Lawrence Livermore Laboratory

HAWAII TECHNOLOGY UTILIZATION EXPERIMENT

David W. Dorn and Charles F. Miller

December 8, 1976

This is an informal report intended primarily for internal or limited external distribution. The opinions and conclusions stated are those of the author and may or may not be those of the laboratory.

Prepared for U.S. Energy Research & Development Administration under contract No. W-7405-Eng-48.

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

HAWAII TECHNOLOGY UTILIZATION EXPERIMENT

NOTICE
This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Energy Research and Development Administration, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

INTRODUCTION

Under the Technology Utilization Program of the Energy Research and Development Administration (ERDA), Technology Utilization Representatives were selected at six ERDA laboratories to serve as points of contact and to assist industry and state and local government officials seeking to utilize ERDA developed methodology. At the Lawrence Livermore Laboratory (LLL), this function was assigned to the Technology Applications Group (TAG).

As part of the LLL effort, a one-year experiment was begun in August 1975 to test the effectiveness of various information transfer methodologies for linking federal sources to civilian receptors for technology transfer. The State of Hawaii was selected as the location for testing these methodologies. Hawaii was chosen because it represents a compact and relatively self-contained socioeconomic system for which data, technological needs and response to technology transfer efforts could be identified in a short time.

The experiment called for week-long field trips to Hawaii by Technology Transfer teams every two months for a one-year period. At the end of this time, the results were to be assessed and actions initiated to continue the technology transfer activities that were warranted.

SUMMARY OF VISITS

In all, six visits were made to the State of Hawaii. Initially, efforts were focused on the Hawaii State Government (administrative branch), the various city/county administrations, the University of Hawaii, and appropriate industrial groupings. As time went on, the emphasis shifted to the city/county administrations and departments.

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED *EB*

As it developed, most of the effort was to assist the Hawaii entities in establishing information contacts with the appropriate Mainland technology sources. Initially, the LLL effort was to serve as an information channel between the ERDA technology centers and Hawaii. However, it soon became apparent that the users had much broader problems than just energy and that the capabilities of the ERDA laboratories were not sufficient. The breadth of questions is illustrated in Appendix A. Therefore, we broadened our technology resource base to include the Federal Laboratory Consortium, and relied heavily on their support in non-energy areas. In addition, the California Innovation Group was of great assistance in identifying relevant experience in other local jurisdictions (primarily cities). Appendixes B and C describe the Federal Laboratory Consortium and the California Innovation Group.

During the first visit, in August 1975, the general areas visited included the State of Hawaii Department of Planning and Economic Development, the University of Hawaii, the Hawaiian Environmental Science Laboratory, the Office of Environmental Quality Control/State of Hawaii, the U. S. Small Business Administration, representatives of business in Hawaii, the Chamber of Commerce, the Department of Public Works - City/County of Honolulu, and the Department of Transportation - State of Hawaii. This visit served to introduce us to some of the potential technology recipients and to make us aware of some of the realities of operating in Hawaii. David Jones, manager of the Hawaii Technological Information Center of the Department of Planning and Economic Development, turned out to be central to our efforts. Jones has been involved in technological information dissemination in Hawaii since 1972 and has developed many contacts. Thus, his introductions and suggestions made our efforts much more effective. Similarly, Dean John Shupe of the University of Hawaii guided our work with members of the University community.

During the second trip to Hawaii, we continued the initial contacts and made new ones. We also broadened our base by making visits to the counties of Hawaii and Maui. Our primary contact on the island of Hawaii was Clarence Garcia, director of the Department of Research and Development for the county. He was then, and continued to be, central to our work there. On the island of Maui (the county of Maui includes the islands of Maui, Molokai, and Lanai),

we worked through Art Fernandez, Federal Program Coordinator, and Ralph Masuda, Planning Department. As we did on Oahu, we met with both county officials and with representatives of private industry. On our second visit to Hawaii, questions were more specific and we were able to address identifiable problems. We had hoped to focus on energy questions. However, we found that undue emphasis on this aspect reduced our effectiveness and that we really needed to offer a general "problem solving" approach which encompassed much broader areas than energy alone.

As a result of the lessons learned in our second visit, for our third visit we included Jerry Miller on the team. Jerry was half-time Science Advisor for the City of San Diego, is the Technology Transfer Representative for the U. S. Naval Electronics Laboratory Center (NELC), and is active in the Federal Laboratory Consortium. Thus, by background and training, he is able to respond to the many requests for non-energy information. In addition to our previous contacts, we spent time with the ERDA office in Honolulu, the State of Hawaii Department of Health, the Honolulu Fire Department, the Honolulu Department of Parks and Recreation, the Honolulu Police Department, the Honolulu Managing Director's Office, the Hawaii State Department of Defense, the Naval Underseas Center in Kailua, and the Dole Pineapple Company. The inclusion of Jerry Miller on the team made our visit much more useful. The success of this visit encouraged us to think about sponsoring various workshops and symposia aimed at technology transfer in general. There was also the possibility of a workshop, run by the Navy, on Public Works Management and Maintenance.

For the fourth visit, the team again included Jerry Miller. Additional organizational contacts were the Oceanic Foundation; Senator T. C. Yim, Chairman of the Hawaii State Energy Committee; Xtermco; the Hawaiian Electric Company; State of Hawaii Department of Transportation - Highways Division; the Hawaiian Sugar Company; the Hawaii Island Chamber of Commerce; the Hawaii Island Japanese Chamber of Commerce; and the W. A. Hirai and Associates, Inc. During this visit, we firmed up Hawaii's participation in the two-day Navy seminar on Public Works Management and Maintenance scheduled for March 17 and 18, 1976. We also acted as "advance man" for a visit to Hawaii by Anthony Vergari, Assistant Manager of ERDA's San Francisco Operations Office (SAN).

His visit marked increased emphasis by the SAN Office on establishing an ERDA presence in Hawaii. Plans for the Hawaii Solar Workshop were discussed with the principals at the University of Hawaii and we offered to arrange for ERDA support in the form of a speaker and printed material. Finally, plans for three Technology Transfer Workshops, to be held in April on Hawaii, Maui, and Oahu, were made.

The fifth visit (April 1976) was by Dave Dorn, Chuck Miller, and Bob Purington, all of LLL; Del DeLaBarre, California Innovation Group; George Linsteadt, Naval Weapons Center, China Lake; Jerry Miller, Naval Electronics Laboratory Center; and Al Sjöholm, Navy Personnel R&D Center. The Technology Transfer Workshops were held in Hilo, Hawaii; Wailuku, Maui; and Honolulu, Hawaii. The workshops were all-day sessions directed toward City/County officials and employees and some representatives from private industry. Attendance ranged from 15 (Maui) to over 45 (Honolulu).

In response to interest expressed by the City/County of Honolulu in another, follow-on Technology Transfer Symposium, the workshop team developed guidelines to be followed for any such effort. The recommendations were that a local chairman should be appointed and that a minimum of three months be allowed for planning and preparation. We were also asked to advise Honolulu's Deputy City Manager on the possibilities and methods of establishing a full-time science and technology activity within the City and County of Honolulu. Appendix D is a summary reply to that request. During this visit, we participated in the Hawaii Solar Workshop where Richard DuVal, Director, Office of Program Coordination and Management - Energy Programs, ERDA/SAN, presented a talk on ERDA's Regional Activities.

The sixth and final visit to Hawaii, in July 1976, was an evaluation visit by Carroll Maninger and Dave Dorn. Feedback and suggestions were received from the County of Maui, the City/County of Honolulu, the State of Hawaii, and the University of Hawaii. Appendix E is an evaluation of our efforts prepared by David Jones, Manager, Hawaii Technological Information Center (HAWTIC). By this time, ERDA/SAN had established a full-time presence in Hawaii in the person of Rob Stern. He accompanied us on our rounds and was introduced to contacts. This facilitated the transition of the responsibility for representing ERDA in Hawaii from the Lawrence Livermore Laboratory to ERDA/SAN.

WORKSHOPS AS TRANSFER MECHANISMS

In addition to the active visits by the Technology Transfer agents, a number of special activities were carried out in the later phases of the experiment. The Public Works Management and Maintenance Seminar (Appendix F), put on by the Navy with NSF participation, is an example of a special, single-purpose workshop fielded in response to a well-defined need. As such, it was both well received and effective. On the other hand, the three Technology Transfer Workshops held in Hilo, Wailuku, and Honolulu were general purpose and relatively unfocused. Each had its own character, dictated largely by the immediate response of the participants. Because of the uncertainty in subject, the organizers had to stay flexible. In spite of this, these three general workshops were good openers and should be followed up by specialized workshops/seminars. Our assistance with the Hawaii Solar Workshop represents still another approach. Here we took advantage of an on-going, indigenous activity and merely assisted in making it more effective. The exposure we received, and the dissemination of information we accomplished, were done with much less expenditure than would have been required if we had mounted an independent effort.

PERSONAL CONTACTS AS TRANSFER MECHANISMS

One of the major lessons learned in the Hawaii Technology Utilization Experiment was that technology field agents must address all questions. Initially, we had expected that, since we represented the Energy Research and Development Administration, we would be answering questions which were mainly concerned with energy. However, we found that operating in our role as technical people who could address all problems made us much more effective.

Since our technical background was not sufficient to answer all questions, we supplemented our Lawrence Livermore Laboratory expertise with other information resources. In particular, we coupled closely with the other ERDA laboratories, with the Federal Laboratory Consortium, with the California Innovation Group, and with other technical resources as were appropriate. The cooperative effort with the Federal Laboratory Consortium proved to be the most productive. This

cooperation took two forms. First, the Consortium was an invaluable source of information on both related experience in other localities and on research results on non-energy problems. Second, technical people from other federal laboratories made themselves available for both specific and non-focused technology transfer workshops in Hawaii. George Linsteadt and Jerry Miller were especially effective in this area and were extremely supportive of the entire Hawaii effort. Del DelaBarre, President of the California Innovation Group, was also invaluable in identifying relevant experience in other municipalities and his cooperation and participation made the workshops useful. In all cases, repeated personal contacts were essential for effective transfer.

SPECTRUM OF NEEDS

Many, perhaps three-quarters, of the questions were answered by the field agents at the time of the query. However, a number of the inquiries required further study and a subsequent reply. A partial list of the general subjects covered is attached in Appendix A. However, to summarize, of the 226 inquiries tabulated, fully 135 were non-energy related while only 91 were even remotely related to energy. The energy questions were broken down as follows:

<u>SUBJECT</u>	<u>NUMBER OF INQUIRIES</u>
Biomass and agricultural waste use	22
Solar energy	22
Transportation	12
Environmental impact of energy	8
How to obtain information	8
Conservation	6
Wind power	5
How to obtain energy funds	3
Energy storage	3
Geothermal	2

OBSERVATIONS AND CONCLUSIONS

Based on our experience in Hawaii for a year, a number of observations immediately spring out. First, even though we identified ourselves as coming from the Lawrence Livermore Laboratory, an ERDA facility, the questions addressed to us were largely non-energy related. Second, of the energy questions asked, most of them pertained to small industrial or individual users. Third, the current major ERDA energy programs were not of great interest to the people of Hawaii. The ERDA programs are simply not perceived as relevant to their present or future needs. Fourth, in our experience, the state agencies are mostly concerned with broad, policy-related questions. To have an immediate, nuts and bolts impact, we had to concentrate on the city/county administrations and departments. Another way of saying this is that the state agencies are policy oriented and the city/county groups are action oriented. Fifth, organized seminars/workshops are effective in reaching well-defined target user groups. Sixth, repeated personal contacts are essential to penetrate beneath superficial responses. No one likes to admit he has problems, and it is only when the transfer agent establishes a rapport with the user that he can be of real use in addressing basic technological questions. Seventh, person to person contact is what makes the transfer process work; pure information dissemination can only identify potential solutions, the follow-up must involve personal contact.

Regular, active technology transfer visits proved to be much more effective in reaching clients than waiting for inquiries to arrive at the Laboratory. This conclusion is based on the fact that ten requests were generated by the visits for every one which came unsolicited. The frequency and intensity of visits seemed to be appropriate for the Hawaii situation.

All questions, whether energy or non-energy related needed to be addressed. Technology clients are busy people, and simply cannot afford the time to speak with a sequence of people, each of whom are narrow specialists. If they are approached on a specialist basis, they do not respond. Because of this necessity of covering all fields, our affiliations with the Federal Laboratory Consortium and the California Innovation Group were essential for the success of the Hawaii experiment.

Finally, an important side effect is increased communications between different groups of users. By virtue of our free access to these different level/different emphasis groups, we were often able to create new linkages among existing organizations already in the Islands, which could resolve the specific problem. Hopefully, with frequent use, these new linkages will be effective and will persist.

ACKNOWLEDGMENTS

Many people contributed to the carrying out of the Hawaii Experiment. On the Islands, Dave Jones of the State of Hawaii Department of Planning and Economic Development was a most patient and helpful partner. In addition, Dean John Shupe of the University of Hawaii, Clarence Garcia of the County of Hawaii, and Art Fernandez of the County of Maui were most generous with their time and assistance. On the Mainland, Jerry Miller of the Naval Electronics Laboratory Center, San Diego, California, joined the LLL transfer team midway in the experiment and arranged the workshops. His contributions and experience contributed greatly to the success of our efforts. Appendix G lists some of the contacts we made in Hawaii--our sincere thanks to all participants. We were enriched by our association.

APPENDIX A
PARTIAL LIST OF HAWAII QUESTIONS

SUBJECTS

SOURCES FOR EXOTIC MATERIALS

METHANOL CAR

PRECISION MACHINING

OPTICS FABRICATION & INSPECTION

DATA BASES (MEDICINE, OPTICS, AND SUBMERSIBLES)

GEO THERMAL EXPLORATION METHODS - RESISTIVITY

VISUAL AIDS ON NATURAL ENERGY

AUTOMATED HIGHWAYS

WIND FIELD MODELING

TRANSPORTATION DATA BANKS

AVAILABILITY OF ERDA DOCUMENTS ON FICHE FOR LIBRARIES

AVAILABILITY OF ERDA FUNDS FOR LABORATORY DESIGN FOR NATURAL ENERGY INSTITUTE

INFORMATION ON POLYMER CONCRETES

AVAILABILITY OF ERDA FUNDS FOR ENERGY EXTENSION AGENT

INFORMATION ON DOT & EPA WIND MEASUREMENTS IN HAWAII

INFORMATION ON DISPOSAL OR USE OF SO₂ SCRUBBER BYPRODUCTS

INFORMATION ON COMPUTER OPERATIONS

INPUT/OUTPUT DATA FOR ENERGY

AERIAL PHOTOGRAPHY TO CATALOG FORESTRY RESOURCES

MOBILE SOURCE EMISSIONS CALCULATIONS

TRANSPORTATION PLANNING

FERRY INFORMATION

INFORMATION ON NSF TRANSPORTATION RESEARCH

SUBJECTS

AVAILABILITY OF ERDA FUNDS TO STAFF LOW ENERGY HOUSE FOR ERDA TECH DISSEMINATION
SOLAR PUMPS FOR IRRIGATION
METHANE GENERATORS
RECLAIMING CHEMICALS FROM SEAWATER
SOLAR PONDS
INFORMATION ON SMALL CARS FOR CITIES
INFORMATION ON OBTAINING NSF/HONEYWELL SOLAR DEMO TRAILER FOR VISIT
REMOTE MEANS OF DETECTING WHERE GROUND INJECTED EFFLUENT ENTERS OCEAN
REAL TIME INSTRUMENTS TO MEASURE BOD, SUSPENDED SOLIDS, POLLUTANTS OF ALL KINDS
INFORMATION ON CONSERVATION & ENERGY
WINDPOWER TO IRRIGATE SHORELINE PARK
ADVICE ON IRRIGATION PIPE (20")
INFORMATION ON ERDA SOLAR DEMONSTRATION PROGRAM
INFORMATION ON SOLAR COMPONENTS FOR INDIVIDUAL USE--INCLUDING STANDARDS
CAN AN INDIVIDUAL, FARMER OR HOMEOWNER MAKE ALCOHOL FOR FUEL?
CAN I BE PUT ON DISTRIBUTION FOR LLL TECHNICAL DOCUMENTS?
WHAT IS KNOWN ABOUT THE CORROSIVE PROPERTIES OF METHANOL?
IS ALCOHOL PRESENTLY BEING USED FOR POWER GENERATION? IF SO, WHERE?
PLEASE SEND INFORMATION ON METHANOL USE FOR FUEL
IN RESOURCE RECOVERY, HOW IS DIFFERENT COLORED GLASS SEPARATED?
PLEASE SEND INFORMATION ON SOURCE SEPARATION FOR SOLID WASTE RECOVERY
(ORE PLAN NOW BEING USED IN PORTLAND, OREGON)
HOW CAN I DETERMINE THE RIPENESS OF PAPAYA?
HOW CAN I PREVENT OVER-RIPENING OF PAPAYA?
HOW CAN I GET INFORMATION ON ERDA RESULTS TO MY PEOPLE?

SUBJECTS

PLEASE SEND 30 COPIES OF THE ERDA/LLL TECHNOLOGY TRAINING PROGRAM FLYERS

PLEASE SEND 30 COPIES OF THE ERDA/NBS SMALL INVENTORS' PROGRAM FLYERS

DOES THE U.S. HAVE INFORMATION ON THE TECHNOLOGY OF CULTIVATING PEARLS?

CAN I GET HELP IN EVALUATING PROPOSALS FOR RESOURCE RECOVERY IN SOLID WASTE STREAMS?

CAN I GET A GOOD PROCESS MAN TO HELP US EVALUATE OUR SECONDARY TREATMENT PLANTS?

PLEASE SEND INFORMATION ON THE LLL GEOTHERMAL PROGRAM

PLEASE SEND INFORMATION ON THE USE OF FLYWHEELS FOR ENERGY STORAGE

WHAT EXPERIENCE HAVE OTHER COMMUNITIES HAD IN POLLING PEOPLE ON PARK USE?

HOW DOES ONE DECIDE COST/BENEFIT RATIOS FOR PARK EXPENDITURES?

WHAT NEW PARK EQUIPMENT IS AVAILABLE?

HOW DO OTHER COMMUNITIES OBTAIN NEW PARKS?

PLEASE SEND THE SAN DIEGO POLICE DEPARTMENT SPECIFICATIONS FOR BODY ARMOR

WHAT INFORMATION EXISTS ON THE USE OF SMALL CARS IN POLICE DEPARTMENTS?

HOW CAN THE HONOLULU POLICE DEPARTMENT GET PERMISSION TO USE REMOTE TV MONITORS?

HOW DO OTHER COMMUNITIES HANDLE SICK LEAVE AND ABSENTEEISM?

HOW DO YOU DO SOURCE CALCULATIONS FOR MOBILE SOURCES IN AIR POLLUTION MODELING?

WHAT ABOUT RADIO BROADCAST RECEPTION IN PUBLIC BUSES?

WHAT HAS BEEN THE EXPERIENCE OF OTHER COMMUNITIES IN TRAINING AMBULANCE DRIVERS AS PARAMEDICS?

WHAT IS BEING DONE ELSEWHERE ON RETROFITTING FIRE PROTECTION INTO EXISTING HIGH RISE BUILDINGS?

HOW EFFECTIVE HAVE TECHNOLOGY TRANSFER SYMPOSIA BEEN?

HOW CAN T.V. BROADCAST SIGNALS BE GOTTEN INTO SHADOWED AREAS?

PLEASE SEND A LIST OF THE QUESTIONS ASKED BY HONOLULU CITY/COUNTY PERSONNEL

HOW DO YOU MEASURE PARK USE SATISFACTION?

HOW DO OTHER COMMUNITIES COUNT PARK USERS?

HOW DO OTHER COMMUNITIES ADDRESS THE QUESTION OF WHY SOME PEOPLE DON'T USE PARKS?

SUBJECTS

IS ERDA DOING ANY WORK ON SEWAGE DISPOSAL AT SEA?

WHAT HAS TECHNOLOGY ACCOMPLISHED?

PLEASE SEND A LIST OF POSSIBLE ATTENDEES FOR THE SOLAR CONFERENCE

PLEASE SEND INFORMATION ON KELP FARMS

WATER REQUIREMENTS FOR CROPS

ENERGY CONVERSION & UTILIZATION

WASTE FROM AGRICULTURE

TREE REMOVAL FROM PAPAYA FIELDS

BIO-MASS CONVERSION

SOLAR AGRICULTURAL USE - DRYING & PROCESS HEAT

WIND FOR AGRICULTURAL USE - IRRIGATION

WASTE MANAGEMENT - STIR SEWAGE SYSTEM

DRIP IRRIGATION

FIELD TRASH - HEAT CONTENT

WORKSHOP ON SOLAR USE IN AGRICULTURAL AREAS - 1 YEAR FROM NOW

ERDA ENERGY PROGRAM

USE OF CANE RESIDUE TO GENERATE ELECTRICITY

SERI REGIONAL LABORATORY

CONVERSION OF CELLULOSE TO SUGAR

WIND POWER - UTILITY AND RESIDENTIAL

JOINT POLICE/FIRE TRAINING FACILITIES

LOCATION OF FIRE STATIONS

NUMBER OF POLICE PER CAR

OTHER USE OF FIRE PERSONNEL

TECHNOLOGY TRANSFER WORKSHOP

CONVERTING PUBLIC HOUSING TO SOLAR

SUBJECTS

ELECTRIC CARS

TERMITE CONTROL

SOLAR ENERGY IN RESIDENCES

HOUSING RESEARCH

AIR INFLATED POOL COVERS

RECREATION MANAGEMENT

AVERAGE ACRES/PARK

COST OF MAINTENANCE/PARK ACRE

PEOPLE SERVED/ACRE

BROCHURES ON PARK ACTIVITIES

COST/PERSON ACTIVITY IN PARKS

ROAD RE-SURFACING

SOLID WASTE DISPOSAL

PRIVATE GARBAGE COLLECTION

EXPERIENCE WITH ONE-MAN GARBAGE TRUCKS

CONTACT WITH CALIFORNIA ENERGY & NATURAL RESOURCE DEVELOPMENT COMMITTEE

SPEAKER FOR SOLAR CONFERENCE

WHO ARE THE IMPORTANT MAINLAND VISITORS?

CANE FIELD ACCESS FOR HILLY & WET CONDITIONS

FOREST HARVESTING FOR FUEL

REMOVE RUBBER FROM AIRPORT RUNWAYS

BETTER GROUND COVER FOR HIGHWAYS

NON-DESTRUCTIVE TESTING

TRIS INFORMATION

COMPLIANCE TESTING

SUBJECTS

QUALITY CONTROL - CONCRETE & ASPHALT

STRUCTURAL FOUNDATION & PAVING DESIGN

HOW TO COMBAT WATER INTRUSION ON ROADS

SHORT TERM BIO-CONVERSION STUDY

ISAAC'S WAVE PUMP TESTING

LOCATING CESSPOOLS AT 2-3 FT DEPTH

STANDARDS ON PURITY OF COMPRESSED AIR

EXPERIENCE WITH COMBINATION INSPECTORS - BUILDING, PLUMBING, AND ELECTRICAL

EXPERIENCE WITH SPEED BUMPS

SHIELDING OF HIGH INTENSITY LIGHTS TO PROTECT AGAINST INTERFERENCE WITH
I.R. TELESCOPES

MOTIVATION & INCENTIVE SCHEMES FOR WORKERS

METHOD TO HEAT WATER TO 52°C FOR SUGAR CANE WORK

METHOD TO CONVERT LAVA TO SOIL (CRUSH)

SOLUTION TO HIGH NOISE LEVEL FROM WATER PUMPS IN RESIDENTIAL AREAS

MUNICIPAL SOLID WASTE DISPOSAL

CORROSION OF BOILERS

USE OF EXCESS BAGASSE

LIGHTER-THAN-AIR CRAFT CARGO TRANSPORTATION

INFORMATION ON HUD SOLAR DEMONSTRATION PROJECT

CASH OR LOAN GUARANTEES FOR WIND POWER

ALTERNATE USES OF BIO-MASS

ALTERNATE USES OF SUGAR AND CANE

ELECTRONIC COMMUNICATIONS FOR SMALL COMMUNITIES

CAR & TRUCK LOCATORS

DISPATCH SYSTEMS

USE OF COMMUNITY PROFILES IN PREDICTING CRIMES

SUBJECTS

PATENTS AVAILABLE

SEWAGE TREATMENT - ANFLOW

NEW GUN HOLSTERS FOR POLICE

REMOTE WARNING SYSTEM FOR EARTHQUAKES AND TSUNAMIS

CONSERVATION IN TRANSPORTATION

ENERGY STORAGE

EFFICIENT USE OF ENERGY

TRANSMISSION OF ENERGY

CONSERVATION IN BUILDINGS & INDUSTRY

OVERALL PROBLEMS OF FIRE AND POLICE UNIONIZATION

EMPLOYEE MORALE AND ATTITUDINAL PROBLEMS

USE OF MANAGEMENT BY OBJECTIVE SYSTEM (MBO) IN CITY PLANNING

APPLIED PSYCHOBIOLOGY EFFORTS IN BRAIN WAVE MEASUREMENT

DEVELOPMENT OF COST EFFECTIVENESS MEASURES INCLUDING MANPOWER ASPECTS

EMPLOYEE SELECTION METHODS AND PROCEDURES

DRIVER (CAR OR TRUCK) IMPROVEMENT RESEARCH

RECREATION PROGRAMS--PLANNING AND DETERMINATION OF PRIORITIES

USE OF WOMEN IN POLICE AND FIRE DEPARTMENT

WHAT PROGRAMS ARE AVAILABLE THAT MAY CONTRIBUTE TO MINIMUM OR ZERO TRAFFIC INCIDENTS INVOLVING DRIVER ERROR?

WASTE STREAM RECYCLING TECHNIQUES. RESOURCE RECOVERY FROM RAW MATERIALS

INFORMATION ON THE PHYSIOLOGICAL EFFECTS OF BEING STRUCK WITH THE "TASER" LESS-THAN-LETHAL WEAPON

HOW DO OTHER BEACH COMMUNITIES ESTABLISH THE RATIO OF LIFEGUARDS TO BEACH USERS?

IN CALIFORNIA CITIES, HOW FAR OUT IN THE OCEAN DO CITY LIFEGUARDS GO TO MAKE RESCUES? IN OTHER WORDS, ARE THERE ESTABLISHED POLICIES ON WHEN THE COAST GUARD TAKES OVER?

WHAT IS THE TYPICAL EQUIPMENT USED BY LIFEGUARDS IN CALIFORNIA CITIES?

SUBJECTS'

INFORMATION ON "PHOTO LOGGING" USAGE IN SAN DIEGO. SPECIFICALLY, DATA ON ITS USE, DEPARTMENT IN CHARGE & SPECIFIC TASKS NOW USING "PHOTO LOGGING."

DO ANY POLICE DEPARTMENTS NOW USE WORD PROCESSING CENTERS?

ANY DATA ON COST EFFECTIVENESS OF SENDING FIREMEN TO MEDICAL EMERGENCIES IN LIEU OF, OR IN ADDITION TO, AMBULANCE

HAS ANYONE DEVELOPED A METHOD TO MEASURE FIRE DEPARTMENT PRODUCTIVITY?

WHAT IS THE EXPERIENCE WITH CITIES WITH FIRE-FIGHTERS WORKING A 40 HOUR WORK WEEK? HAVE THESE HOURS TURNED OUT TO BE SATISFACTORY?

ARE THERE ANY CITIES TRYING TO PROVIDE FIRE INSURANCE TO THE COMMUNITY? IT SEEMS THAT THE CITIES COULD SELL THE FIRE INSURANCE TO THE COMMUNITY AND UTILIZE THE MONEY TO SUPPORT THE FIRE SERVICES.

ARE THERE ANY CITIES USING HELICOPTERS TO TRANSPORT FIRE-FIGHTERS TO THE FIRE SCENE?

WHICH CITIES ARE USING THE SMALLER AND FAST ATTACK COMPANIES BACKED UP BY FEWER BUT STRONGER FULL-SIZE COMPANIES?

WHAT IS THE STATUS OF THE CALIFORNIA PARAMEDIC PROGRAM?

ARE THERE ANY FIRE DEPARTMENTS THAT UTILIZE THE FIRE-FIGHTERS FOR ACTIVITIES OTHER THAN FIRE-FIGHTING?

WHAT IS THE TREND OF WORK HOURS OF FIRE-FIGHTERS NOTWITHSTANDING THE FAIR LABOR STANDARDS ACT?

IS ANYTHING BEING DONE TO PROMOTE THE LEGAL INTER-CHANGEABILITY OF BREATHING APPARATUS COMPONENTS?

WHAT IS THE CRITERIA FOR AMBULANCE DISTRIBUTION? HAVE ANY CITIES MADE ANY STUDIES?

WHAT IS A DESIRABLE RESPONSE TIME FOR AMBULANCE COMPANIES?

HOW MANY DISPATCHERS ARE NEEDED, ASSUMING ABOUT 20,000 CALLS PER YEAR ARE RECEIVED?

HAS ANYONE COMBINED AMBULANCE AND FIRE DISPATCHERS?

WHAT IS THE CURRENT STATUS OF "RAPID" WATER?

WHAT IS THE CURRENT STATUS OF THE AUTOMATED PUMPER?

SUBJECTS

WHAT IS THE CURRENT THINKING ON THE USE OF AUTOMATED SPRINKLERS FOR HI-RISE, AS OPPOSED TO COMPARTMENTALIZATION WITH FIRE WALLS?

ARE THERE ANY GRANTS GIVEN TO CITIES BY THE FEDERAL FIRE PREVENTION AND CONTROL ADMINISTRATION? HOW CAN A DEPARTMENT OBTAIN THESE?

ANY STUDIES ON THE OPTIMUM NUMBER OF FIRE-FIGHTERS ON A COMPANY?

WHAT IS THE OPTIMUM SPACING OF FIRE HYDRANTS ON SCHOOL AND COLLEGE GROUNDS?

ARE THERE ANY FIRE DEPARTMENTS THAT PROVIDE INITIAL MEDICAL EMERGENCY RESPONSE WITH THE COMPANIES BACKED UP WITH AMBULANCE?

HAVE THERE BEEN ANY STUDIES ON THE AUDIBILITY OF SIRENS?

ANY DEPARTMENTS PUTTING WET HOSE BACK ON THE RIG? WHAT IS THEIR EXPERIENCE AS FAR AS MILDEWING IS CONCERNED?

WHICH DEPARTMENTS ARE USING LEATHER BOOTS IN LIEU OF RUBBER TURNOUT BOOTS?

WHAT ARE THE EXPERIENCES OF ARSON SQUADS OPERATED BY THE POLICE OR FIRE, OR A COMBINATION?

WHAT INFORMATION IS AVAILABLE ON THE EFFECTIVENESS OF FIRE FIGHTING ADDITIVES TO WATER ("RAPID", "WET", "LIGHT")?

WHAT RESEARCH HAS BEEN DONE ON THE USE OF EXPLOSIVES IN WILDLAND FIRE CONTROL?

WHAT EXPERIENCES HAVE THERE BEEN IN MUNICIPALITIES IN TAKING OVER AIRPORT CRASH PROTECTION?

ARE THERE ANY STANDARDS OR INFORMATION ON THE USE OF LIVE FIRES FOR FIRE TRAINING?

LENGTH OF TIME NEEDED TO PERFORM A MEDICAL EXAMINATION

NASA George C. Marshall Space Flight Center

Air Force Rocket Propulsion Laboratory
ERDA Lawrence Berkeley Laboratory
ERDA Lawrence Livermore Laboratory
Forest Fire Laboratory
NASA Ames Research Center
NASA Flight Research Center
NASA Jet Propulsion Laboratory
Naval Civil Engineering Laboratory
Naval Electronics Laboratory Center
Naval Health Research Center
Naval Pacific Missile Test Center
Naval Postgraduate School
Naval Undersea Center
Naval Weapons Center
Navy Personnel Research & Development Center
U.S. Geological Survey (Western Region)
Dept. of Commerce Office of Telecommunications

Naval Underwater Systems Center
Air Force Civil Engineering Center
NASA Kennedy Space Center
Naval Coastal Systems Laboratory
Army Rock Island Arsenal
Naval Weapons Support Center
Army Edgewood Arsenal
Army Harry Diamond Laboratory
Army Human Engineering Laboratory
NASA Goddard Space Flight Center
Naval Ship Research & Development Center

Air Force Cambridge Research Laboratory
Army Natick Development Center
Dept. of Transp. — Transportation Systems Ctr.

Army Tank & Automotive Command Laboratory

NASA National Space Technology Laboratory Bay St. Louis, MS

Army Cold Regions Research & Engineering Laboratory

Army Electronics Command
Army Picatinny Arsenal
National Aviation Facilities
Naval Air Engineering Center

Air Force Weapons Laboratory
ERDA Los Alamos Scientific Laboratory

Air Force Rome Air Development Center

Air Force Materials Laboratory
Air Force Wright Aeronautical Laboratory
NASA Lewis Research Center

Naval Air Development Center
EPA Environmental Research Laboratory

NASA Johnson Space Flight Center

Army Dugway Proving Grounds

Army Engineering Topographic Laboratory
Army Mobility Equipment Research & Development Center

Army Night Vision Laboratory
NASA Langley Research Center
NASA Wallops Flight Center

National Technical Information Service (NTIS)

Naval Oceanographic Office
Naval Research Laboratory

Huntsville, AL
Edwards, CA
Berkeley, CA
Livermore, CA
Riverside, CA
Moffett Field, CA
Edwards, CA
Pasadena, CA
Port Hueneme, CA
San Diego, CA
San Diego, CA
Pt. Mugu, CA
Monterey, CA
San Diego, CA
China Lake, CA

San Diego, CA
Menlo Park, CA

Boulder, CO
New London, CT
Tyndal AFB, FL
Kennedy Space Ctr, FL
Panama City, FL
Rock Island, IL
Crane, IN
Aberdeen, MD
Adelphi, MD
Aberdeen, MD
Greenbelt, MD

Bathesda, MD
Hanscom AFB, MA
Natick, MA

Cambridge, MA

Warren, MI
Bay St. Louis, MS

Hanover, NH
Fort Monmouth, NJ
Dover, NJ
Atlantic City, NJ
Lakehurst, NJ

Kirtland AFB, NM
Los Alamos, NM

Griffiss AFB, NY
Wright-Patterson AFB, OH
Wright-Patterson AFB, OH
Cleveland, OH

Warminster, PA
Narragansett, RI
Houston, TX
Dugway, UT

Fort Belvoir, VA
Fort Belvoir, VA
Hampton, VA
Wallops, VA

Washington, DC
Washington, DC
Washington, DC

Mr. Aubrey Smith
Mr. Gerald Sayles
Mr. Robert J. Morris
Mr. R. Carroll Maninger
Mr. John H. Warren
Mr. Charles C. Kubokawa
Mr. Clinton T. Johnson
Mr. John C. Drane
Mr. Eugene Early
Mr. Gerald E. Miller
Mr. Milton Richlein
Dr. Samuel Brainin
Prof. J. W. Creighton
Mr. Donald H. Courter
Mr. George F. Linsteadt

Mr. Allan A. Sjolholm
Mr. George E. Robinson

Mr. Walter E. Johnson
Mr. George Connolly, Jr.
Mr. Robert E. Brandon
Mr. Raymond J. Cerrato
Mr. William H. Williams
Mr. Jack P. Munata
Mr. C. Dale Robinson
Mr. Frank Couch
Mr. Clifford E. Lanham
Mr. Donald Egner
Mr. Donald S. Friedman

Mr. David W. Nakonechny
Dr. John N. Howard
Dr. S. David Bailey

Mr. R. V. Giangrande

Mr. Ralph Trese
Mr. Roy S. Estes

Dr. Andre Assur
Dr. Walter S. McAfee
Mr. Thomas C. Castorina
Mr. Joseph Rubino
Mr. Charles O'Donnell

Dr. Arthur Guenther
Mr. Eugene Stark

Mr. William S. Kelly
MAJ Lawrence Fehrenbacher, USAF
MAJ Robert Kosak, USAF
Mr. Paul Foster

Mr. Jeromie Bortman
Dr. Stanley H. Hegre
Mr. John T. Wheeler
Dr. Mortimer Rothenburg
Dr. Armando Mancini

Dr. Karl Steinbach
Mr. Richard Fulton
Mr. John Samos
Mr. Gilmore H. Trafford

Dr. Sherman Gee
Mr. Clinton Beckner, Jr.
Mr. Emanuel Brancato

(205) 453-2224
(714) 553-2206 X32340
(415) 843-2740 X 5545
(415) 447-1100 X 7191
(714) 787-1540
(415) 965-5554
(805) 258-3311 X 568
(213) 354-6420
(805) 982-4070
(714) 225-7091
(714) 225-7393
(805) 982-8904
(805) 982-7051
(714) 225-6251
(714) 939-7325

(714) 225-2712
(415) 323-8111 X 2711

(303) 499-1000 X 3501
(203) 442-0771 X 2908
(904) 283-6200
(305) 867-2780
(904) 234-4204/05
(309) 794-4518
(812) 854-1282
(301) 671-3037
(202) 394-2296
(301) 278-4567
(301) 982-6242

(202) 227-1681
(617) 861-3161
(617) 653-1000 X 2577

(617) 494-2486

(313) 573-2319
(601) 688-3047

(603) 643-3200 X 237
(201) 535-1131
(201) 328-2560
(609) 641-8200 X 3373
(201) 323-2648

(505) 264-8561
(505) 667-6109

(315) 330-3046
(513) 255-3759
(513) 255-4052
(216) 433-4000

(215) 672-9000 X 2140
(401) 789-1071
(713) 483-3809
(801) 522-2150 X 3314
(703) 664-2422

(703) 664-5348
(703) 664-3923
(804) 827-3281
(804) 824-3411 X 2201

Federal Laboratory Consortium for Technology Transfer

Although there are many definitions of technology transfer (T²), within the Federal Laboratory Consortium T² is generally described as the process by which existing knowledge, facilities, or capabilities developed under federal R&D funding are transferred to fulfill actual or potential public or private needs. To promote this transfer, 51 major Federal R&D Laboratories and Centers, representing the Department of Defense (DoD), Department of Transportation (DoT), National Aeronautics and Space Administration (NASA), Department of Commerce (DoC) and the Energy Research & Development Administration (ERDA), have joined in an informal T² Consortium. The purpose of this Consortium is to increase the use of these laboratories' unique technical expertise and R&D products toward the solution of problems facing our government agencies and private industries.

Within the Federal Laboratory Consortium, T² is accomplished in a variety of ways. One approach is the performance of civilian oriented R&D work by one of the DoD Consortium laboratories with funds provided by the requesting institution. These R&D projects are directed towards application to civilian problems, but the solutions are based on earlier research performed for military purposes. Thus the American taxpayer derives double benefit from the military R&D expenditure. Other members of the Consortium, unlike the DoD labs, are chartered and funded to specifically work in the civilian area. Thus they are directing their T² efforts toward increasing the use of their research results by decision makers and operational agencies in the public and private sectors.

In addition to performing R&D activities and pushing for greater use of their R&D products, the Federal Laboratory T² Consortium transfers its technology in other ways. As an example, scientists are temporarily exchanged between the federal agencies and between federal and local government organizations through the vehicle of the Intergovernmental Personnel Act. Consortium laboratory's personnel also assist state and local government agencies in a variety of nonrefundable ways, such as serving on scientific advisory boards, acting as consultants to specialized groups, (e.g., law enforcement or pollution control agencies), providing library services and identifying sources of surplus government equipment. Private

industry can also benefit from the Federal Laboratory T² Consortium, primarily through the acquisition of government patents originating from these laboratories. With these patent rights, the private company can produce and sell a product in the commercial marketplace without having to expend funds for basic R&D.

Each of the member laboratories has a technology transfer coordinator who can explain in more detail about the Consortium T² programs. In addition to representing their own laboratories, these individuals maintain contact with their counterparts in the other Consortium laboratories and in other federal agencies (e.g., EPA, Bureau of Mines, etc.) which also have T² programs but are not in the Federal Laboratory Consortium. Because of the nature of their activities, these T² representatives are also frequently exposed to new technologies developed by private business, local or state governments. Thus the T² coordinators are familiar with a variety of technical resources beyond their own labs. As a result the representatives often can and do serve as "technology brokers" bringing together the individual or agency that has a problem with those who have already solved it, or who at least are working in the area. This "broker" service has been especially useful for local (i.e. city and county) governments who are often unaware of the scientific support available in the federal labs.

What specifically can we do for your city department, county agency, state organization, or federal agency? What assistance can we give to your company? It is impossible to say unless we make contact. We in the Federal Laboratory T² Consortium are convinced that greater utilization of federal R&D dollars must be realized. Help us to share our technology by contacting the technology transfer coordinator at the Consortium laboratory nearest you, or contact our permanent Washington representative located in the Office of Intergovernmental Science, National Science Foundation. Write or call Mr. Nick Montanarelli, Room 1101, National Science Foundation, 1800 "G" Street N.W., Washington, D.C. 20550 (Phone: 202-634-7996).

ADVISORY BOARD STATEMENT

Local Governments are feeling the pressures of a troubled economy and more and more restrictive legislation limiting their financial options through taxes and other revenues. Those of us that have a responsibility to effectively and efficiently carry out policy directives of local government elected officials are finding it increasingly necessary to rely upon new and innovative approaches to solve our urban problems. The California Innovation Group has provided us with a viable approach to improve the utilization of Federal government and private industrial technology. Through C I G, participating city managers have found a common ground where representatives of high technology industries and local government personnel can meet and combine resources to address the cities' ever increasing demands for goods and services. We of the Advisory Board welcome every opportunity to transfer those C I G efforts which have proved to be of value, and solicit your ideas to further improve this transfer process.

Keith A. Murdoch, Chairman

Advisory Board

Keith A. Murdoch, Chairman—Anaheim
Donald McIntyre—Pasadena
Ralph Hanley—Fresno
Ted Tedesco—San Jose
Dave Rowlands—Huntington Beach
Donald Von Raesfeld—Santa Clara
Joe Baker—Burbank
Hugh McKinley—San Diego

Science Advisors

Jerome Weiss—San Jose
(Lockheed Missiles and Space Co.)
Forrest Warren—Pasadena
Owen Griffith—Anaheim
(Northrop Services, Inc.)
Gerry Miller—San Diego
(Naval Electronics Laboratory)
Mike Licciardello—Fresno
(Science Applications Inc.)
Matt King—Orange Co. 4-Cities
J. "Nick" Davis—Santa Clara
(Aerotherm)
Acey Floyd—Burbank (Lockheed Calif. Co.)
C. W. Birkeio—League of Calif. Cities
George Linsteadt—Fed. Lab. Consortium

NSF is the primary sponsor, under the Division of Intergovernmental Science through a cost sharing arrangement with the cities.

Additional project resources are provided by other sponsors such as the Department of Housing and Urban Development, the Department of Transportation, the Federal Energy Administration, the Energy Research and Development Administration and the Federal Laboratory Consortium.

As a non-profit corporation, the C I G, to maximize its potential, is continually soliciting outside sources from both the public and private sectors to identify and bring together the necessary resources to effect efficient transfer to local government.

FOR ADDITIONAL INFORMATION CONTACT:

- D. M. DELABARRE, President

Ronald B. Frankum, Secretary-Treasurer

CALIFORNIA INNOVATION GROUP
1671 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

Phone: (408) 288-8051

or

B. J. Reiss, NSF-ISPT Program Manager
Phone: (202) 634-7996

THE CALIFORNIA INNOVATION GROUP

APPENDIX C

CIG

... The progress we seek requires a new partnership in science and technology—one which brings together the Federal government, private enterprise and State and local governments, and our universities and research centers in a coordinated, cooperative effort to serve the national interest ... in meeting our priority national needs.

President's Message on Science and Technology to the U.S. Congress
March 16, 1972

sponsored by

National Science Foundation

Division of

Intergovernmental Science and

Public Technology

THE CALIFORNIA INNOVATION GROUP
A Non-Profit Corporation for
Technology Transfer and Utilization

PROBLEM

Local governments face a growing series of challenges in providing a community with adequate service delivery systems at reasonable costs. Problems are becoming broader and more inter-related; good solutions are becoming more complex and therefore, more expensive. Modern technology has in numerous specific instances helped to solve some of these problems. However, contrary to what might be expected, there appears to be little natural diffusion of already developed technology between industry and local governments. Direct dealings between the high technology industry and city governments require some basic adjustment by both parties.

CIG APPROACH

The premise of C I G is that successful technology transfer must be an active process in the receiving city. Transfer of technology becomes not so much the manipulation of new technology, but rather the establishment of an environment within the city whereby existing technology can be effectively used and evaluated.

OBJECTIVE

To achieve effective technology transfer and utilization by local government, and implement a methodology to internalize the process in the participating cities. Drawing upon this experience, to assist with the transfer and dissemination to other cities.

THE CIG ORGANIZATION

Established as a non-profit corporation, the C I G utilizes the concept of applying scientific methodology toward a solution of municipal problems. Participating local governments of the C I G are: Anaheim, Burbank, Fresno, Garden Grove, Huntington Beach, Pasadena, San Diego City/County, San Jose, Santa Ana, Santa Clara. In addition to these participating program cities, the League of California Cities provides dissemination to the entire network of California cities. An additional resource is direct technical assistance from the Federal Laboratory Consortium, private industrial firms, and universities.

Local government direction is provided by an Advisory Board consisting of the Managers from each jurisdiction represented.

Day to day management and coordination provided by the C I G President. Science Advisors assigned to the city managers provide the cities active leadership to accomplish the technology utilization by:

- seeking new ways to increase technology usage, development and transfer within local government
- identification and definition of problems and needs by the cities
- identification of applicable technology
- development of alternative solutions
- selection of alternative solution
- selection of alternative solution
- implementation and evaluation
- transfer of the technology to other jurisdictions

TYPICAL PROJECTS

- Test and Evaluation
 - Equipment
 - Systems
- Program Control systems
- Standards and procedures for developing procurement specifications and design criteria
- Evaluation process of procurement proposals
- Solid Waste Management Plan
- Urban Growth decision aid-cost/revenue analysis
- Management by Objective implementation
- Vehicle replacement models
- Site location analysis — e.g. helicopter landing station
- Geoprocessing systems
- Solar Energy Heating and Cooling
- More efficient Police Reporting System
- Five-Year Computer use Plan

APPENDIX D

CALIFORNIA INNOVATION GROUP

SUITE 200 • 1671 THE ALAMEDA • SAN JOSE, CALIFORNIA 95126
TELEPHONE (408) 288-8051

KEITH A. MURDOCH
CHAIRMAN

D. M. (DEL) DELABARRE
PRESIDENT

August 23, 1976

Mr. Leo C. Pritchard
Deputy Managing Director
City & County of Honolulu
City Hall
Honolulu, Hawaii 96813

Dear Leo:

Dave Dorn has requested that we make contact with you concerning the possibility of CIG assisting you in establishing a science and technology transfer activity within the city and county of Honolulu. As you are aware from our recent trip to Hawaii, we are very anxious to see new activities established since each new effort enhances and broadens our own capability base.

I discussed this matter with Gerry Miller who has recently completed an implementation plan for the State of Oregon and personally assisted people from the State of Washington in a similar task. Although the individual requirements for each area differ, as does the potential spectrum of program objectives, we do feel that some general guidelines can be useful in the establishment of such an effort. As a matter of fact, we are in the process of trying to develop a summary handbook to assist other regions in developing technology transfer activities. As soon as this document is assembled I will forward you a draft copy for your consideration. In the interim however, Gerry has furnished me an outline of his approach in assisting the states of Washington and Oregon. I concur with these ideas and feel that if they are adequately addressed in this initial planning work, you are sure to short cut many of the problems and setbacks which we encountered during the last few years. A copy of the outline is attached.

Given the multitude of variations which could be developed for such an activity, it seems that a discussion of detailed implementation requirements would be of very limited value to you at this time. I can assure you, however, that if you do decide to develop a science and technology transfer activity, you can rely upon any help which we may be able to give you.

PARTICIPANTS

ANAHEIM • BURBANK • FRESNO • GARDEN GROVE • HUNTINGTON BEACH • PASADENA • SAN DIEGO • SAN JOSE • SANTA ANA • SANTA CL
LEAGUE OF CALIFORNIA CITIES

Mr. Leo C. Pritchard
Pg. 2

I feel that Gerry Miller may be the best single resource due to his recent exercises with Washington and Oregon. Additionally, I will be more than happy to assist in or review the development of any specific concept design which you may elect to develop.

Some general feelings concerning the establishment of your type of activity may be useful in your early planning stages. The following will be somewhat unstructured, so bear with me. To start with, it is essential that you clearly establish the objectives which you hope to achieve through the establishment of such a function and how they, in fact, differ from current departmental or functional responsibilities within the Honolulu local government. Based upon these stated objectives, prime consideration should be given to the development of an exclusive activity and not just an add-on function to an existing operation. It has been our experience that add-on functions have a way of getting lost when the inevitable crush of priorities hits. This is not to say this science and technology activity should be ignored for "putting out the fire activity" but it should not be totally consumed by it. A certain degree of autonomy is required if your advisor is to be allowed the necessary time to explore the potential matches between needs and resources. In selecting a Science Advisor, three basic approaches have been used with certain pros and cons associated with them. They are:

- a) utilization of in-house capability;
- b) the use of a federal employee through an IPA arrangement;
- c) the acquisition of a non-government person through a direct contract with an industrial firm or new hires.

When and if you decide to implement your program, we would be more than happy to discuss at length the pros and cons of these approaches.

Another area of concern is the organizational placement of this Science Advisor function. Each local government appears to be structured differently in terms of the informal organization that makes the city or county operate. Whether the Science Advisor reports to a department head, a managing director or city manager, the mayor or some other entity, must be weighed in terms of the individual government's structure. We do have concerns with regard to placement anywhere other than the higher levels of management authority. Burying a Science Advisor in the inner workings of a department will assuredly result in suboptimization of his function.

Mr. Leo C. Pritchard
Pg. 3

I do not know whether any of this rambling will assist you in your deliberations, however, I would encourage you to seriously consider continuing your efforts to acquire a Science Advisor and offer our assistance wherever possible. Feel free to contact myself or Gerry Miller in this regard and you can be assured we will assist however we can.

Regards,

A handwritten signature in dark ink, appearing to read 'DelaBarre', with a long horizontal flourish extending to the right.

D.M. DelaBarre

DMD:sb

cc: ✓ Dave Dorn
Gerry Miller
Don McIntyre

Encl:

SCIENCE AND TECHNOLOGY

TRANSFER ACTIVITY IMPLEMENTATION PLAN OUTLINE - G. MILLER

1. Need for T² Office
2. Objectives of T² Office
3. Examples of Existing Local Government T² Programs
 - a. CIG
 - b. UTS
 - c. Tacoma/Seattle
4. Suggested Format for City/County of Honolulu
 - a. Functions - Brokerage vs. Projects
 - Federal Laboratory - Liaison
 - Technology Transfer Workshops
 - CIG/UTS Ties
 - Technical Briefs - Distribution/Preparation
 - Increased Contacts with University of Hawaii
 - Increased Contacts with Private Industry
 - b. Personnel
 1. Director - Operations
 - In-house
 - Federal - IPA
 - UTS Direct Hire - T² Background
 2. Total Number
 - Clerical
 - Administrative Assistant
 - Interns - University of Hawaii
 - c. Organizational Location - Options
 - Department
 - Managing Director
 - Mayor
 - d. Funding
 1. IPA/Local extensive travel cost
 2. Local totally (10¢ - 50¢)
 3. Grants (slim)
 - e. Evaluation Criteria
 1. Number of requests processed
 2. Cost savings to C/C
 3. Assessments of users (i.e., department heads, etc.)

APPENDIX E

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

HAWAII TECHNOLOGICAL INFORMATION CENTER

P. O. Box 2359, Honolulu, Hawaii 96804 • Telephone: 548-4622

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director, DPED

FRANK SKRIVANEK
Deputy Director, DPED

DAVID L. JONES
Manager, HawTIC

ANTHONY M. OLIVER
Librarian

August 2, 1976

Dr. David W. Dorn
Technology Applications Group, L-340
Lawrence Livermore Laboratory
University of California
Livermore, California 94550

Dear Dave:

In response to your request that I put together a letter of evaluation of the past year's efforts in technology transfer by Livermore Lab in Hawaii, here are some thoughts. The opinions expressed are strictly my own, since I have had no opportunity to follow up on your visits with the many others with whom you spoke on your various trips to Hawaii. First, let's look at some of the specific topics you mentioned.

FREQUENCY OF VISITS: About right, I'd say. They were often enough to keep us aware of the project, but sufficiently far apart to give us time to digest the data and look around for possible problem areas to be covered on the next visit, as well as to give you time to mull over the questions propounded to you by the various people here.

ROADBLOCKS IN HAWAII: There are no really serious roadblocks to technology transfer in Hawaii; people in general seem relatively open to ideas, and indeed to be grateful for information in fields of interest. Minor hurdles are such things as politics, intergovernmental relations, the high cost of travel, and the like. Some of these things we have talked about, and I'd just as soon leave them verbal. Most of the intergovernmental relationships work out quite well on a practical working level, and only generate complications when top-echelon administrative policies become involved. We have also talked about the problem of obtaining venture capital in Hawaii for promising but untried projects; there are now some signs that this situation is improving, and I believe it may be a less significant roadblock than it once was.

DID ANYTHING CHANGE AS A RESULT OF THE VISITS? This is a difficult question to answer with quantitative data, but certainly your visits did cause changes: maybe not big, dramatic ones, but the degree of interest in your visits and the number of problems and questions presented to you by people in various levels of government and private industry give evidence that there are areas of openness to new technologies and needs for information. The big question, of course, is what was done with the data provided; this sort of evaluation is a continuing problem with our own program: how to provide meaningful measures of effectiveness. Such things just don't lend themselves to quantification. Many problems and needs for data were expressed, a significant number of these were answered, and I am reasonably sure that many of the inquirers found the answers informative and useful--but I have no way of knowing this for certain, and no supporting statistics. If nothing else changed, certainly our own level of awareness was raised a notch or two, as well as our confidence that effective technology transfer can be achieved given the right combination of circumstances and directed effort. And certainly the assurance that ERDA and LLL are there when we need them is a comforting feeling.

WHAT WAS THE EFFECTIVENESS IN RAISING THE AWARENESS OF WHAT TECHNOLOGY MIGHT DO? I think I've already covered some aspects of this. Awareness of the positive results of technology application was definitely raised; a number of significant developments in technology were presented to a variety of people through your visits and follow-up data. Again, what has been done with this awareness and data, I don't know. But even in areas in which it hasn't seemed to make much of an impression, maybe your repeated visits and talks about them, and the very fact that LLL and ERDA is interested enough to come all the way out here and be concerned about it, may eventually get through.

WAS TRANSFER TO DECISION-MAKERS EFFECTIVE? I'd be inclined to say that transfer to technical decision-makers was (and usually is) more effective than transfer to administrative or political decision-makers. Perhaps this is a tautology, but it is relevant to our situation; a lot of the people you have talked to in Hawaii are in the latter category. But in government, the technologists are usually on a somewhat lower echelon, and have to rely in everything from funding to simple approval or final go-ahead on elected or appointed officials rather than on scientists or other technical people. So to be a good technology transfer agent in government, you have to know your political realities as well as your technology! I believe that the Livermore team was relatively effective in this regard, maybe moreso at the county level than in state government. I know that county officials on the Big Island and Maui were most appreciative of your efforts, and that the workshops you set up both in Honolulu and on neighbor islands were well attended, effective, and indicated a high degree of interest and participation.

In summing up, I believe that your efforts in Hawaii during the past year have produced a higher level of awareness concerning technology transfer programs, and certainly gave increased impetus to our own program. I hope that these effects will survive and be applied to day-to-day needs, and that both Livermore and HAWTIC will be remembered as sources of data and information services in future.

Just a word about our own program: as I mentioned to you when you were here, we are proposing a project for a series of public television programs showing technology in action in Hawaii. We do not doubt the effectiveness of field services, but we have long felt that some additional exposure of our program to greater public awareness was needed, and we believe that our present approach can help in this effort, and indeed will set the stage for more intensive efforts later.

Meanwhile, we shall keep in touch. Let us know of new developments, and we shall doubtless continue to use your good offices whenever needs arise.

Aloha -

David L. Jones

DLJ/cbk

APPENDIX F

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
**HAWAII TECHNOLOGICAL
INFORMATION CENTER**

P. O. Box 2359, Honolulu, Hawaii 96804 • Telephone: 548-4622

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director, DPED

FRANK SKRIVANEK
Deputy Director, DPED

DAVID L. JONES
Manager, HawTIC

ANTHONY M. OLIVER
Librarian

★ URGENT MESSAGE ★ SHORT NOTICE ★ Remember the dates: Wednesday & Thursday, March 17 & 18, 1976 ★

- WHAT?** • A Seminar on Public Works Management and Maintenance
- WHERE?** • State Department of Planning and Economic Development
Penthouse Conference Room, 9th Floor
Kamamalu Building, 250 South King Street, Honolulu
- WHAT TIME?** • 8:00 a. m. to 3:00 p.m. both days
- WHO IS OFFERING IT?** • Co-sponsored by the National Science Foundation,
the U. S. Department of the Navy, and
the Hawaii Technological Information Center, DPED
- WHY?** • Objectives of the seminar are to improve the efficiency of public works maintenance
and management programs by utilizing manpower and facilities more effectively.
These methods have yielded increased productivity and dollar savings for the Navy,
and they can do the same for you.
- WHAT'S IN IT FOR YOU?** • This is an unusual opportunity available to those who are responsible for the
management of public works programs in State and local government or in private
industry. It is being conducted by the U. S. Navy Department, and is the result
of a great deal of experience and planning. It has been made available to us at
no cost through the National Science Foundation's Office of Intergovernmental
Programs.
- WHO SHOULD ATTEND?** • The seminar is intended for technical people with managerial responsibility,
who can take the materials and techniques back to share with their organization.
Invitations are purposely being kept few in number and selective, assuring
personal attention and opportunity to discuss problem areas. Suggested attendees
would be program and project managers of approximately division chief level.
- WHAT DOES IT COST?** • There is no fee for attending the seminar. Because of the short notice, we have
not been able to plan for the usual serving of lunch on the premises; therefore
there will be no charge for meals, and attendees will provide for their own lunch.
The location is in the downtown area with restaurants nearby in all price ranges.
- TENTATIVE AGENDA:** • **Wednesday, March 17:**
U. S. Navy Public Works Management background and concepts
Engineered Performance Standards (EPS)
Public Works Department Management System
Discussion
- **Thursday, March 18:**
Work Progress/Analysis System
Utilities Conservation
Automotive Cost Control
Controlled Maintenance
Discussion
- ★ Please Note ★
- PLEASE let us know how many will be attending from your organization.
CALL the Hawaii Technological Information Center at 548-4622 or 548-3058
not later than Monday, March 15.

APPENDIX G

STATE OF HAWAII

Mr. Paul Aki
State Department of Health
Honolulu, Hawaii

Dr. Ryokichi Higashionna
Deputy Director for Design
Department of Transportation
State of Hawaii
Honolulu, Hawaii

Mr. Terry T. Aratani
Materials Testing and Research Engineer
State of Hawaii
Department of Transportation
Highways Division
Honolulu, Hawaii

Mr. James Ikepa
State Department of Health
Honolulu, Hawaii

Ms. Nancy Fowler
Department of Planning and Economic
Development
Honolulu, Hawaii

Mr. David L. Jones, Manager
Hawaii Technological Information
Center
Department of Planning and Economic
Development
Honolulu, Hawaii

Dr. Eugene M. Grabbe
Project Manager
State Center for Science Policy and
Technology Assessment
Department of Planning and Economic
Development
Honolulu, Hawaii

Mr. Richard Y. P. Joun
Division Head
Research and Economic Analysis
Department of Planning and Economic
Development
Honolulu, Hawaii

Dr. Joe A. Hanson
Senior Systems Scientist
Oceanic Foundation
Makapuu Point
Waimanalo, Hawaii

Mr. Hideto Kono, Director
Department of Planning and Economic
Development
Honolulu, Hawaii

Mr. Alfred S. Harris
Fuels Allocation Officer
Department of Planning and Economic
Development
Honolulu, Hawaii

Mr. James S. Kumagai
Environmental Programs
Pollution Technical Review Branch
State Department of Health
Honolulu, Hawaii

Mr. Stanley E. Harter
Communications Officer
State of Hawaii
Honolulu, Hawaii

Mr. Richard Marland, Director
Office of Environmental Quality
Control
Honolulu, Hawaii

STATE OF HAWAII

Mr. Toshiaki Matsushima
State Department of Health
Honolulu, Hawaii

Mr. Malcolm McLeod
Department of Transportation
Honolulu, Hawaii

Mr. Tony Oliver
Department of Planning and Economic
Development
Hawaii Technological Information
Center
Honolulu, Hawaii

Ms. Norrie Thompson
Department of Planning and Economic
Development
Honolulu, Hawaii

Mr. Karl Tomomitsu
Pollution Technical Review Branch
State Department of Health
Honolulu, Hawaii

Rear Admiral E. Alvey Wright, U.S. Navy
(Retired)
Director, Department of Transportation
State of Hawaii
Honolulu, Hawaii

Mr. Harold Younquist
Pollution Technical Review Branch
State Department of Health
Honolulu, Hawaii

STATE OF HAWAII

Mr. Ralph Yukumoto, Chief
Pollution Technical Review Branch
State Department of Health
Honolulu, Hawaii

Mr. George Yuen
State Department of Health
Honolulu, Hawaii

ERDA IN HAWAII

Mr. Roland L. Marchand
Project Engineer
USERDA
Pacific Area Support Office
Honolulu, Hawaii

Ms. Kristine Morris
USERDA
Pacific Area Support Office
Honolulu, Hawaii

Mr. Robert Stern
USERDA
Hawaii Information Office
Honolulu, Hawaii

UNIVERSITY OF HAWAII

Professor Richard J. Barber
 Assistant to the Director
 Social Sciences and Linguistics
 Institute and
 Acting Director
 Hawaii Research Center for Futures
 Study
 University of Hawaii at Manoa
 Honolulu, Hawaii

Mr. Carl Bovill
 The Hawaiian Energy House
 Department of Architecture
 University of Hawaii
 Honolulu, Hawaii

Ms. Eleanor Chong
 Sinclair Library
 University of Hawaii
 Honolulu, Hawaii

Professor James C. S. Chou
 Mechanical Engineering Department
 University of Hawaii
 Honolulu, Hawaii

Professor Mike J. Chun
 Associate Professor of Public Health
 University of Hawaii
 Honolulu, Hawaii

Dr. Doak Cox
 Director, Environmental Center
 University of Hawaii
 Honolulu, Hawaii

Professor John Craven
 Marine Programs Office
 University of Hawaii
 Honolulu, Hawaii

UNIVERSITY OF HAWAII

Professor Joel S. Fox
 Associate Professor
 Mechanical Engineering
 University of Hawaii
 Honolulu, Hawaii

Dr. Donald J. Grace
 Director
 Center for Engineering Research
 University of Hawaii
 Honolulu, Hawaii

Professor John T. Jefferies
 Director, Institute for Astronomy
 University of Hawaii
 Honolulu, Hawaii

Professor Tung Liang
 Associate Professor for Agricultural
 Engineering Institute
 University of Hawaii
 Honolulu, Hawaii

Professor Jim Pearson
 Associate Professor of Architecture
 University of Hawaii
 Honolulu, Hawaii

Mr. Charles S. Portwood
 Energy Consultant
 University of Hawaii
 Honolulu, Hawaii

Professor John W. Shupe
 Dean, College of Engineering
 University of Hawaii
 Honolulu, Hawaii

UNIVERSITY OF HAWAII

Dr. Ray M. Smith
Agricultural Engineering Institute
University of Hawaii
Honolulu, Hawaii

Dr. Les Swindale, Associate Director
Hawaii Agricultural Experiment
Station (HAES)
University of Hawaii
Honolulu, Hawaii

Professor Patrick K. Takahashi
Associate Professor of Civil
Engineering
College of Engineering
University of Hawaii
Honolulu, Hawaii

Professor Don Topping
Director, Linguistics
University of Hawaii
Honolulu, Hawaii

Professor Takeshi Yoshihara
Assistant Professor
Department of Civil Engineering
University of Hawaii
Honolulu, Hawaii

Dr. Paul C. Yuen
Associate Dean
Hawaii Geothermal Project
University of Hawaii
Honolulu, Hawaii

Mr. Douglas Y. Jakahi
Student
University of Hawaii
Honolulu, Hawaii

FEDERAL AGENCIES IN HAWAII

Mr. Pat De Leon
Staff Member of
Senator Daniel K. Inouye
Honolulu, Hawaii

Mr. Bob Manke
Staff Member of
U.S. Representative Patsy T. Mink
Honolulu, Hawaii

Mr. Roland L. Marchand
USERDA
Project Engineer
Pacific Area Support Office
Honolulu, Hawaii

Mr. John McClaren
Staff Member of
U.S. Representative Spark M. Matsunaga
Honolulu, Hawaii

Ms. Kristine Morris
USERDA
Pacific Area Support Office
Honolulu, Hawaii

Mr. David Nakagawa
Small Business Administration
Honolulu, Hawaii

Mr. Robert Seto
Staff Member of
Senator Hiram L. Fong
Honolulu, Hawaii

Mr. George Shiroma
U.S. Government
Small Business Administration
Honolulu, Hawaii

FEDERAL AGENCIES IN HAWAII

Mr. Robert Stern
USERDA
Hawaii Information Office
Honolulu, Hawaii

Mr. George Wilkins
Naval Undersea Center
Kailua, Hawaii

INDUSTRY IN STATE OF HAWAII

Mr. D. B. Cataluna
Field Superintendent
Wailuku Sugar Company
Wailuku, Maui, Hawaii

Mr. Russ Geib
Manager
Trade Development Department
Chamber of Commerce of Hawaii
Honolulu, Hawaii

Dr. Joe A. Hanson
The Oceanic Foundation
Waimanalo, Hawaii

Mr. E. Chipman Higgins
Director, Energy Supply
Hawaiian Electric Company, Inc.
Honolulu, Hawaii

Dr. Wayne Hilton
Hawaiian Sugar Planter's Association
Honolulu, Hawaii

Mr. Andrew Ho
Hawaiian Commercial and Sugar Company
Puunene, Maui, Hawaii

INDUSTRY IN STATE OF HAWAII

Mr. Lawrence McCully Judd
The Solaray Corporation
Solar Water Heating Systems
Honolulu, Hawaii

Mr. Hugo Kortschak
Hawaiian Sugar Planters' Association
Honolulu, Hawaii

Mr. Jung Y. Lowe
President
Scitron Corporation
Honolulu, Hawaii

Mr. Gilbert S. Masaki
XTERMCO
Honolulu, Hawaii

Mr. Dan C. Melarkey
Staff Agriculturist
Hawaiian Sugar Company, Limited
Hilo, Hawaii

Mr. Jim Pederson
Environmental Planner
Neighbor Island Consultants
Hilo, Hawaii

Mr. Joseph Souki
Executive Director
Maui Economic Opportunity, Inc.
Kahului, Maui, Hawaii

Mr. Maynard B. Standley
Manager of GASCO, Inc.
Honolulu Gas Equipment Company
Honolulu, Hawaii

INDUSTRY IN STATE OF HAWAII

Mr. Melvin T. Tanaka (P.E.)
W. A. Hirai & Associates, Inc.
Consulting Engineers
Hilo, Hawaii

Mr. Larry I. Tanimoto
Territorial Manager
HOH Corporation
RCA/Westinghouse Products
Hilo, Hawaii

Mr. Hannibal Tavares
Alexander & Baldwin, Inc.
Community Relations Director
Wailuku, Hawaii

Mr. Lane Thompson
Manager, Hilo Branch
Sunn, Low, Tom & Hara, Inc.
Environmental Engineers
Hilo, Hawaii

Mr. Melvin H. Yokota
Electrical Engineer
W. A. Hirai & Associates, Inc.
Consulting Engineers
Hilo, Hawaii

Mr. Robert Youngman
General Manager
Armstrong Homes Incorporated
Hilo, Hawaii

Mr. Fred Zobrist
Neighbor Island Consultants
Honolulu, Hawaii

COUNTY OF HAWAII

Mr. George Abe
Manager
Hawaii Island Chamber of Commerce
Hilo, Hawaii

Captain Wendell Castro
County of Hawaii Police Department
Hilo, Hawaii

Mr. Delbert Ching
Fire Inspector
County of Hawaii Fire Department
Hilo, Hawaii

Ms. Doris Ching
Office Manager
County of Hawaii Fire Department
Hilo, Hawaii

Mr. Walter DeWeese
Purchasing Agent
County of Hawaii
Hilo, Hawaii

Mr. Akira Fujimoto
Manager
Department of Water Supply
County of Hawaii
Hilo, Hawaii

Mr. Clarence W. Garcia
Director
Department of Research and
Development
County of Hawaii
Hilo, Hawaii

COUNTY OF HAWAII

Mr. Milton Hakoda
 Director
 Department of Parks and Recreation
 County of Hawaii
 Hilo, Hawaii

Mr. Edward Harada
 Chief Engineer
 Department of Public Works
 County of Hawaii
 Hilo, Hawaii

Mr. Isamu Higa
 Storekeeper/Fire Department
 County of Hawaii
 Hilo, Hawaii

Mr. Arthur Isemoto
 Deputy Chief Engineer/Public Works
 County of Hawaii
 Hilo, Hawaii

Fire Chief Elvin Kamoku
 County of Hawaii Fire Department
 Hilo, Hawaii

Mr. Jack P. Keppeler
 Managing Director
 Office of the Mayor
 County of Hawaii
 Hilo, Hawaii

Mr. Hideo Kuniyoshi
 Director/Liquor Control
 County of Hawaii
 Hilo, Hawaii

COUNTY OF HAWAII

Mr. Clifford Lee
 Research Statistician
 Department of Research and
 Development
 County of Hawaii
 Hilo, Hawaii

Councilman Andy Levin
 County of Hawaii
 Hilo, Hawaii

Mayor Herbert Matayoshi
 County of Hawaii
 Hilo, Hawaii

Mr. Dan Matsumoto
 Deputy Director
 Department of Parks and Recreation
 County of Hawaii
 Hilo, Hawaii

Mr. Barney Menor
 Transit Coordinator
 County of Hawaii
 Hilo, Hawaii

Mr. Richard Mitsumori
 Division Head
 Department of Public Works
 County of Hawaii
 Hilo, Hawaii

Captain Teruo Morigaki
 County of Hawaii Police Department
 Hilo, Hawaii

COUNTY OF HAWAII

Mr. Stanley Nakamae
Finance Director
County of Hawaii
Hilo, Hawaii

Ms. Gail Nakamura
Personnel Clerk/Fire Department
County of Hawaii
Hilo, Hawaii

Mr. Carl Okamura
Operations Division Head/Water Supply
County of Hawaii
Hilo, Hawaii

Mr. George M. Paiva
Safety Coordinator
Division of Industrial Safety
Office of the Mayor
County of Hawaii
Hilo, Hawaii

Deputy Police Chief Guy Paul
County of Hawaii Police Department
Hilo, Hawaii

Mr. Harry Ruddle
Administrative Aide
Office of the Mayor
County of Hawaii
Hilo, Hawaii

Mr. Edward Silva
Personnel Director
County of Hawaii
Hilo, Hawaii

COUNTY OF HAWAII

Mr. Harold Sugiyama
Bureau Head/Sewers and Sanitation
County of Hawaii
Hilo, Hawaii

Mr. Ted Tanaka
Bureau Head/Plans and Survey
County of Hawaii
Hilo, Hawaii

Deputy Fire Chief Donald Thompson
County of Hawaii Fire Department
Hilo, Hawaii

Mr. Yoshio Watanabe
Agriculturist
County of Hawaii
Department of Research and
Development
Hilo, Hawaii

Mr. Bob Youngman
President
Hawaii Island Chamber of Commerce
Hilo, Hawaii

CITY AND COUNTY OF HONOLULU

Chief Boniface K. Aiu
Fire Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Ray Aono
Division of Engineering
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Mr. George Ardo
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii

Mr. Tom Ashimine
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii

Mr. Fred Awana
Honolulu Fire Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Herman D. Burrell
Department of Transportation Services
Traffic Safety Education
City and County of Honolulu
Honolulu, Hawaii

Mr. Ed Campbell
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Arlie Carson
Department of Finance
City and County of Honolulu
Honolulu, Hawaii

Captain Donald Chang
Fire Department
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Battalion Chief Donald Ching
Fire Department
City and County of Honolulu
Honolulu, Hawaii

Ms. Jeanne Comer
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Captain Pete Davis
Honolulu Police Department
Administrative Bureau
Research and Development Division
Honolulu, Hawaii

Mr. John Ferreira
Honolulu Fire Department
Honolulu, Hawaii

Mr. Pete Gibo
Department of Finance/Purchasing
City and County of Honolulu
Honolulu, Hawaii

Mr. Kazu Hayashida (P.E.)
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii

Mr. Jinji Higa
Building Department
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Mr. George Hiu
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii

Mr. Nauto Inada
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Edwin Kanenaka
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Frank Kimata
Purchasing/Standards and
Specifications
City and County of Honolulu
Honolulu, Hawaii

Mr. Young Suk Ko
Director
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. George Krueger
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Irwin Lane
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Mr. Johann Lee
Assistant to the Director
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Rod Lindow
Office of the Managing Director
City and County of Honolulu
Honolulu, Hawaii

Mr. A. J. Lopez
Fire Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Milnor Lum
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Glenn Lung
Fire Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Miki Matsuno
Chief of Facilities Development
City and County of Honolulu
Honolulu, Hawaii

Battalion Chief Melvin Mendoya
Fire Department
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Mr. Jim Nakasue
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. James Naylon
Personnel Office
Honolulu Police Department
Honolulu, Hawaii

Mr. Herbert A. Northcutt
Transit Planner
Department of Transportation Services
City and County of Honolulu
Honolulu, Hawaii

Mr. Takashi Ogata
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii

Major Norman D. Osthoff
Honolulu Police Department
Administrative Bureau
Research and Development Division
Honolulu, Hawaii

Mr. Glenn Peterson
Honolulu Police Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Leo C. Pritchard
Deputy Managing Director
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Mr. John S. San Diego
Assistant Chief of Police
Administrative Bureau
Honolulu, Hawaii

Assistant Chief Richard W. Sawyer
Honolulu Fire Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Peter Senecal
Managing Director's Office
City and County of Honolulu
Honolulu, Hawaii

Mr. William Spencer
Department of Public Works
Refuse Division
City and County of Honolulu
Honolulu, Hawaii

Mr. Roy Takara
Department of Public Works
Division of Solid Waste
City and County of Honolulu
Honolulu, Hawaii

Mr. Yukio Taketa
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Kenneth Thong
Division Chief
Maintenance Street Lighting
Department of Transportation Services
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Mr. Stanley Tom
Honolulu Fire Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Etsuo Tuokawa
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii

Mr. Yukio Uyehara
Road Maintenance Division
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii

Mr. George M. Uyema
Department of Public Works
Sewer Division
City and County of Honolulu
Honolulu, Hawaii

Mr. Ellwood Van Gieson
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii

Mr. Paul F. White
Honolulu Police Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Yuzuru Yamasaki
Purchasing/Standards and
Specifications
City and County of Honolulu
Honolulu, Hawaii

CITY AND COUNTY OF HONOLULU

Mr. James Yamauchi
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii

Inspector Eugene Yee
Fire Prevention Bureau
Honolulu Fire Department
City and County of Honolulu
Honolulu, Hawaii

Mr. Setsumi Yokoyama
Department of Parks and Recreation
City and County of Honolulu
Honolulu, Hawaii

Mr. Robert Young
Assistant Chief, Refuse Division
City and County of Honolulu
Honolulu, Hawaii

Mr. Ernest Yuasa
Building Department
City and County of Honolulu
Honolulu, Hawaii

COUNTY OF MAUI

Mr. Roger L. Cachola
Department of Water Supply
County of Maui
Wailuku, Hawaii

Mr. Donald B. Cataluna
Field Superintendent
Wailuku Sugar Company
County of Maui
Wailuku, Hawaii

COUNTY OF MAUI

Mr. Walbert S. Chong
Service Facilities Manager
Hawaiian Telephone Company
County of Maui
Wailuku, Hawaii

Mayor Elmer F. Cravalho
County of Maui
Wailuku, Hawaii

Jan Dapitan
Director
Department of Parks and Recreation
County of Maui
Wailuku, Hawaii

Mr. Art Fernandez
Federal Program Coordinator
County of Maui
Wailuku, Hawaii

Mr. Stan Franco
Planning Department
County of Maui
Wailuku, Hawaii

Mr. Tatsumi Imada
Department of Water Supply
County of Maui
Wailuku, Hawaii

Mr. Ralph Masuda
Planning Department
County of Maui
Wailuku, Hawaii

Mr. Marco Meyer
Fire Department
County of Maui
Wailuku, Hawaii

COUNTY OF MAUI

Mr. Manuel Moniz
Member - Board of Land and Natural
Resources - State of Hawaii
Kahului, Hawaii

Mr. Charles V. Nalepa
Manager
J. Walter Cameron Center
County of Maui
Wailuku, Hawaii

Mr. Calvin S. Nemoto
County of Maui
Wailuku, Hawaii

Mr. Bruce Palmer
Maui Community College
County of Maui
Wailuku, Hawaii

Mr. Eric Soto
Economic Development
County of Maui
Wailuku, Hawaii

Mr. Joseph Souza
Liquor Control Department
County of Maui
Wailuku, Hawaii

Mr. Hannibal Tavares
Community Relations Director
Alexander & Baldwin, Inc.
County of Maui
Wailuku, Hawaii

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Energy Research & Development Administration, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately-owned rights.

NOTICE

Reference to a company or product name does not imply approval or recommendation of the product by the University of California or the U.S. Energy Research & Development Administration to the exclusion of others that may be suitable.

Technical Information Department

LAWRENCE LIVERMORE LABORATORY

University of California | Livermore, California | 94550