

MASTER

FINAL REPORT

DOE - UNIVERSITY OF ARIZONA FACULTY DEVELOPMENT PROJECT

SPONSOR NUMBER DE-FG01-791R10238

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Submitted: 8 September 1980
Joseph M. Fillerup,
Project Director

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FINAL REPORT

DOE - UNIVERSITY OF ARIZONA FACULTY DEVELOPMENT PROJECT

The DOE - University of Arizona Faculty Development Project on Energy successfully completed a faculty development program. There were three phases of the program consisting of: a three week energy workshop for teachers, participation and cooperation with Students for Safe Energy in presentation of an Alternative Energy Festival at the University of Arizona, and workshops for teachers conducted at Flowing Wells School District. Each of these is described below.

1. A three week Seminar Energy workshop was the most significant accomplishment of the faculty development project. Twenty individuals participated in the workshop.

Discussion leaders for the workshop were University of Arizona faculty members who had expertise in a specific area of energy. The Science Curriculum Coordinator for Tucson District #1 supplemented lectures and the more formal presentations with "hands on" experiments and projects that teachers could take back to their classrooms and do with children. The DOE had supplied large quantities of resource materials for the workshop. The lectures, the "hands on" experiments and getting acquainted with energy resource materials from DOE and other sources all contributed to the success of the workshop. A listing of workshop staff is given below. Energy workshop programs are in the appendix.

Staff and their affiliation for the three week workshop were:

Dr. Thomas Rehm - Professor Chemical Engineering
Dr. Phillip Bryson - Acting Head Economics Department
Mr. Nile Jones - Geologist, Geothermal Group
Dr. Roy G. Post, Professor of Nuclear Engineering
Mr. S. Daniel Schwartz - Pima College
Dr. Reginald Call, Department of Electrical Engineering
Pat Wing, Arizona State Energy Program
R. Larry Medlin, Architectural College
Dr. John Peck, Project Engineer, Environmental Engineering Lab.
Dr. Dennis Larson, College of Agriculture
David Smith, Science Coordinator Tucson District #1

2. The Alternative Energy Festival conducted at the University of Arizona, April 17-20 presented an opportunity to offer faculty development programs to teachers and others in attendance. This program involved cooperation with the Students for Safe Energy. The DOE Faculty development project provided resource people for various presentations during the Festivals. This endeavor was successful in providing information to teachers and others who were interested in the conservation, utilization, and development of energy resources. General sessions of the Festival had two hundred plus in attendance. The workshop sessions varied in attendance from 15 to 45 people. Program announcements for the Alternative Energy Festival are in the appendix.

3. Faculty Development Programs in Schools.

Faculty development programs were conducted in the Flowing Wells School District at the Davis School. Topics for these programs were: "Solar Heating and Cooling Techniques - Getting the Message to Children" presented by Dr. John Peck, project engineer, Environmental Research Laboratory and (2) "Nuclear Energy - Safe and Sane" presented by Dr. Barry Ganapol of the Nuclear Engineering Department, University of Arizona. These programs were well received. Attendance was approximately 20-25 teachers at each session. Program announcements are in the appendix.

Attendance, Teaching Assignments and Affiliations.

The attendance, teaching assignments and affiliations of the participants are given below for the three major thrusts of the DOE University of Arizona Faculty Development project.

1. University of Arizona Energy Workshop for Teachers

June 16 - July 7. See attached list, page 3a.

2. Alternate Energy Festival - Attendance

The Alternate Energy Festival format provided for participation by any interested person; therefore participants were from many sectors of the public. The sessions and the attendance for the sessions are listed below.

Thursday, April 17, 1980

Topic	Attendance
Solar Home Design	20
Energy from Tumbleweeds	30
Solar Energy: Today and Tomorrow	17

Energy Workshop

Wednesday, 18 June -

John Caruthers
 Virginia McSargent
 Shirley Musgrave
 Gladys G. Kelly
 Betty Triste
 Christine S. Hamilton
 Mitzi Fillerup
 Kris Fillerup
 Edna Nelson
~~David Mullis~~
 Frederick T. Welke
 H. Kennedy
 Lois McCordner
 Hazel Reitzel
 Lynann Polite
 Kathie Johnson
 Barbara E. Hewitt
 Robert Oakes
 Sandra Stark
 Joan Regens

Teaching Assignment	Affiliation
Intermediate	Sunnyside
4th	Steele - TUSD
3rd	Liberty, Sunnyside
2nd	Liberty, Sunnyside
1st	Mission, Sunnyside
Home Bound	TUSD
4th	Not teaching
College Sr.	Not teaching
7-8 Grade	Townsend Jr. High TUSD
6th	Marshall - TUSD
6th	Mission, Sunnyside
4th	Cragin - TUSD
2nd	Thornycastle School Mara:
4th	Thornycastle School Mara:
Grad. Student	
High School	Sunnyside H.S.
3rd	Lineweaver, TUSD
3rd	Esperanza, Sunnyside

Friday, April 18, 1980

Topic	Attendance
Applications of Geothermal Energy	19
Coolidge Solar Irrigation Project	15
Energy Efficient Homes	28

Saturday, April 19, 1980

Solar Energy - The Past, Present and Future	15
Everything You Want To Know About Solar Energy	8
Solar Greenhouse/Porch	45
Biomass Energy	45
How to Buy a Solar Water Heater	30
Solar Energy - Today and Tomorrow	15
Do It Yourself Solar Water Heater	20

Sunday, April 20, 1980

Beyond the Energy Crisis	20
Edward Abbey - Views on Energy	200
Ed Gabel	200

3. The Faculty Development Workshops at Davis School, Flowing Wells School District had 20-25 Kindergarten - Sixth Grade Teachers from Davis, Douglas, and Laguna Schools present.

DOE PARTICIPANT EVALUATION SHEETS

DOE evaluation sheets were forwarded to the DOE office after the three week workshop.

DIRECTOR'S EVALUATION

The three week Energy Workshop was a tremendous success. The resource people from the geothermal group, architecture, economics, Arizona State Energy programs, and the electrical, chemical, and nuclear engineering departments of the University brought sophisticated expertise to the program. Participants were pleased with the presentations and the way lectures were organized to communicate to the less informed on energy matters.

The Science Coordinator from Tucson School District #1 provided interesting and appropriate "hands on" energy experiments and demonstrations that teachers could incorporate into their classrooms. An outstanding feature of the Science Coordinators experiments was his demonstrations of energy concepts using inexpensive and easily assessable materials; thus, demonstrating how teachers could utilize the experiments without expensive sophisticated equipment.

Advertising for the three week energy workshop was done by circulating one thousand announcements throughout the local area. Science and curriculum coordinators for the school districts in the area were contacted given announcements and encouraged to give support for the workshop. The Alternative Energy Festival was advertised by distribution of 5000 announcements, radio and TV announcements, and publicity coverage in the local papers. Attendance estimates for the Festival are from 1500 to 2000 people who came to the displays and/or participated in the energy seminars. Many teachers participated, however, the Festival was open to the public.

The most difficult phase of the project was attempting to get schools to participate in on going workshops.. Superintendents had given verbal support but attempts to organize through the Superintendents offices were discouraging. Attempts to establish workshops at the individual school level were met with enthusiasm but the delay caused by the first attempts to organize at the Superintendents level caused scheduling problems. Future attempts should be more successful.

The objectives of the DOE University of Arizona Faculty Development project were met. Large numbers of teachers attended energy seminars and workshops. Much DOE and other materials concerning energy were disseminated.

It has been a pleasure to be involved in the DOE faculty development project. I wish to express my appreciation for the fine support and cooperation given by DOE personnel.

APPENDIX

1. Program Schedule Three week Energy Workshop for Teachers.
2. Alternative Energy Festival Program.
3. Energy Workshop - Flowing Wells School District.
4. Partial registration lists - Alternative Energy Festival.

Department of Energy - University of Arizona Energy Workshop - Education 6597h - 3 credits
June 16 - July 7, 1:00 - 4:00 pm.

<p>June 16</p> <p>Overview of World Energy Resources and Utilization.</p> <p>Basic Laws of Thermo Dynamics. Fossil Fuels.</p> <p>DR. THOMAS REHN - PROFESSOR OF CHEMICAL ENGINEERING</p>	<p>June 17</p> <p>Fossil Fuels: Distribution of resources, magnitude, future potential, natural precursors.</p> <p>Ind. Exp: Properties of raw and refined fuels</p> <p>Coal Combustion char.</p>	<p>June 18</p> <p>Fossil Fuels: Processing from raw state to environmentally acceptable form: Petroleum, Natural Gas, Coal, tar sands, oil shale. Ind. Exp.</p>	<p>June 19</p> <p>Energy: The Economic Picture.</p> <p>Dr. Phillip Bryson Acting head-Economics Dept</p>	<p>June 20</p> <p>Geothermal: Application, State of the Art High-Low Temperature Site Specific - Arizona Environmental Problems Subsidence and legal prob. Federal Programs</p> <p>Nile Jones, Geologist</p>
<p>June 23</p> <p>Nuclear Energy: History and present status: U.S. and World</p> <p>ROY G. POST, PROFESSOR OF NUCLEAR</p>	<p>June 24</p> <p>Risks: real & perceived: Environmental, Mining & Processing, Power Plant (Safety), Waste Management, Political, Proliferation, Sabotage, Economic, Cost of Electricity, "Fringe Benefits"</p>	<p>June 25</p> <p>Nuclear Energy: Description of Reactor Types; LWR'S - BWR & PWR, HTGR, LMFBR, GCFR. Fusion: Prospects, timing, approaches.</p> <p>ENGINEERING</p>	<p>June 26</p> <p>Solar Energy: Photovoltaics: through film, single crystal, concentration systems, space.</p> <p>Dr. Reginald Call, Electrical Engineering</p>	<p>June 27</p> <p>Solar Thermal Electric Systems: Bio Mass - Waste materials, Farms, Process heat, Agriculture- Industrial Solar Energy, Winds, Ocean thermal, Photo chemical, Total systems, Research Scientist, Coll. of Ag.</p>
<p>June 30</p> <p>Energy Conservation</p> <p>Pat Wing Arizona State Energy Program</p>	<p>July 1</p> <p>Energy Efficient Homes</p> <p>Kenneth N. Clark College of Architecture</p>	<p>July 2</p> <p>Visit Solar Homes or Experiments of College of Architecture.</p> <p>Kenneth N. Clark</p>	<p>July 3</p> <p>Solar Heating & Cooling: a. Water, b. Space heating, c. Space cooling.</p> <p>Dr. John Peck, Project Engineer, Environmental Engineer Lab.</p>	<p>July 7</p> <p>Examination and Development of Teaching Materials.</p>

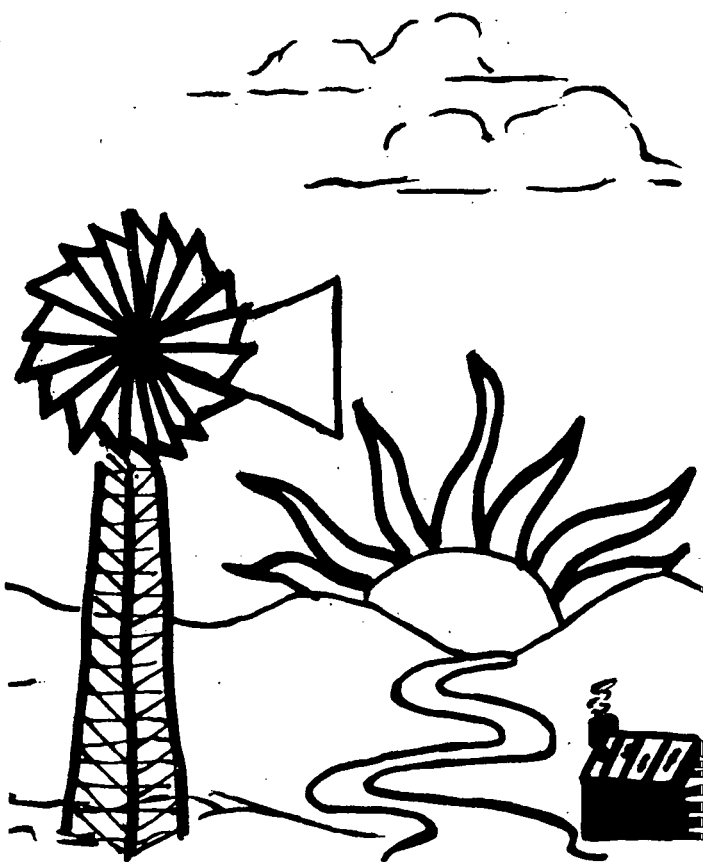
One-half to two thirds of the time will be devoted to lectures and discussions of energy resources and utilization. The remainder of the time will be devoted to the examination and development of Teaching Materials. Dr. David Smith, Science Coordinator Tucson #1, will assist with Educational Materials

University of Arizona
Dr. Joseph Fillerup
Phone - 6265337

ENERGY WORKSHOP for TEACHERS

STUDENTS FOR SAFE ENERGY

— Presents —



**ALTERNATIVE
ENERGY
FESTIVAL**

**University of Arizona
APRIL 17 — 20**

We would like to thank the following people for all their support and assistance in making this festival possible:

ASUA

**Arizona Energy Extension Service
Clare's Cafe, 1139 E. 6th Street
Dr. Joseph Fillerup, College of Ed.
Food Conspiracy
Metropolitan Energy Commission
New West Trails
Saguaro Alliance
University of Arizona —
participating faculty**

STUDENTS FOR SAFE ENERGY
is a non-profit, University of Arizona student group. The group formed in the Summer of 1979 and has been working to promote alternative and safe forms of energy.



Our reliance on non-renewable energy sources has been a major factor that has hindered the growth of our economy. The times are changing. We do have alternatives. Solar, wind, geothermal and biomass energy have always been available on this planet. It has taken us until now to devise methods for efficiently using these forms of safe energy.

In this ALTERNATIVE ENERGY FESTIVAL we have attempted to demonstrate renewable energy sources and educate the public about their feasibility. We hope that this festival will be an enjoyable way to learn.

Displays ranging from industrial solar projects to "backyard" technology will be available throughout the four-day event. Solar ovens and dryers, a wind generator, adobe brick construction, a solar greenhouse, and a methane digester will be some of the displays at the McKale Field on the University of Arizona campus.



A FEW HIGHLIGHTS OF THE FESTIVAL WILL BE:

- Author Edward Abbey speaking Sunday afternoon in the Gallagher Theater, followed by
- A performance by Ed Gabel of the Invisible Theatre in the role of Rev. Isaac Nuke
- Free food samples (soy ice cream, cheesecake, hot tofu and tempeh sandwiches) will be given away each day at noon from the soybean concession stand.
- Acoustical music for your entertainment while viewing the exhibits at McKale Field

The entire festival is free and open to the public. Come on out and enjoy the sun.

TUDENTS FOR SAFE ENERGY

THURSDAY — APRIL 17

- noon **Exhibits Open**
Displays of energy products and projects on McKale Field. Free food samples at the soybean concession stand.
- 2:00 pm **Solar Home Design**
Larry Medlin will discuss the advances in architectural design of active and passive solar homes. Student Union room 280
- 3:00 pm **Energy From Tumbleweeds**
Martin Karpiscak will talk about biomass technology, particularly the Russian Thistle biomass project. Student Union room 280
- 4:30 pm **Solar Energy: Today and Tomorrow**
Dr. Reginald Call will give an overview of solar energy. College of Education room 441 (DOE sponsored workshop for teachers)
-

FRIDAY — APRIL 18

- noon **Exhibits Open**
Display of energy products and projects on McKale Field. Free food samples at the soybean concession stand.
- 2:00 pm **Applications of Geothermal Energy**
Thomas Maddock will discuss the uses, benefits and risks of geothermal energy. Modern Languages room 304
- 3:00 pm **Coolidge Solar Irrigation Project**
Dr. Dennis Larson has been active in the development of the Coolidge Solar Project and will explain the the concept of the project. Modern Languages room 304
- 4:30 pm **Energy Efficient Homes**
The College of Architecture staff will discuss energy efficient home designs. College of Education room 331 (DOE sponsored workshop for teachers)

SATURDAY — APRIL 19

10:00 am

Exhibits. Open

Displays of energy products and projects on McKale Field. Free food samples at the soybean concession stand.

Solar Energy — The Past, Present and Future

John Kimball of the Arizona Solar Energy Commission will discuss solar activities in Arizona with a film, lecture and slide presentation. Gallagher Theater

Everything You Want to Know About Geothermal Energy

W. Richard Hahman and Nile Jones will discuss geothermal energy. College of Education room 331 (DOE sponsored workshop for teachers)

11:00 am

Solar Greenhouse/Porch

John Peck of UA Environmental Research Lab will discuss an energy efficient solar greenhouse-porch combination. Gallagher Theater

11:45 am

Biomass Energy

Doug Williams will talk about biomass energy and the methane converter he works with at the UA Campbell Avenue Farm. Gallagher Theater

1:00 pm

How to Buy a Solar Water Heater

Arizona Energy Extension Service will explain how to purchase and use solar water heating systems. (2½ hours) Gallagher Theater

Solar Energy — Today & Tomorrow

Dr. Reginald Call will give an overview of solar energy. College of Education room 331 (DOE sponsored workshop for teachers)

4:00 pm

Do-It-Yourself Solar Water Heater Assembly and Installation

Charles Glickman will demonstrate a solar system kit and show slides and a film about the Pima College do-it-yourself course for homeowners. Gallagher Theater

SUNDAY — APRIL 20

10:00 am

Exhibits Open

Displays of energy products and projects on McKale Field. Free food samples at the soybean concession stand.

Beyond the Energy Crisis. . . A New Era

Dr. Rocco Fazzolare will present a slide show and discuss an optimistic outlook of our energy situation. Gallagher Theater

1:00 pm

Edward Abbey, writer and social satirist, will present his views on the energy situation and our need for alternative energy sources in a short talk at the Gallagher Theater.

1:30 pm

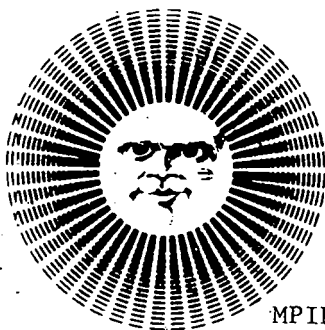
Ed Gabel, of the **Invisible Theatre**, will perform a humorous monologue of Rev. Isaac Nuke. Gallagher Theatre

2:00 pm

How To Build a Solar Oven

Pat Ebrom will conduct a workshop on building a solar oven from a cardboard box. Working models will be on display.

All day Sunday the Food Conspiracy will sponsor a celebration of EARTH DAY. Informative talks, music, dance and demonstrations will be part of the events held on McKale Field.



MPIRG/cpf

ENERGY WORKSHOP for TEACHERS

Sponsored by

U. S. DEPARTMENT OF ENERGY

College of Education, University of Arizona

in conjunction with

ALTERNATIVE ENERGY FESTIVAL

APRIL 17, 18, 19, 20, 1980

organized by Students for Safe Energy

<u>Title</u>	<u>Resource Person</u>	<u>Time</u>	<u>Place</u>
"Solar Energy - Today and Tomorrow"	Dr. Reginald Call Dept. Electrical Engineering	4:30-6:00 P.M. Thursday April 17, 1980	Room 441 College of Education
"Energy Efficient Homes"	Kenneth N. Clark, Architect, College of Architecture	4:30-6:00 P.M. Friday April 18, 1980	Room 331 College of Education
"Everything you Want to Know About Geothermal Energy"	Nile O. Jones, Geologist, Geo- thermal Group	10:00-11:30 A.M. Saturday April 19, 1980	Room 331 College of Education
"Solar Energy - Today and Tomorrow"	Dr. Reginald Call Dept. Electrical Engineering	1:00-2:30 P.M. Saturday April 19, 1980	Room 331 College of Education

* Individuals can participate in one or all three of the workshops ----
Adults, who are not teachers, are also welcome.

ENERGY WORKSHOP

HOMER DAVIS SCHOOL LIBRARY

APRIL 8 AND 15TH, 1980

2:30-4:00 P.M.

Sponsored by

U. S. DEPARTMENT OF ENERGY

College of Education, University of Arizona

and

Flowing Wells Unified District #8

<u>Title</u>	<u>Resource Person</u>	<u>Time</u>
"Solar Heating and Cooling Techniques-Getting the Message to Children"	Dr. John Peck, Project Engineer Environmental Research Laboratory	2:30-4:00 P.M. Tuesday April 8, 1980
"Nuclear Energy-Safe and Sane"	Dr. Roy G. Post, Professor Nuclear Engineering, University of Arizona	2:30-4:00 P.M. Tuesday April 15, 1980

Joseph M. Fillerup
College of Education
Phone: 626-5337

Paul Kosmides

Solar Energy - April 17, 1980 -

Name

School & District

Pat Wang

Energy Programs, 1700 W. Washington
Phoenix Az 85013 255-3303

Jane Warner

P.O. Box 40633 Tucson Az 85717

Jim Brinkman

624 N. 5th Ave., Tucson Az 85705

Yoss Miller

821A Erickson, Tucson Unified
School District

Terry Otte

Substitute, District 1 and Sunnyside

Elizabeth Heels

Senior U of A

Lisa Dominguez

Fr. U of A

Michael Anderson

Jr. U of A

Joanne Shay

Gr. U of A

Charles O'Neil

Sr. U of A

Deanna Clemons

teacher, Amphitheater S.D.

Michelle Gillespie

teacher, Amphitheater

Ron Sadler

teacher - Amphitheater Dist.

George A. Carter

College of Engineering

Joseph M. Fillings

SSN 6

Mary S. Fillings

Geothermal - Nile Jones-

Please Sign & designate the
Name School and District and
address -

Dyann Clemens

Amphitheater School District

Alan Kruse

Pima College

Pat Wieg

1700 W Wash Phx Sz St of Cy

Mary Spitaler

Alvemon / Speedway

German Schrag

"

PETER ANDERSON

STUDENT OF U OF A

J. Fullenys

Mary Fullenys

Sat. April 19

Registration

NAME	ADDRESS	OCCUPATION If a teacher, please give name of school
Sam Bennett	624 N 5 th Ave.	teacher, pre-school
A. BERT GRINN	2509 N CAMPBELL	chemical engineer
Murray Fenster	510 N Iroquois 85705	Research. W.H.
GRAYDON PEOPLES	GLENDALE, AZ	ENGINEER, SRP
Jerraine Peoples	4335 Royal Palm Rd, Glendale	85302 teacher
JOSE L. AGUIRRE	2109 E 5TH STREET	VISITING PROFESSOR COLLEGE - ARCHITECTURE
John Pich	4115 E 4 th St	Engineer
TED & JOY HESS	11850 WAGON TRAIL MD	RETIRED
DENNIS COOK	8000 W. Camino Del Cerro	Producer - Instruction ^{of}
Leslie Selko	" " " "	Professor of English
Lee Panage	1010 E MABEL #29	Student UofA
Jane Warner	P.O. Box 40633 85717	Business Consultant
Andrea Holmes	325 N. Fremont 85719	Student - MKTG. UofA
E. Clonts	5531 S. Sunset Blvd	Student - Teacher
J. B. Cloutz	" "	Anthropologist
JOHN A. Ryberg	9162 E. 3 rd St	Foster / owner - Builder
Richard Parkinsen	529 S. 6 th Ave	student
Nancy Sternbach	711 E. Mabel	grad student / T.A. Univ. of
John Waite		Cump school TVSD
Chap - ym For 2 - potter pl.		professor
M/M JAMES F. BONNER		Retired Home Bldr.
David J. H. H. H.		Student
David J. H. H. H.	1134 N. 1st Ave. 85719	Student / clerk
Susan Siegel	718 Drachman	student /
B. Wagner	2330 E. DISON	Railroad
E. Lassenti	1232 Drachman	Student
Wyle Adams	1730 Calle Alvaro	Agri Consul Agent
Barry M. O'Quinn	2109 E 5 th St	Student
State - Louis B. B. B.	10530 PRICITA LOMA VERDE 8570	STUDENT

REGISTRATION

SAT. April 19th

NAME	ADDRESS	OCCUPATION IF TEACHER, PLEASE GIVE NAME OF SCHOOL
Ange Taylor Quinn	P.O. Box 1824, Bisbee, AZ	TEACHER, PLEASE GIVE NAME OF SCHOOL
John E. Cune	306 S. GRAND E Trc	Electrician
Richard White	2212 E. Monte Vista Tuc	ALL
Worck Hall	315 E ELM Tuc	All of Above
Larry Clark	281 W. University	MR Services
Bob Bryant	1262 S. CRAWFORD Tuc	ENGINEER
Jim Brinkman	624 N. 5 th Av.	STUDENT
STEVE PLANK	3065 W. SHUMAKER	BIOCHEMIST
DAVID SANSING	GEN. DEL. TUC. 85702	CASUAL & TEMPORARY
Gary Grabowski	2610 N. Dodge # Tuc	Mason
E. Krawinger	2610 N. Dodge #1 Tucson	
Ken MacCormack	401 N. Brand Ave Tucson	Retired Teacher
Marilyn Barker	5152 E. Alberta Ar.	Business Woman
DRVILLE	Nowhere	SLAVE
J.W. Patrick	Smugglers Inn	Programmer
Alex Okumoh	R.D. # Cochise Co.	RETIRED COMM. ARTIST
Pete Wilburn	R.D. # Cochise Co.	Registered Nurse
Robert A. Bergsack	302 Pecos de Golf - Valley	Retired Mech Enggr
Elsie D. Bergsack	" "	Housewife
Ann Froehlich	1101 W. Navajo St	Bookstore Mgr.
Pat Wing	Energy Progs 1700 W. Wash	Phx Az. 85007
Craig Angell	2447 E Mabel Tuc	Furniture Mover
MIKE WALSH	2626 N. ESTRELLA	TUCSON
Gene Girard	910 W. Schuster Dr	TUCSON
Richard Bailey		
George E. Jean Girard	SAME ↑	SAME ↑
Jim Sascher	PO Box 1824 Yuma, AZ	EDA Planning - Quechan Tribe
Lo Hildebrandt	6002 E. Seneca Tuc-85712	Educ. Research Assist.
O.K. ANDERSEN	503 W. RILITO LN	HOUSING INSPTR DMAFB
E.V. MALEA	8960 E. HARRILL WAY	ENGINEER
Roger Caldwell	1625 E. Kleindale Rd	TEACHER
Chet Moduski	1226 N. TORINO AVE	PIPEFITTER

REGISTRATION

NAME	ADDRESS	OCCUPATION → IF TEACHER, PLEASE GIVE NAME OF SCHOOL
MARK MAGELLA	SUPD 9049 TIC AZ 85720	STUDENT WFA
R.L. KOFIRA	531 N. EASTVIEW TC AZ 85710	M.E. I.B.M.
TERRY OTTE	5353 E 22nd Apt 926 TU AZ 85711	Math Teacher / Sub
JACK A. COHEN	7620 E. Hampton Pl. 85715	Architect (GCA)
Lyle F. de Lambert	Rt 1 LCM 620 Penitentiary Fl.	Retired Eng.
Michael Shield	111 C. Pennington	City of Tucson Insp. Support.
S. SCHLANGER	4310 N. ALVERNON	TAX PRACTITIONER
Don H. Bonner	4643 E. 15th St.	Teacher - M.D.
Don Braun	2918 E. 27th St.	Electronic technician
Joyce Lesto	2832 N Estrella	Student
Mike Comora	Same	Student
Sara Sheretta	3750 N. Country Club	journalist
Oliver Lottman	232 W Knappa	Programmer
T.D. Harrison	4901 W Alacita de los Vientos 85705	Lawyer / Lobbyist
Norman Soifer	1433 E. Hedrick Dr.	Entomologist
Verna Dailer	1776 S. Palo Verde Dr 10	Salesclerk
John Sayre	Green Valley AZ	Retired
Steve Rogers	1443 N. MAGNOLIA	MUSEUM REGISTRATION
Lennis T. Swin	4501 E. Benson Hwy	
Joe Bustamante	1300 E 6th 85719	Manfeld Dr H.S.
W.D. Berkeley	5430 N. Penrose	Interested
JOHN HARTNER	8X1319 MCCALL RD 85633	BUNDEL
John Carter	2315 WAGON WALK 85705	ELECTRICIAN
John Carter	4071 E. 31st	Builder
C. Wagner Buley	935 N. Cherry Ave	Student
T.R. + V.R. KUNTZ	7131 N. Montebella Rd.	Field Engineer / Homeing
G. KRUTZ	2470 E. ave de Posada	anthropologist
K. Kentaro	484 S. Convent	Student
K. Beecher	484 S. Convent	Student
Grace Evans	2612 E. Drachman	Planner
Mohamed MAHAK	Old Bldg. of Entomology	Student
	U. of A	

NAME	ADDRESS	OCCUPATION: if teacher, please give name of school
Chris Sanders	Dipt S.W.E., U of A	Bdr Ranch
Rob Dvorak	Coll Arch U of A	
Ralph Tombarce	U of A	
Victor D. Humble	5761 Camino del Palomar 85715	Podiatrist
Tony Lieberman	2028 E. LER	
Dick Childs	1067 W Miracle Mile #1	
W.A. Cunningham	RR8 Box 3270 Tucson AZ	
Steve Healy	5470 9144 Tucson AZ	
F. KRISTOF	1126 E. SWAN RD, TUCSON, AZ. 85712	
R.W. TAPPER	2040 PAINTED HILLS RD TUCSON AZ	
CHARLES M. GLICKMAN	CIVIL ENGR BULD RM 206 U of A SOLAR ENERGY RESEARCH FACILITY	OPER MGR SERF
CHARLES DAVID	1732 W. HEZEL	STUDENT
Dr C.H. Gunn	4647 E 15th - Tucson	MD
Don Frachlich	1101 W. Navajo Tucson	
RAY KAPLAN	112 N. 3RD AVE. 85705	
Pat Wrig	Civility Programs 1700 W Washington Phx 85007	
W.D. Berkey	5430 N. Pomona Tucson 85009	
JERRY D. MUFFINS	Tucson, AZ	ASH
Dennis Irwin	4501 E Benson Hwy Tucson AZ 85706	
David Murray	1810 E 12th ST.	
Jane Warner	PO Box 40633 85717	Bus. Consultant
Joanna Tapper		
Dennis Irwin	4501 E Benson Hwy Tucson AZ 85706	
Steve Roth	3506 E. Colby B Tucson	Cook
Jeff Ignatowicz	5161 E. Drexel Tucson 85706	
Steve LaPlante	295 N. Meyer TUC. 85701	
Tim Miller	915 N. Olsen Tuc	Grad student U of A
Michelle Morden	1122 E Drachman Tuc	teacher - Uguia School
Mark Wright	2000 E Roger Apt I 33 Tuc	Student U of A
Edith Douglas	2120 E. Hampton St. Tucson 85719	Retired
Barbara Cherardi	211 N. Cleveland Tucson, AZ	
Essen	" " " "	
Richard Johnson	1325 W Silverlake Rd. Tucson	

NAME	ADDRESS	OCCUPATION
Gay J. Elliott	529 N. 5 th Ave.	Student
Sharon Gould	222 1/2 W. State	Student
Sheree Singley	Flagstaff AZ	Mother
Cheryl Jackson	529 N. 5 th Ave.	Student
Daniel J. Hunkel	1130 N. 1 st St 85719	Student / Clerk
Pat McCain	1130 N. 1 st St 85719	Student
Kathryn Heckaman	916 E Speedway	Student
	27017 E. Copper	Student