

EARTH SCIENCE LABORATORY DIVISION
UNIVERSITY OF UTAH RESEARCH INSTITUTE
OUTREACH FY 80 YEAR-END SUMMARY

User Assistance

During FY 80 the User Assistance staff at the Earth Science Laboratory expanded to three geologists. This increase in staff enabled us to handle 96 requests. Twenty three percent of these requests were from private individuals, most of whom wished to use a geothermal resource for space heating of a private residence. The other 77% of the requests represent commercial inquiries interested in a variety of applications including electrical power generation, aquaculture, biomass-based ethanol generation and district heating. Approximately 29% of the requests handled by the User Assistance Program resulted in user-initiated projects to assess further the geothermal resource potential of the site in question. Several of these sites show promise for the near-future realization of direct heat geothermal projects.

Approximately 10-25 professional hours were devoted to the average private-interest request. The average cost for this type of request ranged from \$730 (for 10 hours of time) to \$1,433 (for 25 hours). Roughly 25-100 hours of professional time were required to handle the average commercial-interest request. Expenditures for commercial requests average \$1,433 (for 25 hour projects), and up to \$4,622 (for 100 hour projects).

Most of the User Assistance requests were received from states in the

Basin and Range area, with the majority of requests coming from the states of Idaho, Utah and Nevada. Table 1 shows the geographic breakdown of User Assistance requests.

Table 2 is a list by states, of the FY 80 User Assistance requests handled by the Earth Science Laboratory, and a brief description of the action taken.

TABLE 1

GEOGRAPHIC BREAKDOWN OF FY 80 USER ASSISTANCE REQUESTS

<u>STATE</u>	<u>NUMBER OF REQUESTS</u>
ALABAMA	1
ARIZONA	2
CALIFORNIA	11
COLORADO	1
IDAHO	37
LOUISIANA	1
MONTANA	2
NEBRASKA	1
NEVADA	10
NORTH DAKOTA	1
OREGON	9
SOUTH DAKOTA	1
TEXAS	2
UTAH	13
WASHINGTON	3
WYOMING	1
TOTAL	96



TABLE 2. SUMMARY OF FY 80 USER ASSISTANCE REQUESTS

<u>REQUESTOR</u>	<u>PLACE</u>	<u>PROPOSED USE</u>	<u>ESL ACTION</u>
<u>ALABAMA</u>			
Ike Bracy Montgomery, AL	Baldwin County, AL	Ethanol generation	Referred to Alabama State Coupled team for resource information.
<u>ARIZONA</u>			
Mac Eddy Lakeview, AZ	Hot dry rock in Lakeview, AZ	Electricity generation	Referred to LASL
Dick Durkin CAS Associates Phoenix, AZ	Phoenix-Hassayampa Plain, Area, AZ	Industrial complex- space heat	Reviewed existing data package. Supplied report. Coordinated with Arizona Resource Team.
<u>CALIFORNIA</u>			
Martin Knebel Burns & Roe Industrial Services, Inc.	East Mesa, CA	Food processing	Summary of resource characteristics provided
Steve Benner	Sierraville, CA	Aquaculture	Site visited June 7, 1980. Provided resource information (to be used in lease application to the USFS).
FMC Corp.	Modesto, CA	Industrial processing	Report on resource potential provided.
Robert Newbold	Riverside, CA area	Process & space heating	Provided resource information.

Carol Lawton Environmental Research and Design Lakeport, CA	Geysers KGRA	Direct heat (space heating & industrial process heat)	Initiate resource site visit in early Fall. Coordinate with GRIPS and state team.
Coulter Stewart & Associates	San Bernardino, CA	District heating	Resource evaluation in progress. Referred to State Resource Team.
R.G. Pugmire	Calistoga, CA (100° well)	Space heating	Referred to OIT for engineering help.
Ashton de Peyster	Big Sur, CA	Greenhousing	Provided resource information.

COLORADO

James Heriot Public School System	Minturn, CO	Space heating	Referred to Colorado Geological Survey.
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IDAHO

CH2M-Hill	Dechazo property (Boise, ID)	Ethanol production	Provided resource information.
CH2M-Hill for Dick Obendorf	Highland L & L well near Parma, ID	Ethanol production	Reviewed well logs, resource information provided.
Dan Carpenter Roosevelt, ID	Oakley, ID	General	Will provide infor- mation when Artesian City study completed.
Challis School (Terry Donicht)	Challis, ID	District heating	Resource evaluation in progress, requested aid from Idaho Office of Energy.
Bill Oldham Salmon city Planning Commission	Salmon, ID	District heating	Resource evaluation in progress, requested aid from Idaho Office of Energy
George Gillemot	Oxbow Bend Hells Canyon, ID	Wood chip Methanol generation	Site visited & water sampled, 10/6/80.

Carol Lawton Environmental Research and Design Lakeport, CA	Geysers KGRA	Direct heat (space heating & industrial process heat)	Initiate resource site visit in early Fall. Coordinate with GRIPS and state team.
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Bill Oldham Salmon city Planning Commission	Salmon, ID	District heating	Resource evaluation in progress, requested aid from Idaho Office of Energy
George Gillemot	Oxbow Bend Hells Canyon, ID	Wood chip Methanol generation	Site visited & water sampled, 10/6/80.

Harris Cline Assoc.	Sun Valley Ketchum area	Researching area development plan	Meeting 10/8/80/. Help with resource portion of report.
Russ Pinto	Guyer Hot Spring (Sun Valley, ID)	District heating	Site visited 10/8/80. Will provide explor- ation plan & budget. Additional mapping planned.
Galen Meyers	Murtaugh, ID	General	Sent resource applications information. Referred to EG&G.
Barry Stokes	Preston, ID Squaw Hot Springs	Ethanol	Site visited, water sampled 9/26/80.
Galen Parr Rupert, ID	Raft River Valley (has 138°F well)	Ethanol generation	Coordinated well logging with IDWR.
Robert LeFevre TECO Boise, ID	Salmon River between Stanley + Challis, ID	Space heating of mining camp	Several meetings held. Work will continue in FY81.
Wil Moens Noranda Mining	Big Creek H.S., ID	Electrical Power Generation for Black- bird Cobalt Mine	Site visited 7/29/80. Request coordinated with EG&G, IOE; report provided.
Stan Clements Payette, ID	Roystone Hot Springs, ID	Ethanol production	Site visited 12/7/79 with Idaho Office of Energy. Water sample taken, resource infor- mation provided, explo- ration program suggeste information transferre to the user's consulta
Greg Graham Weiser, ID	Crane Creek KGRA, ID	Ethanol production	Site visits 12/6/79 with Idaho Office of Energy. Water samples collected, geothermometers calcul- ated, exploration program outlined, resource information provided.

College of Southern Idaho	Warm-water well on CSI campus	Space heating	Site visited 10/23/79, water samples collected; geothermometers calculated; resource information provided.
Aqualife Corp. Twin Falls, ID	Warm-water well in Twin Falls, ID	Aquaculture and ethanol production	Site visited 10/23/79; water samples collected, resource information provided, suggested exploration program outlined.
Howard May Supt. schools Malad City, ID	Malad City, ID	Space heating of new high school (ground water heat pump)	Inquired about DOE funds for pump testing of existing well. Discussed data with user's consultant.
Chuck Corwin Ketchum, ID	Magic Reservoir Hot Springs, ID	Ethanol generation industrial processing	Coordinated resource evaluation with IDWR. Mapping project summer 1980.
Larry King	Hammett, ID	Ethanol generation, space heating	Initiated literature review. Site visited 7/29/80. Reviewed nearby well logs. Resource report provided.
Joe Rainwater American Potato Co.	Blackfoot, ID Rexburg, ID Winnemucca, NV Moses Lake, WA King City, CA Vacaville, CA	Potato processing	Meeting with AMPCO and EG&G in Blackfoot, ID, 1/31/80 to discuss geothermal potential for Rexburg and Blackfoot areas. Detailed report on Blackfoot area provided.
John Dixon & Assoc. Idaho Falls, ID	Blackfoot, ID	Space heating for new high school	Meeting held in Idaho Falls, 1/31/80, to discuss geothermal potential of Blackfoot area. Detailed report on Blackfoot area provided.

City of Lewiston	Lewiston, ID	District heating	Provided resource information, arranged for IDWR to log warm city well.
Glenn Jensen	Burley, ID	General applications	Site visited in June. Samples collected, rep provided.
Janet Richardson Lost River Geothermal Co.	Butte City, ID	Space heating	Provided analysis of existing data and proposed drilling project.
White Arrow Ranch	Bliss, ID	Greenhousing, ethanol generation	Site visited 4/29/80. Report provided to DOE Technical monitoring contract.
John Powers	MacKay, ID (65° spring)	Space heating	Reviewed existing data
John & Irene Link	Oakley, ID	Space heating	Meeting held 2/7/80. reviewed existing data
Randall Morgan	Hagerman, ID (near Banbury H.S.)	Space heating	Meeting held 2/7/80. Reviewed existing data
Mercy Medical Center Nampa, ID	Nampa, ID.	Space heating for hospital	Meeting held 6/5/80. Provided resource information and information on User Coupled Drilling program.
Bill Hatch	Idaho Falls, ID	Space heating	Provided geochemical data and interpretation of water sample.
Ed Connolly	Boise, ID	Ethanol	Site visited June 6, 1980.
Mrs. Nishitani	Caldwell, ID	Greenhouse	Preliminary resource information provided.
IECO Boise, ID	Salmon, ID	District heating	Site visited 8/6/80. Work will continue in FY81.
Gary Funderburg	Oakley, ID (110° well)	Aquaculture	Resource information provided.

Shelly Gordon Chilton Engineering	SE Idaho	Industrial process heat (phosphate industry)	Preliminary resource information provided.
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LOUISIANA

Mr. Rezvani	Louisiana	Ethanol generation	Referred to LSU and APL.
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MONTANA

Fenwicks Warner	Alhambra H.S., MT	Ethanol generation	Provided report on resource potential.
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EG&G	Ft. Peck, MT	Space heating (PRDA)	Reviewed data package, outlined methods of additional study.
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NEVADA

Brent Goff Pocatello, ID	Beowawe, Gerlach Rye Patch, NV	Ethanol generation	Resource information provided, additional information furnished as needed.
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Brent Goff Pocatello, ID	Nebraska corn belt,	Ethanol generation	Referred to Nebraska State Coupled team.
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Kenneth Taylor Wells, NV	Wells, NV	District heating	Site visited several times. Examined well cuttings, mapped area. Report in progress. Study will continue into FY81.
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Quinton Treagle	Wendover, NV	Space heating of casino & hotel	Gather available data, obtained water samples
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Gene Terry El Capitan Casino Hawthorne, NV	Hawthorne, NV	Space heating	Information on funding provided, site visited 9/30/80, discussed need for additional work.
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Dick Fry	Reno, NV	Space heating (Veteran's Hosp.)	Site visited 6/6/80. Studied well log information. Provided resource report.
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Gus Gertsch	Crescent Valley, NV	Ethanol	Resource information provided.
Tony Miglionico	West of Elko, NV	Space heating	Site visited 3/16/80. No surface manifestations of a resource were discovered.
Dan Jenkins D-J Enterprises Minden, NV	112°F Wells Minden, NV (Saratoga H.S.)	Space heating housing project	Site visited 10/2/80. Resource information provided to User and OIT.
Dunham Associates	Mott, ND (Madison Formation)	Space heating	Prepared brief report and referred to State Resource Team.

OREGON

John Pittz	Nyssa, OR	Vegetable processing	Site visited in Dec., 1979.
Dick Davis	Adrian, OR	Space heating	Provided resource information.
Howard Ego City Mgr Vale, OR	Vale, OR	District heating	Site visited 7/29/80. Warm water well survey initiated. Work will continue in FY81. Coordinated with DOGAMI.
Dr. Rusty Butler Ontario, OR	Vale Hot Springs, KGRA, OR	Undecided	Site visited with OIT 12/11/79, resource information provided, exploration program suggested.
Arthur Mancl Oregon State System of Higher Education	LaGrande, OR (Eastern Oregon State College)	Space heating	Will provide resource information.
Darrel Brown	Adrian, OR (196°F hot spring)	Ethanol production	Site visited 4/14/80. Samples taken, report provided.

EG&G	Ore-Ida, OR	Food processing (PON)	Reviewed existing data package, provided report to DOE, digitized well logs, interpreted borehole logs.
Jim Price	Harney Basin, OR	Greenhouses, space heating	Resource information provided.
Jim St. Martin Tribal Mgr., Burns Paiute Indian Reservation	Near Burns, OR	General	Reviewed existing data and provided report on resource potential.
<u>SOUTH DAKOTA</u>			
Kathy Trotter	Storm Mtn., SD	Space heating	Resource and application information provided.
<u>TEXAS</u>			
Archie Gordon Southern Union Exploration Dallas, TX	Balcones Fault Zone	Geothermal tertiary oil recovery	Resource information provided, will send collocation of geothermal resources and heavy oil report when available.
Keith Barlow Western Farm Mgmt., Inc. Canyon, TX	Trans Pecos area 150°F	Undecided	Referred to EG&G for applications information.
<u>UTAH</u>			
Shelly Gordon Chilton Engineering	Vernal, UT area	Industrial process heat (phosphate industry)	Preliminary resource information provided.
Roger Harrison (Terra Tek) Pete Murphy (UGMS)	Utah Roses Well near Crystal Hot Springs	Greenhouse heating	Helped in the planning and analysis of pump tests.
Torren Klinge Mountain States Resources	Roosevelt H.S., UT	?	Met to discuss resource potential at Roosevelt Hot Spring.

Ned Gregerson	Cedar City, UT	General	Sent information on federal assistance programs.
Dave Meyers	Baker H.S., UT	Aquaculture	Site visited, water sample taken.
Steve Muir Fugro National	Escalante Desert, UT	General	Discussed regional geothermal potential.
Jerry Kidd	Hooper Hot Springs, UT	General	Site visit made, water sample collected.
Burton Johnson American Fork, UT	American Fork, Utah and Crystal Hot Springs, UT	Greenhouse heating	Preliminary resource information provided. Several meetings held. Request coordinated with UGMS.
Bob Helber	Cove Fort, UT Lance-Udy Hot Spring, UT	Ethanol generation	Preliminary resource information provided. Numerous meetings and phone calls.
Wayne Portanova Forminco, Inc	Cove Fort, UT	Sulfur processing, ethanol generation	Meeting held at ESL, 1/10/80 to discuss geology and geothermal potential of Cove Fort. Meeting in Greenwich, Conn. on 1/18/80 to discuss institutional problems.
Roy Parodi	Newcastle, UT	Undecided	Collected available data, provided report.
Larry Epperson Salt Lake City	Wasatch Hot Springs, UT	Space heating, spa	Referred to EG&G for analysis of retrofit possibilities.
Dick Turpin Salt Lake Redevelopment Agency	Salt Lake City, UT	Space heating (ground-water heat pump) of planned 700,000 sq. foot office complex in downtown Salt Lake City	Meeting held, 1/8/80, at ESL with Turpin, Murphy (UGMS) and Wagstaff (UDWR). Referred to EG&G and National Water Well Association.

WASHINGTON

Glenn Simms	King Co., WA	General applications	Compiled resource information.
Jim Miller	Yakima, WA	Space heating (St. Eliz. Hosp.)	Sampled warm well, provided report interpreting the geochemistry.

WYOMING

Chuck Olson U.S. Fish and Wildlife Dept.	Jackson Hole, WY (27° spring)	Aquaculture and space heating	Compiled existing data Report provided.
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GENERAL AREAS

Michael Annison Aquaculture Prod.	General areas (needs 89°F water)	Aquaculture	General resource information provided.
Wilson Prichett Natl. Rural Electrical Coop. Assoc., Wash. D.C.	General	Electricity generation	Explained User Assistance Program.
Campbell Soup Co.	Plant locations throughout the U.S.	Food processing	Report provided on resource potential of plant sites.
Nabisco Corp.	Plant sites throughout the country.	Food procesing	Report on resource potential of plant sites provided.
Ed Contrement National Park Service	Natl. Park Sites	Space heating	Preliminary resource information provided.

INFORMATION DISSEMINATION

Information dissemination activities for FY 80 are listed below.

Group	Place	Date	Presentation Delivered
National Water Well Association	Oklahoma City	10/10/79	Exploration for geothermal resources.
Petroleum company exploration managers and geophysicists	Salt Lake City	11/1/79 11/26/79	Description of Industry Coupled geothermal program and DOE activities.
Utah Associated Garden Clubs	Salt Lake City	11/3/79	General presentation on geothermal energy.
National mtg., Geological Society of America	San Diego	11/4/79	Technical information on ESL activities displayed in exhibit booth.
U.S.G.S. CUSMAP Program	Salt Lake City	12/13/79	Description of geothermal program in Roosevelt Hot Springs and Cove Fort-Sulphurdale, UT.
American Association for the Advancement of Science.	San Francisco	1/6/80	Exploration for geothermal resources.
Corn Products Co.	Englewood Cliffs, NJ	1/16/80	Thirty minute presentation on geothermal geology and exploration.
Nabisco Company	East Hanover, NJ	1/17/80	"
Campbell Soup Co.	Camden, NJ	1/17/79	"
Utah Womens' State Legislative Council	Salt Lake City, UT	3/27/80	Geothermal Resources in Utah.
Campbells Soup Co. Employee Newsletter	Camden, NJ	3/80	Information on geothermal energy.

Geothermal Resources Council; short course, "An Introduction to the Exploration and Development of Geothermal Resources".	San Francisco, CA	4/8 - 9/80	Paper on the "Nature and Occurrence of Geothermal Resources".
Industrial Development Research Council	Portland, OR	5/21/80	Geothermal Resources in the U.S.
Geothermal Resources Council Board of Directors	San Francisco, CA	5/13/80	Direct heat applications of geothermal resources.
Geothermal Resources Council Direct Heat Symposium	Boise, ID	6/16/80	Nature and Occurrence of Geothermal Resources
Geothermal Resources Council Direct Heat Symposium	Boise, ID	6/18/80	The Use of Geothermal Energy for Biomass-Based Ethanol Generation.
Yellowstone Institute	Yellowstone Park	7/24 - 30/80	Calderas and Hydrothermal Systems (course).
Geothermal Resources Council 1980 Meeting	Yellowstone Park	9/6 - 7/80	Field Trip & Guidebook-Hydrothermal systems of the Yellowstone Caldera.
Rocky Mtn. Basin and Range Commercialization Meeting	West Glacier, MT	9/25/80	General geothermal geology.
American Society of Farm Managers and Rural Appraisers	Denver, CO	9/26/80	Nature and Occurrence of Geothermal Systems.