax. 203-727-7304
Term Ends: 1995

Federal Science & Technology Committee

MR. DARREL P. KOHLHORST -- Darrel
General Manager
Manufactured Systems & Technology
Babcock & Wilcox
Mt. Athos Road, Route 726
Lynchburg, VA 24501
Tel. 804-522-5880
Fax. 804-522-5450
Term Ends: 1996

MR. RICHARD LAMPMAN -- Dick
Director
Computer Research Center
Hewlett-Packard Company
1501 Page Mill Road
Palo Alto, CA 94304-1126
Tel. 415-857-8734
Fax.
Term Ends: 1997

MR. ROBERT L. LEIBENSPERGER -- Bob
Vice President
Technology
The Timken Company
1835 Dueber Avenue, S.W.
Canton, OH 44706
Tel. 216-471-4016
Fax. 216-471-4041
Term Ends: 1997

DR. ROBERT W. LUCKY -- Bob
Corporate Vice President
Applied Research
Bellcore
331 Newman Springs Road, Room 3Z367A
Red Bank, NJ 07701-7040
Tel. 908-758-2100
Fax. 908-758-4530
Term Ends: 1995

DR. THOMAS J. LYNCH -- Tom
Business Manager
FFC
AMP Incorporated MS 128-63
3101 Fulling Mill Road
Middletown, PA 17057-3608
Tel. 717-986-3697
Fax. 717-986-3690
Term Ends: 1997

DR. ALBERT L. MARKUNAS -- Al
Manager, Engineering, Systems &
Information Technology, Applied Research
Sundstrand Aerospace
4747 Harrison Avenue, P.O. Box 7002
Rockford, IL 61125
Tel. 815-394-2831
Fax.
Term Ends: 1997

DR. B. WILLIAM MAXEY -- Bill
Executive Director
Animal Health Discovery Research
The Upjohn Company
7923-25-5
Kalamazoo, MI 49001
Tel. 616-385-7625
Fax. 616-385-7149
Term Ends: 1996

DR. SAMUEL W. MCKIBBINS -- Sam
Technical Director
Technical Center
Champion International Corporation
West Nyack Road
West Nyack, NY 10994
Tel. 914-578-7293
Fax. 914-578-7175
Term Ends: 1996

DR. HARRY A. MCVEIGH -- Harry
Manager
Paulsboro Research Laboratory
Mobil Research & Development Corporation
P.O. Box 480
Paulsboro, NJ 08066-0480
Tel. 609-224-3300
Fax. 609-224-3284
Term Ends: 1995

MR. ARIS MELISSARATOS -- Aris
Vice President
Science, Technology, and Quality
Westinghouse Science & Technology Center
1310 Beulah Road
Pittsburgh, PA 15235
Tel. 412-256-2800
Fax. 412-256-1310
Term Ends: 1996

Federal Science & Technology Committee

DR. JOHN A. MIDGLEY -- John
Vice President
U.S. Corporate Technology
Raychem Corporation
300 Constitution Drive, M/S 123/6401
Menlo Park, CA 94025
Tel. 415-361-2098
Fax. 415-361-4271
Term Ends: 1995

DR. JOSEPH A. MILLER -- Joe
Senior Vice President
DuPont Research and Development
P.O. Box 80-328
Wilmington, DE 19880-00328
Tel.
Fax. 302-695-4864
Term Ends: 1997

DR. EDWARD J. NEMETH -- Ed
Director of Research
Aristech Chemical Corporation
1000 Tech Center Drive
Monroeville, PA 15146
Tel. 412-825-3401
Fax. 412-825-3495
Term Ends: 1995

DR. NEIL PATON -- Neil
Vice President, Technology
Howmet Corporation
Operhall Research Center
1500 South Warner Street
Whitehall, MI 49461
Tel. 616-894-7212
Fax. 616-894-7826
Term Ends: 1995

DR. NANCY PAULUS -- Nancy
Business Manager
External Research
Apple Computer, Inc.
20525 Mariani Avenue, MS 301-4C
Cupertino, CA 95014
Tel. 408-974-7838
Fax. 408-974-7832
Term Ends: 1996

DR. WILLIAM F. POWERS -- Bill
Executive Director, Ford Research Lab.
Ford Motor Company
P.O. Box 1603, MD 3153/SRL
Dearborn, MI 48121-1603
Tel. 313-337-5566
Fax. 313-845-3568
Term Ends: 1997

DR. WILLIAM E. PREEG -- Bill
Vice President
Director of Research
Schlumberger-Doll Research
Old Quarry Road
Ridgefield, CT 06877
Tel. 203-431-5231
Fax.
Term Ends: 1996

DR. CARL O. QUICKSALL -- Carl
Vice President
Science and Technology
Mallinckrodt Chemical Inc.
Mallinckrodt & Second Streets
St. Louis, MO 63147
Tel. 314-539-1225
Fax. 314-539-5866
Term Ends: 1996

DR. JOHN C. REDMOND -- John
Vice President, R&E, GTE Corporation
President
GTE Laboratories Incorporated
40 Sylvan Road
Waltham, MA 02254
Tel. 617-466-2201
Fax. 617-890-3955
Term Ends: 1995

DR. PATRICIA A. RICHMOND -- Trish
Director
Food Ingredient Research & Development
A. E. Staley Manufacturing Company
2200 East Eldorado Street
Decatur, IL 62521
Tel. 217-421-2195
Fax. 217-421-2936
Term Ends: 1996

Federal Science & Technology Committee

DR. ROBERT RIVETT -- Bob
Director
Advanced Materials Center
Emerson Company
505 King Avenue, Room A-162
Columbus, OH 43201
Tel. 614-424-3825
Fax. 614-424-3826
Term Ends: 1996

DR. MALCOLM J. ROBERTS -- Mal
Director of Research
Research Laboratories
Bethlehem Steel Corporation
Bldg. G, Rm. 201
Bethlehem, PA 18016
Tel. 215-694-6598
Fax. 215-694-1739
Term Ends: 1996

DR. DAVID C. SANDERS -- Dave
Associate Vice President, R&D
Great Lakes Chemical Corporation
P.O. Box 2200
West Lafayette, IN 47906
Tel. 317-497-6332
Fax. 317-497-6304
Term Ends: 1996

DR. KARL J. SANFORD -- Karl
Vice President
Research
Genencor International, Inc.
1870 Winton Road South
Rochester, NY 14618
Tel. 716-477-5833
Fax. 716-588-7866
Term Ends: 1995

DR. HEINZ W. SCHMITT -- Heinz
Vice President
Component Development and Engrg. Support
Sandia National Laboratories
MS 0513, P.O. Box 5800
Albuquerque, NM 87185-0513
Tel. 505-845-9799
Fax. 505-844-8512
Term Ends: 1996

DR. ROGER L. SCRIVEN -- Roger
Director
R&D - Glass Group
PPG Industries, Inc.
Guys Run Road, P. O. Box 11472
Harmarville, PA 15238
Tel. 412-665-8555
Fax. 412-665-8681
Term Ends: 1996

DR. RAYMOND SELTZER -- Ray
Vice President, Research
Additives Division
CIBA-GEIGY Corporation
444 Saw Mill River Road
Ardsley, NY 10502
Tel. 914-479-2723
Fax. 914-479-2868
Term Ends: 1996

DR. JACK W. SHILLING -- Jack
Vice President, Technical
Allegheny Ludlum Corporation
Technical Center
Brackenridge, PA 15014
Tel. 412-226-6200
Fax. 412-226-5976
Term Ends: 1996

DR. S. HOWARD SHIMOKURA -- Howard
Executive Director
Network Control Technology
Southwestern Bell Technology Resources
550 Maryville Centre Drive, Suite 400
St. Louis, MO 63141
Tel. 314-529-7520
Fax. 314-529-7573
Term Ends: 1997

DR. JOHN SKELTON -- John
Deputy Executive Director
Albany International Research Co.
777 West Street, P.O. Box 9114
Mansfield, MA 02048-9114
Tel. 508-339-7300
Fax.
Term Ends: 1996

Federal Science & Technology Committee

MR. CASIMIR S. SKRZYPCZAK -- Cas
President
NYNEX Science & Technology, Inc.
120 Bloomingdale Road
White Plains, NY 10604
Tel. 914-644-5002
Fax. 914-993-9902
Term Ends: 1996

MR. JOSEPH G. STUMPF -- Joe
Director, Physical Sciences Group
Research Corporation Technologies, Inc.
101 North Wilmont Road, Suite 600
Tucson, AZ 85711-3335
Tel. 602-748-4460
Fax. 602-748-0025
Term Ends: 1995

DR. ISTVAN J. TOTH -- Istvan
Director
Technology & Advanced Developments
TRW Inc.
1900 Richmond Road
Cleveland, OH 44124
Tel. 216-291-7552
Fax. 216-291-0620
Term Ends: 1997

DR. KELLY B. TRIPLETT -- Kelly
Research Center Manager
& Location Manager
Akzo Nobel
1 Livingstone Avenue
Dobbs Ferry, NY 10522
Tel. 914-674-5295
Fax. 914-693-2029
Term Ends: 1995

DR. JACK WOODILLA -- Jack
Director
Advanced Technology Center
The Torrington Company
59 Field Street
Torrington, CT 06790
Tel. 203-626-2726
Fax. 203-496-3605
Term Ends: 1995

DR. JAMES B. WORTHINGTON -- Jim
Vice President, Strategic R&D
Technology & Engineering Division
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City, OK 73125
Tel. 405-775-5740
Fax. 405-775-5632
Term Ends: 1995

FEDERAL GOVERNMENT LIAISON COUNCIL
DR. MARY L. GOOD -- Mary
AlliedSignal
14th & Constitution Ave. NW Rm. 4824
Washington, DC 20230
Tel. 202-342-2063
Fax.
Term Ends: 1996

DR. SIEGFRIED S. HECKER -- Sig
Director
Los Alamos National Laboratory
M/S A100
Los Alamos, NM 87545
Tel. 505-667-5101
Fax. 505-667-2997
Term Ends: 1995

DR. LIONEL S. JOHNS -- Skip
Associate Director for Technology
Office of Science & Technology Policy
Executive Office of the President
Washington, DC 20500
Tel. 202-395-6175
Fax. 202-395-4155
Term Ends: 1996

DR. ANITA K. JONES -- Anita
Director of Defense
Research and Engineering
U.S. Department of Defense
3030 Defense Pentagon
Washington, DC 20301-3030
Tel. 703-697-5776
Fax. 703-693-7167
Term Ends: 1996

Federal Science & Technology Committee

DR. MARTHA A. KREBS -- Sig
Director, Office of Energy Research
Department of Energy
1000 Independence Avenue, Room 7B2222
Washington, DC 20585
Tel. 202-586-5430
Fax. 202-586-9520
Term Ends: 1995

DR. NEAL F. LANE -- Neal
Director
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
Tel. 703-306-1000
Fax. 703-306-0109
Term Ends: 1996

DR. ARATI PRABHAKAR -- Arati
Director
NIST
Administration A1134
Gaithersburg, MD 20899
Tel. 301-975-2300
Fax. 301-869-8972
Term Ends: 1996

MR. GREGORY M. RECK -- Gregory
Acting Associate Administrator
Office of Advanced Concepts & Technology
NASA Headquarters
Code C
Washington, DC 20546
Tel. 202-358-0701
Fax. 202-358-3084
Term Ends: 1996

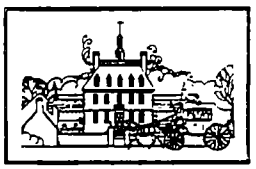
EMERITUS REPRESENTATIVES
DR. JOHN BLAIR -- John
25 Moore Road
Wayland, MA 01778
Tel. 508-358-7568
Fax.

MR. AUZVILLE JACKSON JR. -- Auzzie
8652 Rio Grande Road
Richmond, VA 23229-7823
Tel. 804-740-2351
Fax. 804-740-1881

MR. LEE W. RIVERS -- Lee
315 Washington Avenue
Wheeling, WV 26003
Tel. 304-243-2455
Fax. 304-243-2463

HEADQUARTERS LIAISON
MS. MARGARET R. GRUCZA -- Margaret
Director
Member Services
Industrial Research Institute, Inc.
1550 M Street NW, Suite 1100
Washington, DC 20005-1708
Tel. 202-872-6355
Fax. 202-872-6356

Cassette Order Form



Meeting Technology Leaders' Challenges: Benchmarking Best Practices

1994 Fall Meeting

October 23-26, 1994 • Williamsburg Lodge • Williamsburg, Virginia

INDUSTRIAL RESEARCH INSTITUTE, INC. arranged for professional audio recordings of the sessions listed below. You may order your tapes while attending or phone\mail\fax your order anytime to**TAPE PRODUCTIONS**. Each single tape is **$10.00**. Two-tape set is **$20.00**. Specials are listed below. Thank you!

MONDAY OPENING SESSION - MEASURING & IMPROVING R&D EFFECTIVENESS

☐#1 MEASURING & IMPROVING R&D EFFECTIVENESS, *Philip H. Francis*
DOUBLING RESEARCH'S OUTPUT USING TQM, *Jerry D. Holmes*

☐#2 ENHANCING THE EFFECTIVENESS OF R&D AT WESTINGHOUSE, *Ted M. Foster*
THE TECHNOLOGY VALUE PYRAMID, *James W. Tipping, Alan R. Fusfeld, Eugene Zeffren*

ACHIEVEMENT AWARD ADDRESS

☐#3 IMIDAZOLINONES- 10 YEARS IN THE MAKING-SOME LESSONS, *Marinus Los*

TUESDAY SESSION III - REDUCING CYCLE TIMES

☐#4 REDUCING CYCLE TIMES, *James M. Utterback, Marc H. Meyer*

CURRENT ISSUES SESSION

☐#5 NEW MODELS OF UNIVERSITY/ INDUSTRY INTERACTION, *Leaders: J. Peter Bingham, Jean C. Bonney*

WEDNESDAY SESSION IV - SUMMARY OF WORKSHOPS

☐#6 MEASURING R&D EFFECTIVENESS, *John W. Jost, Robert D. Wismer*
REDUCING CYCLE TIMES, *Jean C. Bonney, Michael G. Griffith*

SPECIAL INTEREST SESSIONS (Two-tape sets $20.00 ea.)

☐#7 ☐#8 GLOBAL MANAGEMENT OF TECHNOLOGY-- IRI/MIT SURVEY RESULTS, *Leaders: Ernest R. Gilmont, Lee A. Sheridan; Panelist: Eleanor Westney*

☐#9 ☐#10 HOW INDUSTRY CAN INTERACT MORE EFFECTIVELY WITH GOVERNMENT, *Leaders: F. Peter Boer, Andrew H. Pettifor; Panelists: William Madia, Arati Prabhakar, Gregory M. Reck*

☐#11 ☐#12 R&D DATABASE PROJECT FINDINGS (II) -- DARE TO COMPARE!, *Leaders: Gary E. McGraw, Alden S. Bean; Panelist: Roger L. Whiteley*

☐#13 ☐#14 RE-ENGINEERING R&D: PRINCIPLES AND DEPLOYMENT, *Leaders: Jeffrey W. Davidson, Ralph W. Wyndrum, Jr.*

☐#15 ☐#16 EFFECTIVE R&D REWARD AND RECOGNITION SYSTEMS, *Leaders: George F. Farris, William M. James*

SPECIALS:

- ☐ Any **4 tapes** in a vinyl album for **$40.00**.
- ☐ Any **8 tapes** in a vinyl album for **$76.00**.
- ☐ **Full Set** in a vinyl album for **$144.00**.

Please include postage & handling charges on all mail orders.

Check # _____

$ _____ Total Amount Ordered

_____ No. of Cassettes

☐ Visa ☐ Disc ☐ Amex ☐ MC

$ _____ Tax (AZ customers only - 6.8%)

$ _____ POSTAGE & HANDLING
Single tape $1.50, each additional tape add $1.00, up to $15.00.
Foreign orders add 25% of total.

$ _____ TOTAL U.S. FUNDS.

Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone #: _____

Card #: _____ Exp. Date: _____

Signature: _____

Payable & Mail to: TAPE PRODUCTIONS • 8635 W. Catalina Dr. • Phoenix AZ 85037
Information (602) 873-4343 • Order Desk 1-800-658-5914 • Fax (602) 873-4707 for credit card orders only.
Educational expenses are deductible if they improve or maintain professional skills. Treas. Reg. Sec. 1.162.5.

IRI Meeting

Industrial Research Institute, Inc.

Expected Attendance
FALL MEETING

Williamsburg, Virginia
October 23-26, 1994

Guests

*ATWOOD, MARK; JOAN
American Cyanamid
(IRI Achievement Award Introducer)

BEAN, AL; DIANE
Lehigh University
(SIS Speaker)

*BERENDS, ERNIE; MARY
Diversey
(Member Prospect)

BERGER, BEVERLY
Federal Laboratory Consortium

BLOCH, ERICH; RENEE
Council on Competitiveness

*CROWDER, JIM; JACKIE
Grain Processing
(Member Prospect)

ECONOMY, JIM
University of Illinois
(AAC)

FARRIS, GEORGE
Rutgers University
(SIS Speaker)

FUSFELD, ALAN
The Fusfeld Group
(Speaker)

*GOLDSTON, DAVID
Council on Competitiveness

HOPFENBERG, HAL; PATSY
North Carolina State University
(AAC)

*HUANG, WARREN
Ethyl
(Member Prospect)

ISHIKAWA, YOSHIO
JATES

JOHNS, SKIP
OSTP
(FGLC)

KREBS, MARTHA
Department of Energy
(FGLC)

LIEBERMAN, MEL
Duke University
(AAC)

LINTVEDT, DICK; PEG
Wayne State University
(AAC)

*LOS, MARINUS; LORRAINE
American Cyanamid
(IRI Achievement Award Recipient)

LYONS, PETE
Los Alamos National Lab
(FGLC)

*MADIA, BILL
Pacific Northwest Laboratory
(SIS Speaker/FGLC)

*MEYER, MARC
Northeastern University
(Speaker)

MITCHELL, GRAHAM; PAT
U.S. Dept. of Commerce

MORRISON, HARRY; HARRIET
Purdue University
(AAC)

PAPAY, LARRY; CAROL
Bechtel
(Member Prospect)

*PETIT, PETE
Envirex
(Member Prospect)

*PETRI, AMY
Council on Competitiveness

PRABHAKAR, ARATI
NIST
(SIS Speaker/FGLC)

*PURI, AJAI
Coca Cola Foods
(Member Prospect)

RECK, GREG
NASA
(FGLC)

---

*Newcomers

SLOWINSKI, GENE; KATHY
Rutgers University
STEPHENS, MICHAEL
Canadian Embassy
*TUOMI, JAN
National Research Council
*UTTERBACK, JIM
MIT
(Speaker)
VERMONT, GEORGE; DOLORES
OSTP
*WEBSTER, MIKE
M&M/Mars
(Member Prospect)
*WESTNEY, ELEANOR
MIT
(SIS Speaker)
YOST, JACK
Penn State University
(AAC)

From Member Companies

ALLAIN, RON; JAN
Nalco
APPLETON, BILL; PRISCILLA
Oak Ridge National Lab. (Martin Marietta)
*ARNOLD, MARY
W. H. Brady
*BAILEY, DAN
Reilly Industries
BEARDMORE, PETE
Ford
BEDNARSKI, TED; BONNIE
Hercules
BENDURE, RAY
Allergan
BERTOZZI, RICH; ELAINE
Gillette
BESSO, MIKE
Elf Atochem
*BILHARTZ, SKIP; JANET
ARCO EP&T
BINGHAM, PETE
Philips Electronics
(Current Issues Session Co-Leader)
BISHOP, CHUCK; YVONNE
A. O. Smith
IRI President-Elect
BODELLE, JACQUES; FRANCOISE
Elf Aquitaine
BOER, PETER; ELLEN
W.R. Grace
IRI Past President
(SIS Discussion Leader)
BOLAND, PETER
Raytheon
BONEWITZ, BOB; LASELL, RUTH
Alcoa
BONNEY, JEAN
Digital Equipment
(Current Issues Session Co-Leader)
*BOWERS, JOSEPH; JANE
First Chemical
BROADHEAD, JOHN
Duracell
*BROWN, ANDREW
General Motors
BROWN, STAN
Engelhard
BURROWS, BRIAN
USG
IRI Director
BUSH, JOHN; YASUKO
Gillette
CALVIN, DON
Dow Chemical
CAMPBELL, SANDY
Xerox
CARROLL, PAT; ELVERA
FMC
*CARTER, JACK
Mobil
*CAUGHEY, MARTHA
Abbott Laboratories
CESSNA, LARRY; LUCILLE
Hercules

CHANCE, LARRY; BECKY
Beloit
CHATTERJI, DEB
BOC Group
IRI Director
CHESTER, ART; KITTY
GM Hughes
CHOWDHRY, UMA
DuPont
CLARK, JOHN; RICHARDS, ELIZABETH
Syncrude Canada
*CLARK, KENDALL
Center for Applied Engineering
CLARK, STEVE; BONNIE
Nalco
COGAN, JERRY
Milliken Research
IRI Vice President
COHEN, MEL; ELAINE
AT&T Bell Labs
COLBECK, DEREK
Exide
COLUCCI, JOE; SUE
General Motors
COMSTOCK, GIB; JUDY
Weyerhaeuser
COX, GENE
Georgia-Pacific
CRAVEY, WES; KARIS
Nalco
CRAWLEY, LANTZ; IRENE
American Cyanamid
CROSSMAN, LEON; PAT
Dow Corning
CUMMINGS, BILL
Texaco
DANIELS, ALEX; JANET
Philips Labs
DANIHER, FRANK; KIT
Calgon (ECC International)
*DAVIDSON, JEFF
BOC Group
(SIS Speaker)
DeIASI, RICHARD; GAIL
Grumman
DELANEY, RORY; ANE-GRETHE
KFC (PepsiCo)
DELNICKI, BILL; NANCY
Praxair
DENEKA, SKIP; GINNY
Corning
DILLON, TOM
SAIC
DiMARCO, JIM; JANET
S. C. Johnson
DODGE, NATHAN
Texas Instruments
*DONAGHUE, PAUL; ANNE
ICI Australia
*DRESSLER, RON
Hershey Foods
DUDEK, TOM; MARY
GenCorp
*DZIABO, TONY
Allergan
EIDT, CLARENCE; ROSA LEE
Exxon R&E
IRI Director
ELLIS, CATHY
Philip Morris
ERNST, CARL; KATHY
International Paper
FANTAZIER, DICK
Armstrong
*FEULNER, ROGER; SUSAN
Honeywell
*FINE, TED; JANET
Rexnord
FITZPATRICK, MIKE
Rohm & Haas
*FLAHERTY, ED
Liquid Carbonic
FOSTER, TED; ANNE
Westinghouse
(Speaker)
FRANCIS, PHIL; DIANA
Square D
(Speaker)
FRICK, NEIL; CHARLOTTE
PPG Industries
FRIDLEY, DALE
Exxon Chemical
*FROMTLING, BOB
Merck

GARFINKEL, HARMON; LORRIE
Engelhard
GARFINKEL, MARV; CEIL
General Electric
GERHARDT, JON
General Tire
*GERHARDT, WERNER
Henkel KGaA
GERMERAAD, PAUL
Avery Dennison
GILBY, STEVE
Armco
GINWALA, KYMUS; GENEVIEVE
Northern Research (Ingersoll-Rand)
GIORDAN, JUDY; FRIEDMAN, LARRY
Henkel
IRI Director
GIPSON, BOB; ANNETTE
Texaco
GIRARD, ART
Reynolds Metals
GLOMSKI, RON
Dow Chemical
*GLOVER, DICK
Procter & Gamble
GOEHLER, BOB; DEE
Ingersoll Rand
*GOINS, DIXIE
Albemarle
GRIFFITH, MIKE
ARCO Chemical
*GROENVELD, PIETER
Philips Electronics
HAID, DAVE; BLANCHE
Praxair
HANNEMAN, ROD; BODIL
Reynolds Metals
HANSEN, LARRY
Searle
HASLANGER, MARTY
Eli Lilly
HEARD, DENNIS; ROSEMARY
Frito-Lay (PepsiCo)
HENNESSEY, JOE; PAT
Armstrong
HETZEL, DON
Becton Dickinson
*HINES, JOHN
Georgia-Pacific
HIRSCHMANN, BOB; PAT
Vulcan
HOLMES, JERRY
Eastman Chemical
(Speaker)
HUME, FRED; BETTY
Keithley Instruments
HUSTON, LARRY
Procter & Gamble
*HUPP, STEVE
Ashland Chemical
JAMES, BILL
Procter & Gamble
JARRETT, LARRY
OSi Specialties
JASKOLSKI, STAN; CINDY
Eaton
IRI Director
*JOHNSON, TED
Boeing
JONES, DAVE
Raytheon
JONES, PHIL
ECC International
*JONES, SID
Hoechst Celanese
JONES, TOM; WANDA
Lorillard
JOST, JOHN
Unocal
*KEAY, JIM
Reilly Industries
*KENNEDY, CLINT
Mobil
*KESLER, MARK
Arthur D. Little
KESTEN, ART; HILDA
United Technologies
*KETTLER, DAVE
BellSouth
KETTUNEN, MARK
Kraft General Foods

KEYS, ALLISON
Calgon Vestal (Merck)
KIES, FRED; JO
BOC Group
KLAESSIG, FRED
Betz
*KLEIN, DENNIS
Syncrude Canada
KNUTSEN, CIL
Geon
KUBANEK, GEORGE; ANNE-MARIE
Noranda
LAITY, JOHN; JANICE
Shell
LAMOLA, ANGELO
Rohm & Haas
*LANG, GARY
Liquid Carbonic
LEDERMAN, FRANK;
KAPLANSKY, DAPHNA
Noranda
LEIBENSPERGER, BOB; DONNA
Timken
*LEONARD, ERIC
Eastman Kodak
LERNER, STEVE
Praxair
LEVY, BOB
Energy Biosystems
LONGMUIR, ALAN
Kaiser Aluminum
*LORENTZ, RICK; KATHY
Lubrizol
LOSSET, MARK; ANN
First Chemical
LUCKY, BOB; JOAN
Bellcore
MacLEAN, DON
BOC Group
MALHOTRA, GIRISH
MACtac (Bemis)
MANNERS, GEORGE; BETH
James River
MANUEL, TOM
Air Products
IRI Director

*MANZIONE, LOU
AT&T Bell Labs
MAREK, PAT; NANCY
Nalco
MARESCA, LOU; NANCY
Geon
MAXEY, BILL
Upjohn
McCREA, ANDY
Helene Curtis
McELROY, MARK; DUGAN
Phillips Petroleum
McFADDEN, PAT; B.J.
Gates
McGRAW, GARY
Eastman Chemical
IRI Director
(SIS Discussion Leader)
McKINNEY, BRYAN
Johnson Controls
McSHEFFERTY, JOHN; GLENNA
Gillette
MEILING, JERRY; JANE
Corning
*MELTON, KEITH
Raychem
*MENDELL, DAN
Exxon Production
METZ, PHIL
Arthur D. Little
*MICHELSEN, TED; CAROL
Schuller International
MIGLIORESE, KEN
Helene Curtis
MIHM, JOHN; JANET
Phillips Petroleum
MILEY, JACK; JUNE
Milliken
MILLER, BILL; ROCHELLE
Sonoco Products
MILLER, BILL; JANET
Steelcase
MITCHELL, DICK; ANN MARIE
Sun
MOOREHEAD, ERIC
M. W. Kellogg

MORRIS, STAN; LYNN
Air Products
MUELLER, DON; LINDA
Ashland Chemical
NELSON, LARRY; AUDREY
Witco
NEMETH, ED; ELEANOR
Aristech
NORLING, PARRY; NAN
DuPont
O'KEEFE, DUGAN
TRW
*OLSEN, KEN
Southern California Gas
OWCZARSKI, BILL; CONNIE
McDermott (Babcock & Wilcox)
*PANEK, RICH
Seagram
*PARCHETA; DEBI
US WEST
PARISH, TRUEMAN
Eastman Chemical
*PARKER, DAVID
ICI Americas
PEARCE, RICK; FRAN
Black & Decker
PELAEZ, JOAQUIN
Taco Bell (PepsiCo)
*PENTON, PENT; CHERRI
Albemarle
PETTIFOR, ANDY; DIANE
Rockwell
IRI Director
(SIS Discussion Leader)
PITCHER, WAYNE; JULIA
Genencor
IRI Director
POLLART, DALE; MAUREEN
Texaco
*POWERS, JACK
Ball
*PRATT, GEORGE
Penford Products (Penwest)
*PREUSS, WOLFGANG
Henkel KGaA
*QUICKSALL, CARL; BETTY
Mallinckrodt
RACKLEY, JOHN; JANICE
Babcock & Wilcox
RAKSIS, JOE; MARYBETH
W.R. Grace
IRI Director
RANSLEY, DEREK; JANICE
Chevron
RAYMOND, MAURICE; BEATTY
Rhone-Poulenc
REAGAN, JOE; DOTTIE
Lockheed
REDMOND, JOHN; MARILYN
GTE
REDMORE, DEREK; CAROLYN
Petrolite
*REGAZZONI, GILLES
Pechiney
REID, JACK; LINDA
Lorillard
RESCIGNO, JERRY
Black & Decker
ROBERTS, MAL
Bethlehem Steel
*ROBEY, RAY
Liquid Carbonic
*ROLLEFSON, GERRY
Himont
*ROMIG, AL
Sandia (Martin Marietta)
RUDD, JAMES
Dexter
RUDOLPH, STEVE
Arthur D. Little
SACCO, GEORGE
Goodyear
SANBORN, STEVE
Energizer Power Systems
SAND, MARY
Helene Curtis
SANDERS, ANDREA
Sherwin-Williams
SANDERS, DAVE; MARY
Great Lakes Chemical
SCHMIDT, AL; LINDA
Pitney Bowes
*SCHOTT, JEFF
Findley Adhesives

*SCOTT, CHRIS; KAREN
BHP Research
SCRIVEN, ROGER; RENEE
PPG Industries
*SETTLE, EVAN
Reynolds Metals
SHERIDAN, LEE; SALLY
ITW
(SIS Discussion Leader)
SMITH, BILL; CATHY
Polaroid
SMITH, BOB
Nabisco
*SMITH, GILBERT
Helene Curtis
*SMITH, ROBIN
BNR
SMITH, WILL
US WEST
SNYDER, BILL
Betz
SOLOMON, IRV; MARCIA
Gas Research Institute
SOLOMON, JACK
Praxair
*SPEARS, BOB
Reynolds Metals
SPHON, DICK; JUDY
Corning
STEAR, ED
Boeing
*STRAHS, KEN
Johnson & Johnson
SULLIVAN, JOHN
Hoechst Celanese
*TAN, PC; JEANETTE
Mobil
TANCREDI, JOHN; PAT
International Specialty Products
TERRY, STUART
Sonoco Products
*TIMMS, ADRIAN
Hershey Foods
*TIMONY, PETE
Lonza, Inc.
TRASKOS, DICK; PEGGY
Rogers
TRUCKNER, BILL
Alcoa
TSHUDY, JIM
Armstrong
VANDEBERG, JOHN
DSM Desotech
VAN ERDEN, DON; PAULETTE
ITW
van REMOORTERE, FRANCOIS; JANE
W. R. Grace
*VIA, FRANCIS
AKZO Nobel
WADIA, PARVEZ; DILNA
Union Carbide
WAINICK, JERRY; LINDA
Tambrands
WALBRICK, JOHNNY; ELAINE
Merichem
WIDGE, SUNIL
Carpenter Technology
WIDNER, RON; ALIDA
Timken
WISMER, BOB
Deere
WOMACK, ALLEN; LINDA
McDermott (Babcock & Wilcox)
IRI President
WOMBLES, BOB
Ashland Petroleum
WONSIEWICZ, BUD
US WEST
WOOD, BOB
Rohm and Haas
WYNDRUM, RALPH; META
AT&T
(SIS Discussion Leader)
YOUNG, LARRY; CAROL
Liquid Carbonic
ZADOKS, BRAM
Caterpillar
ZEFFREN, GENE; TITA
Helene Curtis
(Speaker)
*ZELESKO, MIKE
Janssen Research (Johnson & Johnson)

Committee Chairs

Advanced Programs	Ted Foster	**Plans & Policies**	Larry Young
Awards	Bill Truckner	**Pre-College Education**	Don Piehl
Board of Editors	Dale Pollart	**Program**	Chuck Bishop
Emeriti	Peter Cannon	**R&D Communications**	Fred Kies
Executive	Allen Womack	**ROR**	Parry Norling
FST	Peter Boer	**Seminar**	Don Hetzel
Finance	Stan Jaskolski	**Staff & Facilities**	Art Girard
International	Jacques Bodelle	**SG: Exp. Leaders**	Parvez Wadia
Membership	James Rudd	**SG: New Leaders**	Joe Hennessey
Nominating	John McShefferty	**University Relations**	Pete Bingham

Emeriti

BERKOWITZ, LEN; LINDA
BOYD, HUGH; MARGE
BURWELL, WAYNE
IRI Past President
CAHN, ARNO; BARBARA
CANNON, PETER
CHYNOWETH, ALAN; BETTY
COLLIER, DON
IRI Past President
CUTLER, GALE; IRENE
ELLIS, LYNN
FORDHAM, LYNN; JO
GILMONT, ERNEST
(SIS Discussion Leader)
HILLIER, JIM
IRI Past President
KLIMSTRA, PAUL; LOIS
IRI Honorary Fellow
KROGH, LES; BALL, JOAN
LEAVITT, FRED; JEANNE
LEEPER, CHARLIE; MIKI
MERRIFIELD, BRUCE; PAULA
MORRIS, BOB; BETTY
PIEHL, DON; ANN
RAGAN, BILL; SARAI, TAKAKO
ROWE, JOE
SCHEUING, DICK; DORIS
STARR, LEE
STOCKTON, DICK
STUMPE, WARREN; LOIS
IRI Past President
TIPPING, JIM
(Speaker)
WAKEHAM, HELMUT
WERBER, FRANK
WEISSMAN, GENE
WEYENBERG, DON; BARBARA
WHITELEY, ROGER
(SIS Speaker)

* * *

IRI Staff

BURKART, BOB; ELAINE
Director, Mgmt. Dev. Services

CLAUSER, HANK
Publishing Manager, RTM

*COLANTUONI, MARIA
Assist. Coordinator, Admin. Services

LEWIS, ARLINE
Assistant Manager, Mgmt. Dev. Services

GRUCZA, MARGARET
Director, Member Services

LARSON, CHUCK; JOAN
Executive Director

QUARTON, DONNA
Admin. Assistant, Mgmt. Dev. Services

TIEDE, PAT
Manager, Administrative Services

VALLARTA, LUDITA
Manager, Communications Services

WOLFF, MIKE
Editor, RTM

* * *

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

August 19, 1994

To: Members of the IRI Federal Government Liaison Council

M.L. Good	M.A. Krebs
S.S. Hecker	N.F. Lane
L.S. Johns	A. Prabhakar
A.K. Jones	G.M. Reck

Subject: **FALL MEETING, OCTOBER 23-26, WILLIAMSBURG, VIRGINIA**

The Preliminary Program for IRI's 1994 Fall Meeting, as well as hotel and travel information, a room reservation form, the meeting registration form, and the Companion Program, are enclosed. If you can be with us, please mail the room reservation form to the hotel (must be received by September 23), and return the enclosed Registration Form to me by October 7, with payment for the reduced registration fee and optional activities. As a member of our Federal Government Liaison Council, you are invited to be our guest at all of the group meal functions.

We look forward to having your organization's views at both the Sunday afternoon Federal Science and Technology (FST) Committee meeting and the Wednesday morning Special Interest Session (SIS). Please note that FST will meet at 2 p.m. on October 23 in the North Ballroom. As noted in my June 9 memo, we would like you to serve as a Panelist in the SIS on "How Industry Can Interact More Effectively With Government." Feel free to call Peter Boer (407-362-1831) if you have any specific issues you would like to see discussed at either session.

If your schedule does not permit you to stay for entire meeting, we would appreciate your designating an associate to participate. For those who have already notified us that they cannot attend, please let Margaret Grucza (202-872-6355) know who will be attending on your behalf, and forward the enclosed materials to that person.

We look forward to seeing you or an associate in Williamsburg!

Chuck

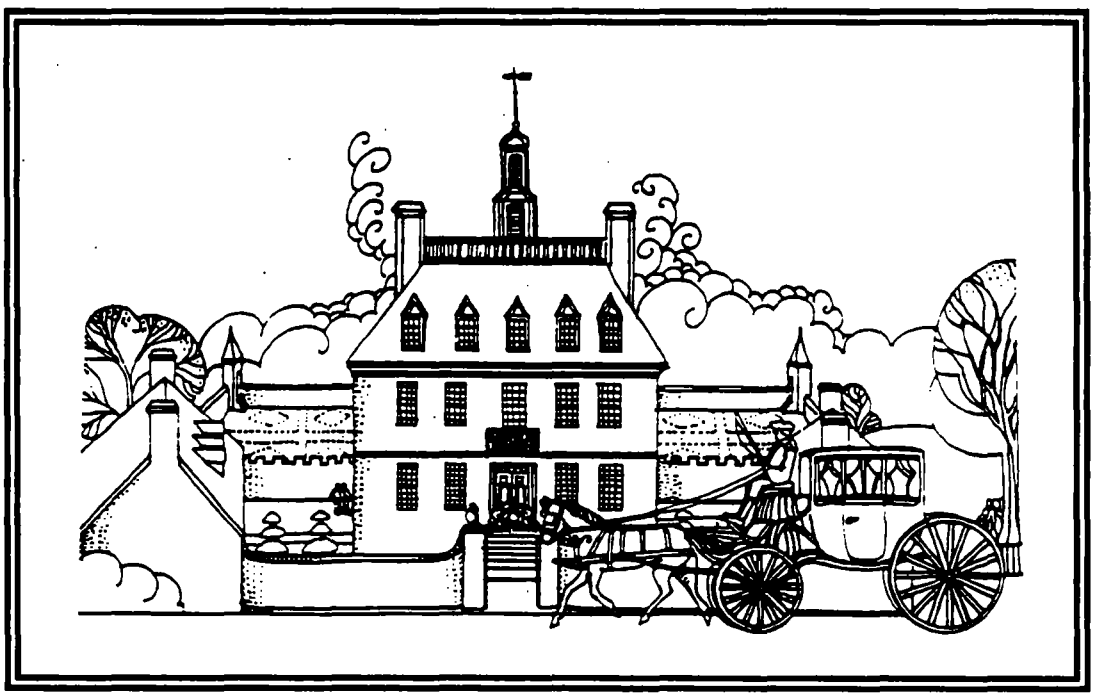
Charles F. Larson
Executive Director

CFL:krr
Enclosures
cc: F.P. Boer and M.R. Grucza

Industrial Research Institute

Fall Meeting
October 23-26, 1994

Meeting Technology Leaders' Challenges: Benchmarking Best Practices



Williamsburg Lodge
Williamsburg, Virginia

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

ACTION! INDUSTRIAL RESEARCH INSTITUTE • 1938

Industrial Research Institute, Inc.

August 12, 1994

To: IRI Member Company Representatives and Alternates

Subject: **CALL TO MEETING, SUNDAY TO WEDNESDAY, OCTOBER 23-26, 1994 WILLIAMSBURG LODGE, WILLIAMSBURG, VIRGINIA**

IRI Rep/Alts, Network members, company associates, emeriti, and program leaders are cordially invited to attend IRI's 1994 Fall Meeting.

Chuck Bishop's Program Committee has arranged an informal, highly interactive meeting that will offer a minimum of formal presentations and a maximum of opportunities to learn from each other in workshop formats. This change is in direct response to your suggestions from the IRI Mission Development Survey last fall.

Monday morning's session will feature several case studies on current efforts to measure and improve R&D effectiveness. Afternoon workshops will provide forums to share company successes or failures with processes to improve R&D effectiveness. Additional workshops on Tuesday morning will offer an opportunity to exchange ideas on how to reduce cycle time in the innovation process. Five Special Interest Sessions Wednesday morning will address a variety of topics of current interest to R&D directors. Dress for the sessions and workshops will be casual--suits, jackets, and ties are unnecessary for attendees as well as speakers.

The Preliminary Program, descriptions of Special Interest Sessions, tours, and optional events, information on lodging, travel, dining and recreation, a dining guide, a Dining and Recreational Request form, the room reservation request form, and the meeting Registration Form are enclosed. The hotel must have your room reservation form by September 23; your meeting Registration Form is due at IRI on October 7.

Social hours are scheduled each evening during the meeting. Group dinners will be held in the Lodge Sunday and Tuesday evenings (business attire for these dinners). On Monday, everyone can enjoy dinner at a restaurant or tavern of their choice--where dress is generally casual (except for the Williamsburg Inn).

A program focusing on the history and charm of Colonial Williamsburg has been arranged for IRI companions (whose ability to foster business relationships is recognized and appreciated). That program is being mailed to your home address (if it is on record at IRI headquarters), with a duplicate of the Registration Form for reference purposes.

Colonial Williamsburg, settled by British colonists in 1625, was the 18th-century capital of Virginia. It is a living museum of historic buildings, elegant colonial homes, peaceful gardens, and artistic fences, not to mention great antique shopping and excellent food. We look forward to seeing you there!

Cordially yours,

Chuck

Charles F. Larson
Executive Director

INDUSTRIAL RESEARCH INSTITUTE, INC.
Suite 1100, 1550 M Street, NW
Washington, DC 20005-1708

PRELIMINARY PROGRAM

Fall Meeting, October 23 - 26, 1994
Williamsburg Lodge, Williamsburg, Virginia

THEME: "MEETING TECHNOLOGY LEADERS' CHALLENGES: BENCHMARKING BEST PRACTICES"

A recent survey indicated that IRI Rep/Alts want additional networking opportunities to ***learn from each other*** *about the difficult issues facing them in managing technology. The IRI Fall Meeting will address this desire by offering learning and sharing opportunities focusing on the top management issues facing today's technology leaders. Two sessions will focus on metrics of R&D effectiveness. Another session will cover reducing cycle time from the lab to the marketplace. The meeting format will be different in that lectures will be minimal, and that benchmarking best practices with each other will be the main thrust of the meeting. Come prepared to share your experiences and learn!*

Saturday, October 22

3:00-5:30 pm	REGISTRATION DESK OPEN/OPTIONAL ACTIVITIES •Air Tours •Williamsburg Sampler	East Gallery

Sunday, October 23

	COMMITTEE MEETINGS*	
8:00-11:00 am	Pre-College Education	Room A
9:00 am-noon	Program	Room C
10:00 am-noon	Emeriti	Room D
9:00 am to 7:00 pm	REGISTRATION DESK OPEN	East Gallery
9:00 am to 5:00 pm	OPTIONAL ACTIVITIES (See descriptions on page 11. Indicate choices on Registration Form.) •Air Tours •Carter's Grove •Jamestown Island and Settlement •Williamsburg Sampler	
11:00 am to 2:00 pm	BRUNCH Enjoy brunch at a local restaurant (see Dining Guide)	

* All committee meetings, except Awards and Emeriti on Sunday, are open to any Rep/Alt/company associate/Emeritus. If you are not already on a committee, select one to observe.

Sunday, October 23 (continued)

COMMITTEE MEETINGS*

1:00-3:00 pm	Membership	Room A
	Plans & Policies	Room D
2:00-5:00 pm	Federal Science and Technology	North Ballroom
	International	Room E
	Research-on-Research	Tidewater
	University Relations	Room F
3:00-4:00 pm	Management Development Advisory	Dominion I
3:00-5:00 pm	Board of Editors	Dominion III
	R&D Communications	Dominion IV
4:00-5:00 pm	Seminar	Dominion II
4:30-5:30 pm	Awards	Dominion I
6:00-7:00 pm	DIRECTORS' RECEPTION FOR NEWCOMERS By invitation to new Rep/Alts and member prospects.	Rooms A/B/C
6:30-7:30 pm	SOCIAL HOUR	North Gallery
7:30-10:00 pm	GROUP DINNER Entertainment: "Live" from Williamsburg--Thomas Jefferson	Virginia Room

Monday, October 24

7:00-8:15 am	COMMITTEE BREAKFASTS	
	Emeritus Activity Group	Room B
	Federal Guests*	Tidewater
	Staff & Facilities Administration	Room A
	Study Groups for Experienced Leaders	Room E
	Study Groups for New Leaders	Room D
	*(Sign up at IRI Registration Desk)	
7:00 am to 5:30 pm	REGISTRATION DESK OPEN	East Gallery
7:30-8:30 am	Speakers' Breakfast	Room C
7:30-8:30 am	CONTINENTAL BREAKFAST	North Gallery

Monday, October 24 (continued)

8:30 am-noon OPENING SESSION Auditorium

Theme: MEASURING AND IMPROVING R&D EFFECTIVENESS

The competitive marketplace of the 90s requires increasing contribution of all functional groups, including R&D, to the attainment of business goals. This session will feature company case studies documenting efforts to improve R&D effectiveness and the measurements and processes used. The Research-on-Research Subcommittee will present the results of recent R&D effectiveness studies with an emphasis on the Technology Value Pyramid approach to selecting R&D metrics.

Co-Chairs:

John W. Jost
Vice President
Fred L. Hartley
Research Center
Unocal Corporation

Robert D. Wismer
Director
Engineering
Deere & Co.

Speakers:

Philip H. Francis
Vice President and Chief Technical Officer
Schneider N.A. / Square D Company

"Metrics For Evaluating Returns on Technology Investment"

Jerry D. Holmes
Vice President, Research
Eastman Chemical Company

"Doubling Research's Output Using TQM"

Ted M. Foster
General Manager, Electronics
Information and Sciences Division
Westinghouse Electric Corporation

"Enhancing the Effectiveness of R&D at Westinghouse"

James W. Tipping (Emeritus),
Alan R. Fusfeld (The Fusfeld Group), and
Eugene Zeffren (Helene Curtis)

"The Technology Value Pyramid"
(Report of the ROR R&D Effectiveness Subcommittee)

12:15-1:30 pm GROUP LUNCHEON, ACHIEVEMENT AWARD ADDRESS, AND BUSINESS SESSION Virginia

Achievement Award Address by:

Marinus Los
Director, Crop Science Discovery
Agricultural Research Division
American Cyanamid Company

Business Session

Executive Director's Report
Committee/Network Activities Reports

Monday, October 24 (continued)

2:00-5:00 pm **SESSION II--WORKSHOPS**

Theme: MEASURING R&D EFFECTIVENESS

Discussion groups will be organized according to company business sector. The objective is to provide an open forum in which to share company efforts on defining and using measurements of R&D effectiveness. This will include an assessment of the Technology Value Pyramid approach. Discussion leaders will summarize the deliberations of their group in the form of a description of metrics used and a preliminary assessment of the Technology Value Pyramid. Indicate which industry session you plan to attend on the registration form.

Workshop Co-Leaders:

Francis A. Daniher - Calgon Corporation
Lynn W. Ellis - Emeritus (Bristol Babcock, Inc.)
Ronald L. Glomski - The Dow Chemical Company
Thomas A. Manuel - Air Products & Chemicals, Inc.
Donald S. Mueller - Ashland Oil, Inc.
Trueman D. Parish - Eastman Chemical Company
John F. Tancredi - International Specialty Products
James W. Tipping - Emeritus (ICI Americas, Inc.)
George B. Vermont - Emeritus (Mallinckrodt Chemical, Inc.)
Robert S. Wood - Rohm & Haas Company
Eugene Zeffren - Helene Curtis, Inc.

6:00-7:00 pm	SOCIAL HOUR Hosted by Philip Morris U.S.A. and Reynolds Metals Company	Tazewell Court
7:00 pm	DINNER ON OWN Make your reservation now at one of the many local restaurants (see Dining Guide/Reservation Form)	
9:30-10:30 pm	GOVERNOR'S PALACE CONCERT (Pre-registration required)	Governor's Palace

Tuesday, October 25

7:00-8:00 am	COMMITTEE BREAKFASTS	
	Finance	Room A
	Membership (by invitation)	Room D
	Study Groups (by invitation)	Room E
	University Guests*	Room F
	(* Sign up at IRI Registration Desk)	
7:00 am to 1:30 pm	REGISTRATION DESK OPEN	East Gallery
7:00-8:00 am	CONTINENTAL BREAKFAST	North Gallery

Tuesday, October 25 (continued)

7:00-8:00 am	Speakers' Breakfast	Room C
8:00 am-noon	**SESSION III--WORKSHOPS**	Auditorium

Theme: REDUCING CYCLE TIME

As product life cycles shorten and technologies change faster than ever, what are the underlying principles for decreasing cycle time? Will some combination of them make a difference in the competitiveness of our companies? Workshops will begin as brainstorming sessions followed by a discussion of the most promising ideas. Conclusions will be generated and shared with the membership in Session IV Wednesday morning. Bring one or two techniques that you know work, or ideas you have that could work, as input for the session.

Co-Chairs:

Jean C. Bonney
Director, External
Research Program
Corporate Research
Digital Equipment Corp.

Michael G. Griffith
Vice President
R&D
Arco Chemical Co.

Keynote Speakers:

James M. Utterback
Professor of Management
Sloan School of Management
Massachusetts Institute of Technology

Marc H. Meyer
Walsh Research Professor, and
Associate Professor of Management
Northeastern University

Workshop Co-Leaders:

Joseph M. Colucci - General Motors Corp.
Neil H. Frick - PPG Industries, Inc.
D. Dennis Heard - Frito-Lay, Inc.
Joseph E. Hennessey - Armstrong World Industries, Inc.
D. Mark Kettunen - Kraft General Foods
George R. Kubanek - Noranda, Inc.
Patrick J. Marek - Nalco Chemical Co.
Sharell L. Mikesell - Owens-Corning Fiberglas Corp.
Malcolm G. Miles - BFGoodrich Co.
William L. Miller - Steelcase, Inc.
Richard A. Pearce - Black & Decker Corp.
Carl G. Seefried, Jr. - Olin Corp.
John H. Sullivan - Hoechst Celanese Corp.
Leonard R. Weisberg - Honeywell, Inc.
Karl H. Zaininger - Emeritus (Siemens Corporate Research, Inc.)

Tuesday, October 25 (continued)

Noon-1:30 pm	GROUP NETWORKING LUNCHEON	Virginia
Noon-5:00 pm	OPTIONAL ACTIVITIES (See descriptions on page 11. Indicate choices on registration form.) •Carter's Grove and Williamsburg Winery •Golf •Jamestown Island and Settlement •Landscape Nursery and Gardens •Tour of CEBAF (Continuous Electron Beam Accelerator Facility) •Williamsburg Sampler	
3:00-5:00 pm	CURRENT ISSUES SESSION (See description on page 10. If you plan to attend, indicate on registration form.) **New Models of University/Industry Interaction** **Discussion Leaders:** **J. Peter Bingham** President Philips Laboratories Philips Electronics N.A. Corp. **Jean C. Bonney** Director, External Research Program Corporate Research Digital Equipment Corp.	Room B
6:30-7:30 pm	SOCIAL HOUR	North Gallery
7:30-10:30 pm	AWARD DINNER (Business attire, not formal dress) **IRI Achievement Award Recipient:** **Marinus Los** Director, Crop Science Discovery Agricultural Research Division American Cyanamid Company Introduction by: **Mark W. Atwood** President Agricultural Research Division American Cyanamid Company	Virginia
9:45 pm	ENTERTAINMENT "Gentlemen of the College" (invited)	

Wednesday, October 26

7:00-8:00 am	COMMITTEE BREAKFAST Advanced Programs	Room A
7:00-8:00 am	CONTINENTAL BREAKFAST	North Gallery

Wednesday, October 26 (continued)

7:00-8:00 am	Speakers' Breakfast	Room C
7:00-11:30 am	REGISTRATION DESK OPEN	East Gallery
8:00-9:00 am	**SESSION IV** *Co-chairs of the breakout sessions will provide a synopsis of the Monday and Tuesday workshops.*	Auditorium

Measuring R&D Effectiveness

John W. Jost
Vice President
Fred L. Hartley
Research Center
Unocal Corporation

Robert D. Wismer
Director
Engineering
Deere & Co.

Reducing Cycle Times

Jean C. Bonney
Director, External
Research Program
Corporate Research
Digital Equipment Corp.

Michael G. Griffith
Vice President
R&D
ARCO Chemical Co.

9:15-11:30 am **SPECIAL INTEREST SESSIONS**

Co-Chairs:

D. Mark Kettunen
Director
Technical Strategy
Kraft General Foods

Richard J. Sphon
Senior Vice President
Corporate Engineering
Corning Incorporated

Session Titles: (See pp. 8-10. Indicate first and second choice on registration form.)

A. Global Management of Technology--IRI/MIT Survey Results — North Ballroom
E. R. Gilmont (Emeritus - Arthur D. Little)
L. A. Sheridan (ITW)

B. How Industry Can Interact More Effectively With Government — Tidewater
F. P. Boer (W.R. Grace)
A. H. Pettifor (Rockwell International)

C. R&D Database Project Findings (II)--Dare to Compare! — Room B
G. E. McGraw (Eastman Chemical)
A. S. Bean (Lehigh University)

D. Re-engineering R&D: Principles and Deployment — Room D
J. M. Davidson (BOC Group)
R. W. Wyndrum, Jr. (AT&T)

E. Effective R&D Reward and Recognition Systems — Room E
W. M. James (Procter & Gamble)
G. F. Farris (Rutgers University)

11:30 am	ADJOURNMENT	
11:45 am to 2:00 pm	BOARD OF DIRECTORS MEETING	Room C

Wednesday, October 26, 1994

SPECIAL INTEREST SESSIONS

9:15-11:30 am (Indicate first and second choices on Registration Form)

A. Global Management of Technology--IRI/MIT Survey Results

Discussion Leaders:

Ernest R. Gilmont
Emeritus
(Arthur D. Little, Inc.)

Lee A. Sheridan
Director of Research
ITW, Inc.

Panelist:

Eleanor Westney
Professor
Sloan School of Management
Massachusetts Institute of Technology

This session examines how IRI member companies are coping with the challenges of managing technology development in an era of global competition, based on responses to the recent IRI-MIT survey. The survey addressed strategies and management processes that help and hinder managers in building more international approaches to technology development in three types of companies: those with technology development centers outside the United States; those whose technical centers are all in the United States; and foreign owned or affiliated firms with technical centers in this country. The MIT research team will present the initial findings and implications for technology management, and SIS participants will have the opportunity to interact and provide insights from their own company and industry experience.

B. How Industry Can Interact More Effectively With Government

Discussion Leaders:

F. Peter Boer
Executive Vice President
W.R. Grace & Co.

Andrew H. Pettifor
Director, External Technology
Science Center
Rockwell International Corporation

IRI members have expressed concern that views widely accepted by industry are communicated to government only piecemeal and usually ineffectively. In view of this interest in a more active approach, this session will bring together senior government officials from the key agencies on IRI's Federal Government Liaison Council with a significant cross-section of IRI Rep/Alts to discuss ways that member companies can interact effectively with government on a basis of mutual trust and understanding. Some of today's hot issues will be discussed: streamlining CRADA's; getting value from the National Labs; Big vs. Small Science; targeting government R&D support; and the follow-up to the industry workshop on collaborative innovation during the IRI Annual Meeting in Palm Desert.

Wednesday, October 26, 1994 (continued)

C. R&D Database Project Findings (II) -- Dare to Compare!

Discussion Leaders:

Alden S. Bean
Professor, Mgmt. & Technology
Director, CIMS
Lehigh University

Gary E. McGraw
Vice President
Development
Eastman Chemical Co.

Panelist:

Roger L. Whiteley
Emeritus
(Bethlehem Steel Corporation)

How do you know whether your R&D is good enough? What questions does your CEO ask that you cannot answer because you do not have good data? Then attend this SIS and find out how information from IRI's second annual R&D survey (conducted in cooperation with the Center for Innovation Management Studies--CIMS--at Lehigh University) may help you. The survey results will be presented with a focus on R&D data in business sectors. Such data are unavailable anywhere else! Comparisons will be drawn between the new 1993 annual data and the previous 1992 annual data. The viability and versatility of this database to IRI members will be discussed. Participants will be asked to suggest ways to continue to increase the number of respondents each year, thereby making the database even more valuable.

D. Re-Engineering R&D: Principles & Deployment

Discussion Leaders:

Jeffrey W. Davidson
Director, Quality
The BOC Group

Ralph W. Wyndrum, Jr.
Director
Quality, Engineering, Software
AT&T Bell Laboratories

Two related activities within the Quality Directors' Network will be presented. During the first part of the session, Ralph Wyndrum will address the principles of re-engineering R&D and will provide examples thereof. The second part of the session will describe issues related to pervasively deploying the quality and re-engineering process throughout the organization and its embedded corporate cultures and practices.

Wednesday, October 26, 1994 (continued)

E. Effective R&D Reward & Recognition Systems

Discussion Leaders:

George F. Farris
Professor of Management
Graduate School of Management
Rutgers University

William M. James
Director, R&D Personnel
The Procter & Gamble Company

With a proliferation of reward, recognition, and award programs (RRA's) designed to motivate research professionals, questions arise as to their relative effectiveness. Which are the most important to research professionals? Which are the most attainable? Which are the most beneficial to the company? Are any dysfunctional? Do high performers perceive RRA's the same as average performers. Do managers agree with research professionals? These questions were investigated in a study of 1100 research professionals and managers in 30 companies. The study was developed jointly through collaboration of the IRI Human Resource Directors' Network, the ROR Committee, and the Technology Management Research Center at Rutgers University. Twenty-five different RRA programs were evaluated, including salary and other financial rewards, non-financial rewards such as dinner-for-two and other recognition events, team rewards, and intrinsic rewards. The results will be presented and their implications will be discussed in light of the current economic situation and re-sizing conditions.

Tuesday, October 25

3:00-5:00 pm **CURRENT ISSUES SESSION**

New Models for University/Industry Interaction

Discussion Leaders:

J. Peter Bingham
President
Philips Laboratories
Philips Electronics N.A. Corp.

Jean C. Bonney
Director, External Research Program
Corporate Research
Digital Equipment Corp.

There are few corporations that can afford to be technically self-sufficient today. The known facts are: new knowledge is being created at an ever-increasing speed, technology is advancing non-linearly, and budgets for R&E are decreasing. The slogan for the 90's is not "invented here," but " innovated here." The world is both a marketplace for new knowledge and technology, and a source of funding. You need to determine how to ride the tide of university and public-sector brain power as well as government and other industrial funding. Several task forces sponsored by the IRI University Relations Committee are looking at a variety of aspects of successful university relationships. One task force is exploring models of university/government/industry relationships, with the goal of creating and closely monitoring one or two new projects initiated by IRI members. A panel of industry and university experts in this session will review and verify practices that have worked in the past as well as models for the future. We'll expect lively participation from the expertise in the audience. The goal of this session is to generate additional ideas and to find topics and companies that could have interest in participating in a pilot project.

TOURS AND SPECIAL EVENTS

Meeting participants and guests are offered a choice of several tours and other optional functions. Buses will leave from the North Gallery exit of the Lodge. Walking tours leave from the IRI registration desk. Dress for all tours is casual. A brief description of each function follows. Pre-registration is required for all tours, the concert, and golf.

AIR TOURS
(3:15-4:45 pm Saturday; 10:00 -11:30 am or 2:30-4:00 pm Sunday)

The Peninsula Tour is a 35-minute flight that covers the entire historic triangle--Williamsburg, Jamestown, and Yorktown--with a spectacular view all the way to the Eastern Shore.
Cost: $ 55 (minimum/maximum 5 per plane)

The Civil War Tour is 55 minutes in duration and offers views of the area's major sites during that war.
Cost: $ 75 (minimum/maximum 5 per plane)

WILLIAMSBURG SAMPLER
(3:30-5:00 pm Saturday; 9:30-11:00 am or 2:00-3:30 pm Sunday; 1:00-2:30 pm Tuesday)

This is a walking introduction to Colonial Williamsburg for those who have never been to CW or want a refresher course.
Cost: $ 10 (minimum 15/maximum 40)

CARTER'S GROVE AND WILLIAMSBURG WINERY
(1:30-5:00 pm Sunday)

Four hundred years of history will be seen on this tour. After visiting Carter's Grove, the next stop is the Williamsburg Winery where a tour, the tasting of several wines, and crackers with cheese will be offered.
Cost: $ 30 (minimum 35/maximum 45)

JAMESTOWN ISLAND AND SETTLEMENT
(1:00-5:30 pm Sunday or Tuesday)

A presentation by the director of archaeological fieldwork for the Jamestown Assessment Project, which is the work of Colonial Williamsburg, the College of William and Mary, and the Virginia Institute for Marine Science, in cooperation with the National Park Service, will begin our tour.
Cost: $ 35 (minimum 40/maximum 45)

GOVERNOR'S PALACE CONCERT
(9:30-10:30 pm Monday)

Presented will be vocal and instrumental music of the 18th century, reminiscent of Thomas Jefferson's entertaining days.
Cost: $ 10 (minimum 80/ maximum 110)

LANDSCAPE NURSERY AND GARDENS
(2:00-5:00 pm Tuesday)

Ride a CW bus for a short trip to the landscape nursery where manager Susan Woodall will conduct an hour's tour with insights into the research undertaken for the validation of the 18th century plants found in Colonial Williamsburg. Then it's on the bus again for a quick trip back to CW to begin the garden tour that will conclude at the Lodge.
Cost: $ 15 (minimum 25/maximum 40)

CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY (CEBAF)
(2:00-4:30 pm Tuesday)

Located in nearby Newport News, CEBAF is a basic research laboratory built to probe atomic nuclei and learn more about the quark structure of the atom. This unique facility uses superconducting radio frequency niobium cavities to accelerate electrons that are used to probe the nuclei. A thousand physicists from around the world will use the facility to conduct experiments. CEBAF is also dedicated to partnering with industry for joint technology development and transfer. The one and one-half hour visit to CEBAF includes a brief introduction to the laboratory and its mission, and tour of the fabrication facilities, test laboratories, and open experimental areas. During your visit, CEBAF will be conducting its first physics run for the collection of experimental data. (No charge.)

HOTEL ACCOMMODATIONS

A room reservation form is attached, indicating the choice of accommodations available at Colonial Williamsburg. All of our committee meetings, general sessions, workshops, and group meals will be held at the Williamsburg Lodge and Conference Center. The rooms closest to the Lodge are in the West Wing, South Wing, East Wing, Main Lodge, and Tazewell Wing. The Williamsburg Inn, a Mobil Five-Star hotel offering early-American charm, is across the street and down a block. The Providence Hall Wing offers modern amenities just beyond the Inn. Those few who want an unusual experience should select a Tavern or Colonial House room (23 are available). These rooms are small, but if you enjoy Americana, you will love it. They are in the restored area only a few minutes' walk from the Lodge.

If you plan to attend the meeting, or believe there is a possibility of attending, fill in the reservation form, enclose your deposit for the first night's lodging, and mail it to the hotel for arrival by September 23. (Make your reservation early to get your choice of room, as there is a limited number in each category.) A confirmation of your reservation will be sent to you promptly. Rooms set aside for IRI, but not requested by Friday, September 23, cannot be held in our block. Your deposit will be returned in full if a cancellation is received by the hotel before 1 p.m. the day prior to arrival. For information on reservations, call 804-229-1000, extension 5200 (or 800-HISTORY).

TRAVEL

Williamsburg is 150 miles south of Washington, D.C. and about midway between Richmond and Norfolk, just off I-64. A highway map is shown on the back of the enclosed leaflet; a more detailed map of the immediate Williamsburg area is attached.

Three airports serve Williamsburg--Newport News/Williamsburg International (the closest), Norfolk International, and Richmond International. Norfolk and Richmond are about the same distance. A sheet describing airport limousine services is attached.

DINING

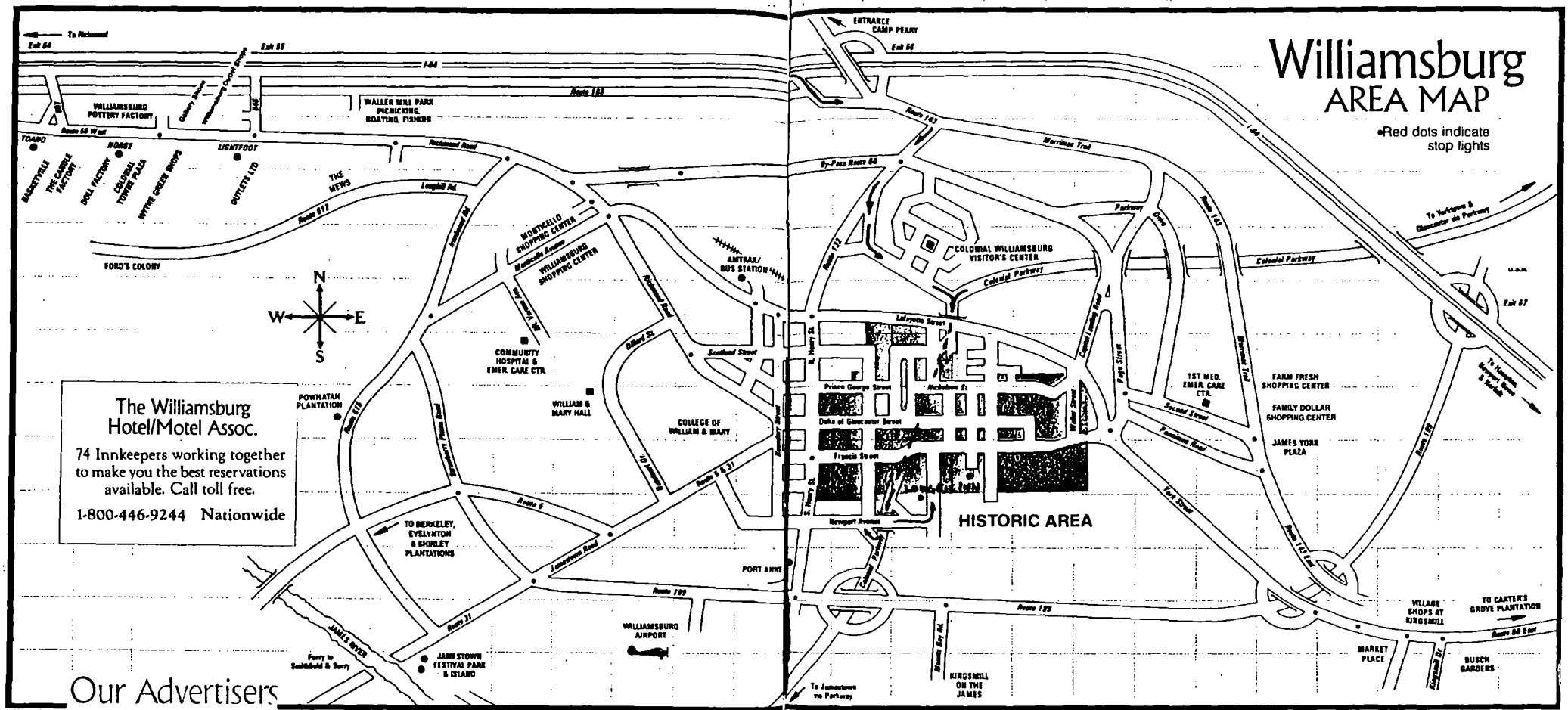
A guide to dining in Williamsburg is attached, along with a form for making dining and recreation reservations in advance. The form should be mailed well in advance.

PHYSICAL FITNESS AND RECREATION

The Tazewell Fitness Center, located in the Williamsburg Lodge, offers a complete line of Keiser and cardiovascular exercise equipment, a 60-foot indoor lap pool, aerobic classes, whirlpool, steam, and sauna.

The Golden Horseshoe Golf Course, designed by Robert Trent Jones, is ranked among the best in the world. Tee times have been reserved from noon to 1:30 p.m. Tuesday afternoon for casual play (no tournament). Tee times and foursomes will be posted at the IRI registration desk. If you wish to play at some other time, use the Williamsburg Dining and Recreational Request form. Do not use the form to reserve a tee time for Tuesday afternoon if you have requested golf on the IRI registration form.

Four tennis courts have been reserved for Tuesday afternoon, beginning at 1:00 p.m. If you wish to reserve a court on Tuesday afternoon or at other times during the meeting, use the Dining and Recreational Request form and sign for the charge at the Tennis Pro Shop.



DINING

SHOPPING

SERVICES

ATTRACTIONS / RECREATION

AIRPORT/LIMOUSINE TRANSPORTATION SERVICES

Richmond International Airport - 45 minutes west of Colonial Williamsburg. United, Delta, US Air, TWA, American. (Pick-up and return from all hotels.) (804) 226-3052.

Norfolk International Airport - 50 minutes east of Colonial Williamsburg. United, Delta, US Air, TWA, American, Continental, Northwest. (Pick-up and return from all hotels.) (804) 857-3351.

Newport News/Williamsburg International Airport - 25 minutes east of Colonial Williamsburg. United, US Air, American (Pick-up and return from all hotels. Advance one-day reservation required.) (804) 877-0221.

Williamsburg-James City County Airport - 5 minutes away from Colonial Williamsburg. This airport is for private, corporate and charter aircraft. This airport will accommodate most private propeller and small jet aircraft. (804) 229-9256.

***

VIP & Celebrity Limousines, Inc.

PHONE: (804) 220-LIMO (5466) (A Pre-Scheduled Special Limousine Service) Non-stop, direct service with exclusive use of vehicle. A 15% gratuity is normal. Individual or group pick-ups at airports and hotels are based on a pre-determined arrival and departure schedule. All rates quoted are per trip, for up to specified hours and airport fees.

	Richmond and Norfolk	Newport News
Private Limousine:	$ 90 (2 hours), $ 5.50 fee	$ 60 (1 hour)
Town Car:	$ 70 (2 hours), $ 5.50 fee	$ 45 (1 hour)
Mini Bus:	$180 (4 hours), $10.00 fee	$160 (3 hours)
Individual Cost:	None	$ 15 per person, one way $ 28 when purchasing a round-trip shuttle ticket

Prestige Limousine Service/Carefree Tour & Travel, Inc.

PHONE: (804) 874-7771 (A Pre-Scheduled Special Limousine Service) Non-stop, direct service, with exclusive use of vehicle.

	Richmond and Norfolk	Newport News
Private Limousine:	$100 from (1-6) each way	$60 from (1-6) each way $40 per hour, 3 hours minimum
Town Car:	$ 85	$50 from (1-4) each way $35 per hour, 3 hours minimum

Groome Transportation

PHONE: (800) 552-7911 or (804) 222-7222 (A Regularly-Scheduled Airport Limousine Service) Meets all incoming flights. Return service is available by advance reservation for pick-up at your hotel **two hours prior** to flight time departure **on the half-hour**. Individual Cost: $21 one way, $42 round trip (1 person) / $14 (2 people or more, per person). Private rate for 1 or more people to Richmond or Norfolk: $92 plus gratuity.

Williamsburg Limousine

PHONE: (804) 877-0279 (A Regularly-Scheduled Airport Limousine Service) Meets all incoming flights. Return service is available by advance reservation for pick-up at your hotel **the evening before** flight time departure. Individual Cost: $27 round trip, per person / $15 each way, per person / Free: Children under 2 / Half Price: Children under 11. Private rate for 1-4 people to Richmond or Norfolk: $50 plus 15% gratuity.

Norfolk Airport Shuttle

PHONE: Peninsula-(804) 877-9477 / Others-(804) 857-1231

Daily departure schedule to all Williamsburg hotels from the airport, and scheduled departure time by reservation from Williamsburg for return to the airport. Must identify parties of 2 or more persons; 1 person must pay bill. Individual Cost: $21 one way, each person / $42 round trip; 2 or more $14 each.

ALL PRICES ARE SUBJECT TO CHANGE

REV.4/92

IRI GUIDE TO DINING IN WILLIAMSBURG

(Make your dining reservations well in advance!)

THE BAY ROOM AT THE WILLAMSBURG LODGE (804-229-2141)

310 S. England Street

Seafood lovers won't want to miss the famous Chesapeake Bay Festival on Friday and Saturday nights. Choice Black Angus New York strip steak is on the nightly menu. An extensive and economical lunchtime buffet makes the Lodge a popular choice for visitors and local residents alike.

THE CASCADES (804-229-2141)

104 Visitor Center Drive

Enjoy the view of the sparkling waterfall cascading down a wooded hillside. Lunches and dinners range from seafood specialties to southern braised quail and tender filet mignon.

CHRISTIANA CAMPBELL'S TAVERN (804-229-2141)

120 Waller Street

This tavern was known as George Washington's favorite as Christiana Campbell provided the best food and drink in town. Try some of the delicious fresh regional dishes like spicy jambalaya and fresh broiled seafood accompanied by sweet potato muffins and you will see why.

JAMES SHIELDS TAVERN (804-229-2141)

417 Duke of Glouscester Street

One of the oldest taverns in town during the 18th Century, it is now one of Colonial Williamsburg's newest. Try the sampler of 1770's foods made from the original recipes or taste the peppercorn steak, baked stuffed pork chops with apple fritters or split-roasted barnyard chicken.

JOSIAH CHOWNING'S TAVERN (804-229-2141)

100 East Duke of Gloucester Street

This is a true Virginia-style alehouse which, as in colonial times, is still popular with local residents. Try the Brunswick stew or barbecued ribs followed by the homemade black walnut ice cream. After the dinner hour, you can enjoy gambols-those 18th century games-and strolling balladeers.

THE KING'S ARMS TAVERN (804-229-2141)

136 E. Francis Street

Known in colonial time as Williamsburg's most genteel establishment or "where the best people resorted," this tavern still serves the best people--you. Try the Sally Lunn bread, peanut soup and the hearty colonial version of chicken pot pie.

THE REGENCY ROOM AT THE WILLIAMSBURG INN (804-229-2141)

136 E. Francis Street

This elegant dining room is located in the Mobil Five-Star Inn and is a constant winner of Travel Holiday Magazine's Fine Dining Award. Specialties include crabmeat Randolph and chateaubriand, carefully prepared by European-trained chef Hans Schadler and his staff.

8/12/94

DINING AND RECREATIONAL REQUESTS

COLONIAL WILLIAMSBURG

P. O. Drawer 1776
Williamsburg, VA 23187-1776
(804) 229-1000

Name. _____
Address _____
Telephone _____ Arrival Date _____
Hotel o Williamsburg Inn o Williamsburg Lodge o Williamsburg Woodlands o Governor's Inn

To give our guests special priority for dining, golf, and tennis reservations, we ask that you indicate specific dates, times, numbers, and other necessary details. Our dining rooms enjoy excellent local patronage, and because we wish to accord you top priority, ADVANCE RESERVATIONS ARE A MUST! If the times you request are not available, we will assign the best alternative. Please take a moment to make your reservations now.

DINING IN COLONIAL WILLIAMSBURG:
In the event you are unable to honor your dining reservations, please notify dining reservations at 1-800-TAVERNS. Please note that dinner is offered at the Williamsburg Lodge Coffee Shop and the Woodlands Grill on a first-come, first-serve basis.

WILLIAMSBURG INN REGENCY ROOM
WILLIAMSBURG LODGE DINING ROOM
CASCADES RESTAURANT
CHRISTIANA CAMPBELL'S TAVERN
KING'S ARMS TAVERN
CHOWNING'S TAVERN
SHIELDS TAVERN

Dates Desired		Restaurant Desired	Times Desired First Choice	Times Desired Second Choice
_____	at	_____	_____	_____
_____	at	_____	_____	_____

Number in your party _____

GOLF - (Course opens at 8:00A.M., weather permitting)

GOLDEN HORSESHOE CHAMPIONSHIP COURSES
Gold Course Championship, 18 hole, 6,700 yards (Robert Trent Jones, designer)
Green Course Championship, 18 hole, 7,120 yards (Rees Jones, designer)

SPOTSWOOD GOLF COURSE
Executive length, 9 hole, 1,880 yards (Robert Trent Jones, designer)

Dates Desired		Golf Course		Number in Party		Time Desired		Time Desired
_____	on	_____	for	_____	1st Choice	_____	2nd Choice	_____
_____	on	_____	for	_____	1st Choice	_____	2nd Choice	_____
_____	on	_____	for	_____	1st Choice	_____	2nd Choice	_____

If you wish to join a foursome, we will match your request with our reservations. Please call the Pro Shop (ext. 3120) upon your arrival to confirm your starting times.

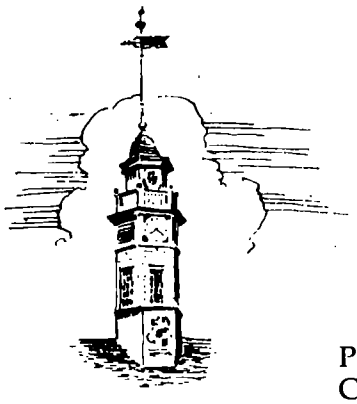
TENNIS - (Courts open at 8:00A.M., weather permitting. Recognized tennis attire required)

Dates	Time	Number of Courts	Singles/Doubles
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please call the Pro Shop (ext. 7794) upon your arrival to confirm your starting times.

Please remember to cancel any unneeded golf and tennis reservations at least twenty-four hours in advance so they will not be charged to your account. A complete line of golf and tennis rental is available, as well as the latest in fashion and equipment.

Please return this form to Colonial Williamsburg Reservations or call us for detailed information. Thank you.



Colonial Williamsburg

HOTEL PROPERTIES, INC.

P. O. BOX 1776 • WILLIAMSBURG, VIRGINIA 23187-1776

Please use the form below to secure overnight reservations for your meeting at Colonial Williamsburg. Mail it directly to the Group Reservations Manager.

Rooms for this meeting are reserved in the hotels shown below. Each reservation request must be accompanied by a deposit equal to the first nights' lodging per room and must be received by us no later than **SEPTEMBER 23, 1994** in order to secure reservations. Any unused rooms reserved for this meeting will be opened for sale to regular visitors after that date. When requesting reservations, please note arrival and departure dates carefully. *Late arrival or early departure causes forfeiture of deposit, unless cancellation or changes are made by 1 P.M. the day prior to arrival.*

Every effort will be made to accommodate early arrivals; however, since the checkout hour is 12 NOON at all our hotels, rooms may not be available until mid or late afternoon.

PLEASE MAKE CHECKS PAYABLE TO: COLONIAL WILLIAMSBURG HOTEL PROPERTIES, INC.

RESERVATION REQUEST FORM

Group Reservations
C. W. Hotel Properties, Inc.
P. O. Box 1776
Williamsburg, Virginia 23187-1776
(804) 229-1000, ext. 5200
1-800-HISTORY

INDUSTRIAL RESEARCH INSTITUTE
OCTOBER 23-26, 1994
(IRI94)

Please check for our information:
- ☐ New Request
- ☐ Confirming Phone Call
- ☐ Change in Previous Request

WILLIAMSBURG INN:	SINGLE OCCUPANCY $220.00___	DOUBLE OCCUPANCY $220.00___
INN/PROVIDENCE HALL:	SINGLE OCCUPANCY $170.00___	DOUBLE OCCUPANCY $170.00___
INN/COLONIAL TAVERNS:	SINGLE OCCUPANCY $170.00___	DOUBLE OCCUPANCY $170.00___
INN/COLONIAL HOUSES:	SINGLE OCCUPANCY $170.00___	DOUBLE OCCUPANCY $170.00___
LODGE/TAZEWELL WING:	SINGLE OCCUPANCY $170.00___	DOUBLE OCCUPANCY $170.00___
LODGE/WEST WING:	SINGLE OCCUPANCY $170.00___	DOUBLE OCCUPANCY $170.00___
LODGE/SOUTH WING:	SINGLE OCCUPANCY $130.00___	DOUBLE OCCUPANCY $130.00___
LODGE/MAIN/EAST WINGS:	SINGLE OCCUPANCY $130.00___	DOUBLE OCCUPANCY $130.00___

To guarantee your room, please circle one of the following:

MASTER CARD VISA AMERICAN EXPRESS DISCOVER CHECK

CC # _____ Exp. Date _____

***PLEASE NOTE:** Deposit guaranteed by credit card will be charged at time request is received.

EXTRA PERSON CHARGES:

Inn Complex	$12.00
Lodge Complex	12.00
Williamsburg Woodlands	8.00

I shall arrive in Williamsburg _____ and depart _____

Check in the amount of

$ _____ attached

Telephone No._____

Date Mailed _____

Name _____
(Please Print)

Address _____

_____

_____

IRI FALL MEETING, WILLIAMSBURG LODGE, OCTOBER 23-26, 1994

REGISTRATION FORM

(Type or print in black ink -- due October 7)

NAME_____ TITLE_____
(Circle one) Dr. Mr. Mrs. Ms. Prof.

COMPANY_____ADDRESS_____

CITY_____STATE_____ZIP_____ PHONE _____FAX _____

HOME ADDRESS_____ HOME PHONE_____

Check here if this is your FIRST IRI meeting_____ Will a companion accompany you? Yes_____No_____

Companion's FIRST meeting? Yes___ No___ Preferred FIRST Name: Yours_____ Comp._____

ARRIVAL Date_____ Time (approx.)_____ DEPARTURE Date_____ Time (approx.)_____

ADVANCE PAYMENT: Circle the appropriate dollar amounts below and provide credit card number or enclose a check payable in U.S. dollars to "Industrial Research Institute" or "IRI" for total amount due.

	FGLC	COMPANION
REGISTRATION		
On or before October 7	$195	$60
TOURS/ACTIVITIES (check time preferred where there is a choice)		
Civil War Air Tour (Sat. pm____; Sun. am___; Sun. pm___; Tues. pm_____)__	75	75
Peninsula Air Tour (Sat. pm____; Sun. am___; Sun. pm___; Tues. pm_____)__	55	55
Williamsburg Sampler (Sat. pm____; Sun. am___; Sun. pm___; Tues. pm___)__	10	10
Carter's Grove/Winery (Sun. pm___; Tues. pm_____)_____	35	35
Jamestown Island/Settlement (Sun. pm___; Tues. pm_____)_____	35	35
James River Plantations (Mon. am)_____	NA	55
People of the Past (Mon. am____; Tues. am_____)_____	NA	10
Virginia Dried Flower Workshop (Mon. pm_____; Tues. am_____)_____	NA	45
Governor's Palace Concert (Mon. pm)_____	10	10
Landscape/Nursery/Gardens (Tues. pm)_____	15	15
Costume Design (Wed. am)_____	NA	10
Folk Art Center (Tues. pm__; Wed. am__)_____	NA	10
Golf (Tues. pm)_____	85	85
GROUP MEALS (Check choice of dinner entree on Sunday and Tuesday)		
Sunday Dinner (Baked Flounder with pecans_____; Prime Rib_____)_____	50	50
Monday Luncheon (Achievement Award Address; Business Session)_____	20	20
Tuesday Networking Luncheon_____	20	20
Tuesday Award Dinner (Snapper w/crab____; Mignons of Veal & Beef____)___	50	50
TOTALS $_____	+ $_____	= $_____

COMPLIMENTARY

NA=Not Available

Note: Meal and tour tickets refundable only if cancellation is received by October 14.

COMMITTEE MEETING(S) ATTENDANCE (From list on back, indicate those you will attend):_____

I WILL ATTEND THE FOLLOWING INDUSTRY WORKSHOP Monday, 2 pm Chemicals ☐ Health Care ☐
Energy/Fuels ☐ Consumer/Food ☐ Computing/Electronics ☐ Durable Goods/Manufacturing ☐
Engineering/Construction ☐ Materials ☐ Automotive/Transportation/Aerospace ☐

I WISH TO TOUR THE CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY Tuesday, 2-4:30 pm_____

I WILL ATTEND CURRENT ISSUES SESSION Tuesday, 3-5 pm (Maximum 50)_____

SPECIAL INTEREST SESSIONS Attendance limited to 40 at each session. Circle one choice on each line.

Wednesday, 9:15 -11:30 am	(1st choice)	A	B	C	D	E
	(2nd choice)	A	B	C	D	E

☐ Please check here if you require special accommodation to fully participate. Attach a written description of needs.

Method of Payment: Check encl. payable to IRI ☐ Check coming ☐ AMEX ☐ MasterCard ☐ Visa ☐

Card #_____Exp. Date_____Signature_____

(For office use only)

RETURN TO: **INDUSTRIAL RESEARCH INSTITUTE, INC.**, Suite 1100
1550 M Street, NW, Washington, DC 20005-1708
to arrive by October 7, so your name can be included
on the EXPECTED ATTENDANCE LIST

REP____ALT_____
CO. ASSOC._____
IRI GUEST___FGLC

COMMITTEE MEETINGS		DAY, TIME
APC	Advanced Programs	Wednesday, 7-8:00 am
*AWARDS	Awards(Committee members only)	Sunday, 4:30-5 pm
BOE	Board of Editors	Sunday, 3-5 pm
EAG	Emeriti Activity Group	Monday, 7-8:15 am
*EMERITI	Emeriti (Committee members only)	Sunday, 10-12 noon
FST	Federal Science & Technology	Sunday, 2-5 pm
INTL	International	Sunday, 2-5 pm
MDAC	Management Development Advisory	Sunday, 3-4 pm
MEMB	Membership	Sunday, 1-3 pm
PPC	Plans & Policies	Sunday, 2-5 pm
PCE	Pre-College Education	Sunday, 8-11 am
PROG	Program	Sunday, 9-12 noon
RDC	R&D Communications	Sunday, 3-5 pm
ROR	Research-on-Research	Sunday, 2-5 pm
SEM	Seminar	Sunday, 4-5 pm
SG:EL	Experienced Leaders (ASG)	Monday, 7-8:15 am
SG:NL	New Leaders (MSG)	Monday, 7-8:15 am
URC	University Relations	Sunday, 2-5 pm

*Open to Committee Members only

CURRENT ISSUES SESSION **Tuesday, 3-5 pm (maximum of 50)**

New Models of University/Industry Interactions

SPECIAL INTEREST SESSIONS **Wednesday, 9:15-11:30 am (maximum of 50 in each)**

A **Global Management of Technology--IRI/ MIT Survey Results**

B **How Industry Can Interact More Effectively With Government**

C **R&D Database Project Findings (II)--Dare to Compare!**

D **Re-Engineering R&D: Principles and Deployment**

E **Effective R&D Reward and Recognition Systems**

Suite 1100 • 1550 M Street, NW • Washington, DC 20005-1708
Tel. (202) 872-6350 • Fax (202) 872-6356

Industrial Research Institute, Inc.

335 Douglas Lane
Cedarburg, Wisconsin 53012

August 12, 1994

Dear Friends,

Crisp days; cool nights; gold, red, orange, and yellow colors everywhere you look; the scent of burning leaves and apple cider; these are some of the things that await those who join us at the IRI Fall Meeting in Colonial Williamsburg, October 23-26, 1994. If you have been to Williamsburg before, you know what a wonderful place it is to visit. And if this is your first trip, be prepared for a truly unique experience. The area offers such historic sites as:

- Jamestown, the site for the first permanent English colony established in the U.S. in 1607.
- Colonial Williamsburg historic area where people "walk the walk" and "talk the talk" of life two hundred years ago.
- College of William and Mary, the second oldest college in the U.S., where Presidents Jefferson, Monroe, and Tyler studied.
- Berkeley Plantation, where President William Harrison was born, Abraham Lincoln visited, and General McClellan's army encamped during the Civil War.
- Museums such as the Rockefeller Folk Art Center, Rockefeller Archaeology Museum, and DeWitt Wallace Decorative Arts Gallery.

We have arranged a variety of interesting tours and activities to expose you to the sights and sounds of colonial times. Included are several "behind the scenes" tours not normally available to visitors of Williamsburg. Be sure to take advantage of these opportunities to learn more about the area and life in those times. Review the enclosed information on activities and make reservations early, as tickets are limited in some instances.

I must warn you that Williamsburg is meant for walking, so comfortable shoes and clothing are mandatory. Also, since we will be there in late October, the weather should definitely be autumn-like, with cool days and cooler nights. Dress accordingly.

Our group dinners on Sunday and Tuesday will be held at the Williamsburg Lodge, with business attire as the appropriate dress. Monday evening will be free for dinner at one of the many "taverns," including one that George Washington frequented. A candlelight concert in the Governor's Palace has been arranged for after dinner that evening.

Join us in Williamsburg this October. It is a wonderful opportunity to see old friends and make new ones!

Sincerely,

Yvonne Bishop
(Mrs. Charles J. Bishop)

YB:pt
Enclosures: Companion Program
Duplicate Registration Form
Dining Guide
Tour Leaflets (3)