

OIL & GAS CONSERVATION COMMISSION

- MINUTES OF MEETING - MARCH 11, 1994 -  
MR STEVEN L RAUZI, PROGRAM ADMINISTRATOR



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

**NOTICE OF COMBINED PUBLIC MEETING AND POSSIBLE EXECUTIVE SESSION**

**OIL AND GAS CONSERVATION COMMISSION**

Pursuant to A.R.S. § 38-431.02, notice is hereby given to the members of the Oil and Gas Conservation Commission and to the general public that the Oil and Gas Conservation Commission will hold a meeting open to the public on March 11, 1994, at 10:00 a.m. in Room 500 of the State Capitol located at 1700 West Washington, Phoenix, Arizona 85007. As indicated in the agenda, the Oil and Gas Conservation Commission may vote to go into executive session which will not be open to the public to discuss certain matters.

The agenda for the meeting is as follows:

1. Call to Order
2. Approval of Minutes of Meeting and Executive Session of January 14, 1994.
3. Statement of Director and State Geologist
4. Report of Oil & Gas Program Administrator
5. Status of #1 Alpine-Federal geothermal well
6. Status of #1 and #2 Power Ranches geothermal wells near Higley
7. Call to the public
8. Announcements
9. Adjournment

The Oil and Gas Conservation Commission may vote to go into Executive Session, pursuant to A.R.S. § 38-431.03(A)(3), which will not be open to the public to consult with its attorney and receive legal advice with respect to any regular agenda item listed on this agenda.

A copy of the agenda background material provided to Commission members (with the exception of material relating to possible executive sessions) is available for public inspection at the Oil and Gas Program Administrator's office, 845 North Park Avenue, Suite 100, Tucson, Arizona 85719.

The public will be afforded an opportunity to comment on any item on the agenda; however, at the beginning of the meeting, the Commission may vote to set up a time limit on individual comments.

Dated this 24th day of February 1994.

OIL AND GAS CONSERVATION COMMISSION

Steven L. Rauzi  
Oil and Gas Program Administrator



Fife Symington  
Governor

State of Arizona  
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Dated this 24th day of February 1994.

OIL AND GAS CONSERVATION COMMISSION

Steven L. Rauzi  
Oil and Gas Program Administrator

**PLEASE ADVISE PAM OR ME ASAP IF YOU WILL NOT BE ATTENDING THIS MEETING**



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

February 24, 1994

TO: **Oil and Gas Conservation Commissioners**

FROM: *SLR*  
Steven L. Rauzi, Oil and Gas Program Administrator

SUBJECT: **Activity Report for March 11, 1994, Meeting**

I have enclosed three letters concerning the 1 Alpine-Federal (State Permit 878). The first two letters, from Tom Moses, U.S. Geological Survey, and John Mock, U.S. Department of Energy, are addressed to this office and discuss transfer of ownership of the well from Tonto to the U.S. Geological Survey in accordance with Oil and Gas Conservation Commission rules (R12-7-103 in particular). The third letter, from Robert Stephenson, State Procurement Office, is addressed to Tonto Drilling Services, and discusses contractual obligations between Tonto Drilling Services and the State Procurement Office. As the third letter indicates, Tonto Drilling Services has not coordinated the transfer of the 1 Alpine-Federal to the U.S. Geological Survey (i.e. modification of contract) with the State Procurement Office. This prior coordination is required under the terms of the contract. As a result, the U.S. Geological Survey's discussions with us concerning the transfer of the 1 Alpine-Federal are probably premature and I recommend that the Oil and Gas Conservation Commission table the matter until the contractual obligations between Tonto Drilling Services and the State Procurement Office are resolved.

There were two inquiries (enclosed) on the Power Ranches geothermal wells. These were received after Mr. Dulsky's January 21, 1994, letter to United Title Agency.

Amerigas is testing the mechanical integrity and sonaring its caverns at its Luke salt facility. I witnessed the test on cavern No. 2. The equipment used in the testing is in good condition and working properly and the personnel running the test are well qualified to do so.

Contender Oil Company's certificate of deposit was redeemed and deposited in the bond fund, which is for refundable cash deposits. This fund was established in the late 60's or early 70's in accordance with General Accounting Office procedures. A forfeited-bond account was set up within the bond fund to distinguish forfeited from non-forfeited monies.

The Attorney General certified the second set of rules on January 19, 1994, and I expect them to be published in the 94-1 supplement of the *Arizona Administrative Code*. I will continue to track the progress of the third and final set of rules.

OIL AND GAS CONSERVATION COMMISSION  
845 North Park Avenue #100  
Tucson, Arizona 85719

Minutes of Meeting  
January 14, 1994

Present:

Dr. J. Dale Nations, Chairman  
Mr. James E. Warne, Jr., Vice-Chairman  
Dr. Mrs. Jan C. Wilt, Member  
Mr. Zed Veale, Member  
Mrs. Lisa C. Worthington, Member  
Dr. Larry D. Fellows, State Geologist  
Mr. Steven L. Rauzi, Oil and Gas Program Administrator

The regular Commission Meeting of January 14, 1994, was called to order by Dr. J. Dale Nations, Chairman, at 10 a.m. in Room 500, State Capitol Tower, Phoenix, Arizona.

APPROVAL OF MINUTES OF MEETING AND OF THE EXECUTIVE SESSION OF AUGUST 20, 1993

Mr. Warne moved, seconded by Mrs. Worthington:

THAT THE MINUTES OF THE MEETING AND OF THE EXECUTIVE SESSION OF AUGUST 20, 1994, BE ACCEPTED AS PRESENTED

Motion carried unanimously.

WELCOME NEW COMMISSION MEMBER

On behalf of the Commission, Dr. Nations welcomed Mrs. Worthington to the Commission as a member and presented her with Governor Symington's certificate of appointment.

STATEMENT OF DIRECTOR AND STATE GEOLOGIST

Dr. Fellows reported that the geothermal well near Alpine had shows of oil and noted that Mr. Rauzi published an article on the shows in the January 4th *Oil and Gas Journal* and is preparing a more detailed report to be announced in the March issue of *Arizona Geology*.

Dr. Fellows advised that the agency's analysts recommended no increase or decrease for the fiscal year 1994-95 budget, which will be heard by the House and Senate subcommittees on January 21st, and did not plan to fund a replacement vehicle. He is concerned that the five agency vehicles have over 80,000 miles on them and will probably all wear out about the same time.

Dr. Fellows reported that Arizona is the only state without a mine/land reclamation law and that to get one, the Arizona mining association sponsored a reclamation bill that does not specify an agency to administer the law. However, in two previous subcommittee meetings, they expressed their preference for combining the State Mine Inspector, Arizona Geological Survey, and Arizona Department of Mines and Resources into a new agency to administer the law. Dr. Fellows' noted

this bill would negatively impact Survey activities. The Sierra Club and the league of conservation voters oppose the mining association bill and propose that the Department of Environmental Quality administer the reclamation bill.

#### REPORT OF THE OIL AND GAS PROGRAM ADMINISTRATOR

The activity report of Mr. Rauzi was sent to the Commissioners and has been made a part of these minutes. He gave a copy of his *Oil and Gas Journal* article on oil shows in the geothermal well to the Commissioners and reported that seven inquires were received after it was published. One oil company is interested in doing geochemical and maturation studies and a geochemical services company offered to analyze core samples at no charge. Mr. Rauzi noted that this is a good way to get maturation and geochemical analyses for our file. Mrs. Worthington stated that we should make the core available to anyone who wants to do an analysis. Mr. Frank Mancini, Arizona Department of Commerce (ADOC), which sponsored the geothermal project, advised that ADOC would agree to any further exploration along this line and would cooperate on whatever sampling is done.

Mr. Rauzi reported that Mr. Dale Thompson, Adamana terminal manager, sent a written request for a one-year extension to sonar five caverns at the Ferrellgas LPG facility because of the large volume of product stored in them. The request provides for a receipt, storage, and transferring schedule to ensure that the caverns will be empty and ready for sonaring next year. Mr. Rauzi recommended that the extension be granted noting that the caverns are in compliance with rules and that no safety problems would result. The Commission agreed to the extension.

Mr. Rauzi reported that Mrs. Karen Clark, Attorney General's office, called and will recommend that the second set of rules be certified. He expected them to start on the third set after the second set is certified. He noted that Joan Salvatierra, legal assistant to the Arizona Department of Environmental Quality (ADEQ) on the underground injection control (UIC) primacy project, was present at the meeting.

#### STATUS OF #1 ALPINE-FEDERAL GEOTHERMAL WELL

Mr. Rauzi reported that the U.S. Geological Survey (USGS) wanted to assume responsibility for the Alpine hole for continued observation and possible deepening but that they were prevented by law from posting a bond as required by our rules, which thus required that we continue to hold Tonto's bond. To resolve this situation, John E. Mock (also known as Ted), director geothermal division, U.S. Department of Energy (DOE), in a letter dated November 15, 1993, committed up to \$25,000 to plug the well after the USGS studies. Mr. Rauzi noted that all we have is a faxed copy of Mr. Mock's letter and advised that according to our rules, we cannot release Tonto's bond until the well is plugged or a new operator posts a new bond. The question is if Mr. Mock's written commitment satisfies the Commission's bonding requirement.

Mr. Frank Mancini advised that a specific task of the ADOC contract with Tonto is for Tonto to plug the well by March 30, 1994, and that transfer of the well would impact its contract. Therefore, Mr. Mancini requested that ADOC be kept in the loop on the negotiations and noted that the USGS has not directly notified ADOC about the transfer.

Dr. Nations asked if notification is appropriate after the Commission takes action on the transfer and if the Commission has authority to waive its own rules in this case. Mr. Rauzi felt that the question is if the written commitment by Mr. Mock to fund \$25,000 to plug is acceptable as a

bond. Mr. Warne wanted to be assured that whoever committed plugging funds had the appropriate authority to do so.

Mr. Mancini reported that after they received Mr. Mock's November 15 letter, they wrote to Dr. Allan Jelacic, Mr. Mock's deputy, who wrote back on December 16, 1993, that the geothermal division of the DOE would allocate up to \$25,000 to the USGS for plugging costs even though DOE had no further interest in the well. ADOC, therefore, unless the transfer is formalized before March 30, expects Tonto to proceed as scheduled in its contract with Tonto.

Tom Moses, USGS, indicated that their main interest in the hole is continued scientific study and getting it deepened to Precambrian basement. He noted that the USGS is prepared to solicit funds from the U.S. Department of Interior (DOI) or elsewhere to accomplish this. Dr. Nations asked about the time frame required for this. Mr. Moses indicated 1 to 1.5 years to get funding and about 2 years to complete the scientific study and any deepening.

Dr. Nations expressed the Commission's desire to see the USGS continue studies in the hole but noted the problem in transferring the well without a bond as required by its rules. Mr. Moses related the USGS's past history in acquiring wells, noting that the USGS has always complied with requirements of state agencies in plugging such wells, and pointed out that such transfers in other states were normally accomplished with a phone call. He assured the Commission, however, that he could provide them with an original letter of commitment from Mr. Mock. Mr. Dulsky noted that the Commission does not have authority to waive its own rules.

At the advice of Mr. Fritz Goreham, field solicitor, DOI, Mr. Moses stated that the USGS will provide the Commission with a formal letter from the USGS accepting responsibility and laying out a schedule for completing scientific studies, and from Mr. Mock committing funds for plugging the well. Dr. Nations thought the Commission would be safe with this type of formal agreement from the USGS. Mr. Dulsky stated that the Commission needed to be assured that the person signing the letter has authority to commitment the funds. Mr. John Haas, U.S. Bureau of Land Management (BLM), stated that the BLM would accept such an agreement from the USGS.

The Commission requested the Attorney General to prepare an opinion on this type of agreement and scheduled a meeting for March 11, 1994, to conclude the matter.

#### PERMITTING PROCEDURES

Mr. Rauzi reviewed the background material on this agenda item, which has to do with communication with local governments, and provided the Commissioners with the staff's recommendation to address the communication problem.

Mr. Warne moved, seconded by <sup>Dh.</sup> Mrs. Wilt:

THAT THE COMMISSION, AS A COURTESY AND TO PROMOTE COMMUNICATION BETWEEN GOVERNMENTAL AGENCIES, PROVIDE A COPY OF THE APPROVED APPLICATION FOR PERMIT TO DRILL AND A COVER LETTER TO THE COUNTY MANAGER OF THE COUNTY IN WHICH THE WELL IS LOCATED

Motion carried unanimously.

The Commission directed Mr. Rauzi to notify the managers of the fifteen counties and Mr. Mitchell of Avondale of the resolution. Mrs. Wilt requested that he enclose a copy of his article in the Winter 1992 issue of *Arizona Geology* explaining how the drilling and permitting procedure is designed to protect fresh water aquifers.

#### CONTENDER OIL COMPANY BOND

In accordance with the August 20, 1993, motion to forfeit this bond, Dr. Nations endorsed Contender Oil Company's certificate of deposit, which is made payable to the Arizona Oil and Gas Conservation Commission. Mr. Rauzi will take the endorsed certificate to the bank and get a cashier's check made payable to the Arizona Oil and Gas Conservation Commission for deposit into the oil and gas conservation fund.

#### DEVELOPMENTS IN NAVAJO NATION

Mr. Rauzi reported on newspaper reports about the Navajo Council voting to create an Oil and Gas Corporation and informed the Commission that he called the Navajo Mineral office and invited Mr. Aktar Zaman to this meeting. Dr. Nations reported that he also contacted the Navajo Mineral office and that they are interested in cooperative ventures with private industry. The Navajo's have hired a lawyer to get the oil and gas office going.

Dr. Nations asked if the Tribe would not have to pay state severance taxes. Mr. Rauzi noted that the newspaper reported that they would not have to pay state and local taxes, which would give them a price advantage over private industry. Mr. Dulsky noted that the state does not collect taxes for activities on the reservation but that questions arise when other parties are involved. Each case is looked at individually. Dr. Nations pointed out that we regulate activities on the reservation only as a courtesy to the Tribe. Mr. Warne stated that as long as they feel our expertise is useful to them they would cooperate with us. Mr. Dulsky referred to the Navajo Generating Station noting that it was initially regulated by the state because there was no one objecting to it. Now, with the assistance of the U.S. Environmental Protection Agency, the Tribe regulates it. The same would normally be true here, the question being whether the Tribe would concede some of their sovereignty to the state, which is unlikely as time goes on, as has been the case with the Indian gaming issue.

#### CALL TO THE PUBLIC

Mr. John King, Castle Resources, introduced himself and, noting the Commission's problem about the \$5,000 bond, suggested that the Commission consider a catch-all rule to cover something not anticipated in statute or rule whereby the Commission, by two-thirds vote, could exercise its own judgment to solve the matter. He noted the difficulty in writing law to anticipate all possibilities and suggested that now would be a good time to enact such a law to cover similar situations in the future. Dr. Nations acknowledged the suggestion and asked Mr. Rauzi to explore that possibility the next time we have a rule revision.

<sup>Dr.</sup>~~Mrs.~~ Wilt asked Mrs. Salvatierra for information on the ADEQ UIC primacy project. She reported that she is gathering all law regarding underground injection, comparing state and federal laws, and seeing where ADEQ is deficient. Mr. Rauzi advised that he sent Mrs. Salvatierra a copy of our rules on class II injection wells. Mrs. Salvatierra reported that ADEQ is primarily concerned with class V wells but that all classes of injection wells need to be covered before primacy is granted. <sup>Dr.</sup>~~Mrs.~~ Wilt expressed concern that the Commission's authority over class II

wells not be undermined.

ANNOUNCEMENTS

The next meeting was scheduled for March 11, 1994, in room 500 of the Capitol Tower.

ASSISTANT ATTORNEY GENERAL REPORT ON STATUS OF POWER RANCH  
GEOTHERMAL WELLS

Mr. Warne moved, seconded by Mrs. Worthington:

THAT THE COMMISSION GO INTO EXECUTIVE SESSION

Motion carried unanimously. At 11:20 a.m., the Executive Session began.

The regular meeting resumed at 11:50 a.m.

Dr. Nations suggested that the Commission request an appropriation for enforcement activity even though a case is not now pending. Mrs. Worthington agreed and suggested the Commission establish an enforcement fund to cover similar situations in the future.

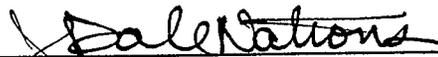
ADJOURNMENT

~~Mrs.~~  
Dr. Wilt moved, seconded by Mr. Veale:

THAT THE MEETING BE ADJOURNED

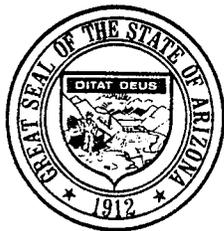
Motion carried unanimously. Time of adjournment was 11:55 a.m.

APPROVED

  
\_\_\_\_\_  
Dr. J. Dale Nations  
Chairman

GUESTS IN ATTENDANCE:

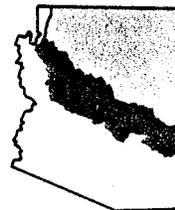
John Haas	U.S. Bureau of Land Management
L.W. Brooks	Independent Oil & Gas Producer, Denver, CO
Tom Moses	U.S. Geological Survey, Menlo Park, CA
Fritz Goreham	Field Solicitor, U.S. Department of Interior
Bert Reed	Reed Petroleum
Frank Mancini	Arizona Department of Commerce
John E. Crawford	Consultant, Arizona Department of Commerce
John M. King, Sr.	Castle Resources Corp.
Beryl I. Dulsky	Attorney General Office, Assistant Chief Counsel
Michel Mills	Attorney General Office
Joan Salvatierra	Legal assistant, Arizona Department of Environmental Quality



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

845 North Park Avenue, #100  
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(602) 882-4795



Larry D. Fellows  
Director and State Geologist

March 7, 1994

Mr. James C. Lanshe  
Norcross Securities  
645 East Missouri Avenue  
Phoenix, Arizona 85012

Dear Jim:

This office has just received word of your appointment to the Oil and Gas Conservation Commission. On behalf of the Commission and the Oil and Gas Program staff of the Arizona Geological Survey, I extend our congratulations on your appointment and welcome you to the Commission. We are looking forward to meeting you. A roster of the Oil and Gas Conservation Commission is enclosed.

The next meeting of the Commission is this Friday, March 11, 1994, in Room 500 of the Capitol Tower. I have enclosed the background material and the minutes for that meeting.

Again welcome to the Commission and please do not hesitate to contact me if we may be of service to you.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosure



STATE OF ARIZONA  
EXECUTIVE OFFICE

FIFE SYMINGTON  
Governor

March 1, 1994

Steven L. Rauzi, Program Administrator  
Oil & Gas Conservation Commission  
845 North Park Avenue, #100  
Tucson, AZ 85719

Dear Steven:

On February 24, 1994, Governor Symington had the pleasure of appointing James C. Lanshe (replacing James Warne) to the **OIL AND GAS CONSERVATION COMMISSION**. Please see the enclosed membership roster.

I know that he will be a valuable member of the Commission and that you will extend to him every courtesy and recognition due this important appointment.

Sincerely,

A handwritten signature in cursive script that reads "Linda Stiles".

Linda Stiles  
Special Assistant - Appointments

LS:ps

Enc.



STATE OF ARIZONA  
EXECUTIVE OFFICE

FIFE SYMINGTON  
Governor

**OIL & GAS CONSERVATION COMMISSION**  
**A.R.S. 27-514**

**James C. Lanshe**  
Norcross Securities  
645 E. Missouri Avenue  
Phoenix, AZ 85012

**234-5555 (O)**  
Term Expires: 1/18/99  
Replaced: James Warne

**Dale Nations**  
520 N. Bertrand  
Flagstaff, AZ 86001

**774-2542 (H) / 526-4561 (O)**  
Term Expires: 1/15/96

**Zed Veale**  
1490 E. Appalachian  
Flagstaff, AZ 86004

**779-0051 (H) & (O)**  
Term Expires: 1/20/97  
Replaced: Archie Roy Bennett

**Jan C. Wilt**  
3035 S. Shiela Avenue  
Tucson, AZ 85746

**883-6669 (O)**  
Term Expires: 1/16/95

**Lisa C. Worthington**  
4801 E. Moonlight Way  
Paradise Valley, AZ 85253

**483-1838 (H)**  
Term Expires: 1/19/98  
Replaced: Barbara Murphy

**Steven L. Rauzi**  
845 North Park Avenue, #100  
Tucson, AZ 85719

**Program Administrator**  
**882-4795 (O)**

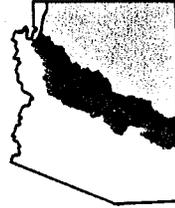
Rev. 3/1/94



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

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(602) 882-4795



Larry D. Fellows  
Director and State Geologist

March 7, 1994

Mr. James E, Warne, Jr.  
The Warne Company  
P. O. Box 21387  
Phoenix, Arizona 85036

Dear Jim,

I received word today that Governor Symington has appointed Mr. James C. Lanshe to succeed you on the Oil and Gas Conservation Commission. It has been my pleasure working with you. On behalf of the Commission and the Oil and Gas Program staff of the Arizona Geological Survey I extend our sincere appreciation for your ten years of dedicated service to the State of Arizona. My best wishes to you.

Sincerely yours,

Steven L. Rauzi  
Oil & Gas Program Administrator



Fife Symington  
Governor

State of Arizona  
**Arizona Geological Survey**

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Tucson, Arizona 85719  
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Larry D. Fellows  
Director and State Geologist

March 4, 1994

Mr. Daniel M. Jarvie  
Humble Geochemical Services  
P. O. Box 789  
Humble, Texas 77347

Dear Dan:

I have finally completed sampling the core from the 1 Alpine-Federal geothermal test in eastern Arizona. I took a sample about every 50 feet or so through the Tertiary (surface to 3,260 feet) and about every 10 feet or so through the Cretaceous, San Andres Limestone, and parts of the Supai Group. Samples depths are recorded on the enclosed list. The samples themselves are being shipped separately.

The strongest shows of oil occur in and above the Fort Apache unit of the Supai Group as described in the enclosed draft of my open-file report. I referred to Humble Geochemical Services preparing a "geochemical log and report" on page 2 of the draft copy. Is my description of your report as a "geochemical log and report" accurate? Plates for the report are still in drafting.

We look forward to the results of your analysis. Please let me know if I may be of further assistance.

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosure

TONTO # 1 PINE-FEDERAL

NW. Y 23 T. 6N., R. 30E. ARIZONA

2-25/3-3/94

	504	2002	3315	3845	Ft. Apache Mbr	4225
	553	2052	3330	3865		4230
	604	2104	3340	3878 *		4235 *
	652	2164	3350	3885		4245
	714	2204	Cret. 3360	3905		4255
	754	2254	San Andres ls 3370	3915		• 4260
	804	2304	3380	3925	Dike	4265
	854	2364	3390	3945		4295
	904	2404	3397	3965		4325 *
	954	2464	3400	3975 Shale *	Dike	4355
	1002	2504	3410	3975 carb.	Ft. Apache Mbr	4365
Dental	1064	2560	3420	3985		4375
Bucca	1114	2604	3430	4005		4385
	1164	2663	San Andres 3435	4015		4395
	1214	2704	Glorieta ss 3465	4025		• 4397
	1274	2754	3495	• 4028 *		• 4402
	1314	2802	3525	4045		4405
	1384	2862	3555	4060		• 4413
	1434	2902	3585	4065	Supai (Big A Bed) Mbr	4415
	1481	2966	Glor. 3615	4085	Amogish Fin	4425
	1534	3106	Dike 3645	• 4089		• 4428
	1584	3156	3690	4105		4435
	1634	3206	Supai (Corduroy) Fin 3755	4115		4445
	1694	3255	3785	4125	Dike	4455
	1750	3265	Cret. 3795	• 4130		4465
	1800	3275	3805	4145		4485
	1848	3285	3815	4165		4505 T.D.
	1902	3294 *	3825	4185		
	1953	3305	3835	4205		(143 samples)



## Humble Geochemical Services

Division of Humble Instruments & Services, Inc.  
P.O. Box 789 • Humble, Texas 77347  
218 Higgins Street • Humble, Texas 77338

TELEPHONE: (713) 540-6050

FACSIMILE: (713) 540-2864

Geochemical Services for Exploration, Development and Production

February 2, 1994

Steven L. Rauzi  
Arizona Geological Survey  
845 North Park Avenue #100  
Tucson, Arizona 85719

Dear Mr. Rauzi:

Thank you for your response to my inquiry regarding geochemical analysis of the 1 Alpine-Federal geothermal well. I have enclosed sample bags for your utilization in taking pieces of the core for analyses.

The type of analyses which we would like to perform include total organic carbon (TOC) and Rock-Eval pyrolysis. If oil staining or high indigenous levels of hydrocarbons are detected, we would also like to run thermal extraction-pyrolysis/gas chromatography. The total amount of sample required for these analyses is approximately 200-400 milligrams which would be a chip of core the size of a pencil eraser. If possible we would like 2-3 chips of that size but that is not required. We would like to provide a profile using 30 foot intervals. Any coaly intervals and any intervals showing oil staining or other interesting organic characteristics should be sampled. These are destructive tests requiring approval of the Arizona Oil and Gas Conservation Commission per article 6.c of the sample policy.

These analyses would detail the organic richness, petroleum potential, thermal maturity, and kerogen type (oil/gas proneness) of all samples analyzed. The goal is to determine which interval(s) are the best sources of petroleum (if any) with the above delineation. The data would be returned within 30 days as specified in the sample policy.

*(See comments on 1-6-94 letter from Jarvie)*

We look forward to analyzing this well and trust it will prove helpful to the Arizona Geological Survey.

Thank you for your consideration.

Sincerely,

  
Daniel M. Jarvie  
President



Fife Symington  
Governor

State of Arizona  
Arizona Geological Survey

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Larry D. Fellows  
Director and State Geologist

January 21, 1994

Mr. Daniel M. Jarvie  
Humble Geochemical Services  
P. O. Box 789  
Humble, Texas 77347

Dear Daniel:

Thank you for your letter of January 6, 1994, and your offer to analyze samples from the 1 Alpine-Federal geothermal well in Arizona. The Arizona Oil and Gas Conservation Commission will certainly consider giving you samples from the core for analyses as long as you are willing to abide by the conditions of the Commission's sample policy, which I have enclosed.

What type of analyses do you propose? The core from the Alpine hole is about 2.5 inches in diameter and the Commission would like to preserve the integrity of as much of the core as possible. How much sample will you require for the type of tests that you propose?

Sincerely,

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosure



# Humble Instruments & Services, Inc.

P.O. Box 789 • Humble, Texas 77347  
218 Higgins Street • Humble, Texas 77338

TELEPHONE: (713) 540-6050

FACSIMILE: (713) 540-2864

---

Geochemical Instrumentation, Hardware, Software & Services

---

January 6, 1994

Steven L. Rauzi  
Arizona Geological Survey  
845 North Park  
Suite #100  
Tucson, AZ 85719

Dear Mr. Rauzi:

I recently read your article in the *Oil & Gas Journal* regarding the possibility of oil potential in Eastern Arizona. Based on the visual and lithologic descriptions in your article, it may be interesting to determine geochemically the source potential of the Cretaceous rocks. In addition it would be interesting to evaluate the oil shows cited in both the Cretaceous and Permian.

We operate a organic geochemical laboratory and I have enclosed information on our services for your perusal.

We offer these analyses at no charge on samples from this well. If you have additional samples, special pricing for the Arizona Survey would be considered. Our interest would be to eventually evolve a non-proprietary regional geochemical study in this area.

If you have an interest in pursuing this, please contact me.

Thank you for your consideration.

Sincerely,

  
Daniel M. Jarvie

DMJ/cb

By phone Dan indicated that these samples would be worked when lab work was slow. I sent the samples this Monday (3-7-94) and I wouldn't expect to get the report back for about 2 months

SLR



# Humble Geochemical Services

Division of Humble Instruments & Services, Inc.

P.O. Box 789 • Humble, Texas 77347  
218 Higgins Street • Humble, Texas 77338

TELEPHONE: (713) 540-6050

FACSIMILE: (713) 540-2864

Geochemical Services for Exploration, Development and Production

November 1993

## 1993 Price Schedule for Analytical Services

(All prices quoted per sample)

### I. Sample preparation services

1. Sample cleaning (if necessary), grinding and homogenization for 60 mesh grain size (< 2 grams) ..... \$ 3.50
2. Sample cleaning, grinding and homogenization for 20 mesh grain size (> 2 grams) ..... \$ 10.00
3. Basic Lithologic Description ..... \$ 3.50
4. Bulk Extraction (no recovery of extract) ..... \$ 10.00
5. Kerogen Isolation \* ..... \$ 30.00

### II. Headspace & Cuttings Analysis

1. Chromatographic analysis of headspace gas (C1-C5 & C6+) from cuttings and side-wall cores (Schlumberger Jars) ..... \$ 30.00
2. Chromatographic analysis of gas contained in cuttings (C1-C6+) from a drilling well after they are ground in sealed containers ..... \$ 30.00

### III. Rock-Eval plus TOC Analysis

1. For samples with TOC < 0.50% TOC ..... \$ 10.00  
(includes both TOC and Rock-Eval data)
2. For samples with TOC > 0.50% TOC ..... \$ 35.00  
(includes both TOC and Rock-Eval data)
3. Rock-Eval Analysis only ..... \$ 25.00
4. Leco Carbon Analysis \* ..... \$ 12.00
5. Carbonate Carbon ..... \$ 10.00
6. Total Carbon ..... \$ 9.00

### IV. Microscopy: Ro, TAI, Kerogen Analysis

1. Vitrinite Reflectance, Kerogen Analysis, and Thermal Alteration Index (TAI) [includes all sample preparation] ..... \$ 120.00
2. Vitrinite Reflectance Analysis Only (includes sample preparation) ..... \$ 100.00
3. Visual Kerogen and Thermal Alteration Index (TAI) [includes sample preparation] ..... \$ 75.00
4. Whole Rock Vitrinite Reflectance Only [includes sample preparation] ..... \$ 75.00
5. Vitrinite Reflectance Analysis of client plugs/slides [no additional preparation] ..... \$ 60.00

### V. Sulfur Analysis

1. Leco Sulfur Analysis of Rocks, Oils \* ..... \$ 32.00
2. Elemental sulfur analysis ..... \$ 32.00

**VI. Solvent Extraction, Separation, Quantitation**

- 1. Supercritical Fluid Extraction (SFE) with modifier..... \$ 60.00
- 2. Solvent Extraction (SOXHLET or SoxTec) ..... \$ 60.00
- 3. Cold Soak Extraction ..... \$ 60.00
- 4. Packed Column Chromatography Separation/Quantitation ..... \$ 75.00

**VII. Gas Chromatography and Pyrolysis/Gas Chromatography**

- 1. Gas Chromatographic traces of whole oil, extracts or fractions or thermal extract (S1) plus pyrolyzate (S2) (cyrogenic) (fingerprint only)..... \$ 150.00
- 2. same as above but with peak tables..... \$ 200.00

**VIII Reservoir Oil Fingerprint (ROF)**

- 1. Gas Chromatography of oil samples with detailed interpretation, statistical analysis, and graphic display using Chevron's PFR/Oilmix/Sliding Window (c) Software..... \$ 220.00/oil
- 2. Quantitative evaluation of oil mixing (comingled production)..... \$ 1,100.00 (requires 2 end member oils and unknown oil)
- 3. Additional interpretive services or training..... \$ 600.00/day

**IX. Detailed Analysis**

- 1. Microscale Sealed Vessel Analysis
  - A. Sealed Tube Products Gas Chromatography ..... \$ 150.00
  - B. Sealed Tube Residue Pyrolysis Gas Chromatography ..... \$ 150.00
  - C. Same as above but with peak tables ..... \$ 200.00
- 2. Elemental Analysis:
  - A. CHNO or CHNS (requires kerogen) ..... \$ 75.00
  - B. CHNOS (requires kerogen) ..... \$ 100.00
- 3. Carbon Isotope Analysis (saturate, aromatic or whole oil) \* ..... \$ 40.00
- 4. Biological Marker Analysis:
  - A. Saturate fraction \* ..... \$ 400.00
  - B. Aromatic fraction \* ..... \$ 325.00
- 5. Hydrous Pyrolysis \* ..... \$ 350.00
- 6. Kinetic Analysis: Rock-Eval derived using Discrete Model ..... \$ 650.00

**X. 1D Basin Modeling Services**

**A. BasinMod 1-D Model (per well)**

- \*\* 1. Single iteration with graphics..... \$ 1,200.00
- \*\* 2. Additional iterations with corresponding graphics ..... \$ 200.00
- 3. BasinMod model with graphics with all data researched for a given well ..... \$ 2,000.00

**B. MATOIL or GENEX 1-D Model (per well)**

- \*\* 1. Single iteration Genex model with complete graphics ..... \$1,500.00
- \*\* 2. Additional iterations of the same model with limited graphics ..... \$ 275.00
- 3. Matoil model with graphics with all data researched for a given well ..... \$2,300.00

\* Subcontracted services

\*\* Requires completion of modeling worksheet

**XI. Detailed Interpretation ..... 25% of total analytical charges**

BASINMOD is a Trademark of Platte River Associates, Inc.

GENEX and MATOIL are registered trademarks of IFP

3- letters



FIFE SYMINGTON  
GOVERNOR

J. ELLIOTT HIBBS  
DIRECTOR

ARIZONA DEPARTMENT OF ADMINISTRATION  
STATE PROCUREMENT OFFICE  
Executive Tower, Suite 101, 1700 West Washington, Phoenix, Arizona 85007  
(602) 642-6611

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED (P 363 450 189)

February 17, 1994

Larry Pisto, Manager  
TONTO DRILLING SERVICES, INC.  
P. O. Box 25128  
2200 South 4000 West  
Salt Lake City, Utah, 84120

RE: Contract No. A3-0041-001 (Alpine/Springerville Geothermal Project)

Dear Mr. Pisto:

The following represents the State of Arizona's position on certain contractual obligations under the above referenced contract number and the Department of Commerce, Energy Office (DCEO) concern about your firm fulfilling subject mandated requirements.

This office is by way of this formal notice, issuing an official cure date for initiation of immediate corrective action. Therefore, upon receipt of this letter, you are hereby notified that your organization has ten (10) calendar days to respond in writing to this office outlining your plan of action to ensure that the remainder of the contract period will be accomplished as contractually required. In addition, you must present a comprehensive explanation of why your organization has apparently failed to provide the drilling raw data under your existing geothermal program (i.e., preliminary assessment of findings during drilling operations). The contract, specifically Page 9, Paragraph 4 and associated sub-paragraphs outline the required tasks. Several additional key issues that should also be addressed are as follows:

- \* Sub-contractor has been fostering the concept of taking the site authorization from the State of Arizona and

Larry Pisto, Manager  
TONTON DRILLING SERVICES, INC.  
February 17, 1994  
Page 2 of 3

transferring such authority to either the United States Geological Survey or other interested parties. The subcontractor must understand and agree that he is not authorized nor permitted to address any issues pertaining to the sites actual findings of the drilling nor to introduce other concepts that are contrary to the State of Arizona's direction pursuant to the contract. For the record, no information can be released without the prior written approval of the State.

- \* The hole has not yet been plugged and abandoned in accordance with the drilling permit and pursuant to the terms of the contract.
- \* Site location was discussed several times and was asked for in the Best and Final Offer and was incorporated into the contract award. It was agreed to by both parties that a site within the Springerville-Alpine geothermal anomaly would satisfy the State's requirements. The actual site chosen was the United States Forestry Service location at Alpine and technically known as Alpine #1/Federal Bore Hole (State Permit #878). This area is shown on the Geothermal Resources of Arizona Map dated 1982.
- \* Page 11, Paragraph 6.2 of the contract states: "The contractor shall provide an acceptable Final Geothermal Report to the State Agency. The report shall contain all pertinent information, data, data evaluations, projections, conclusions, and recommendations gathered or prepared by the contractor during the course of the project." Will this report be forthcoming?
- \* Page 11, Paragraph 6.3 states: The contractor shall furnish the State Agency with five (5) copies of the final approved report. In addition to the final report, the contractor must submit a final business report detailing all expenses incurred, payments made, and balances due. Will this requirement be completed and submitted with the overall final report?

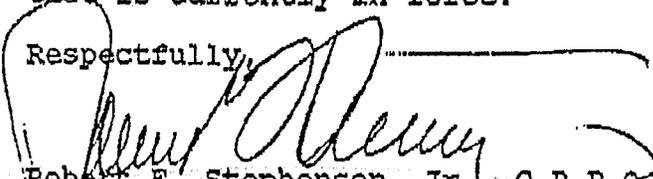
Larry Pisto, Manager  
TONTA DRILLING SERVICES, INC.  
February 17, 1994  
Page 3 of 3

- \* Invoices totalling approximately \$171,000.00 are being withheld until delivery of final report has been received and accepted and the hole has been plugged and abandoned.
- \* No authority has been granted to any agency the right to cause your company to be released from your contractual obligations. This office has by way of this correspondence put the surety company on notice that no such authorization will be forthcoming to terminate or cancel the performance bond currently in effect. Your company is still legally responsible to retain such coverage until all mandates of the contract have been satisfied.

Should you fail to respond to this request, your organization could be held in breach of contract with the State of Arizona, and appropriate action will be initiated.

I urge you to consider the seriousness of our concerns and that all necessary steps on your part are taken to ensure, by return mail, that the utmost priority and attention are given to the contract that is currently in force.

Respectfully,



Robert E. Stephenson, Jr., C.P.E.C.  
Administrator, Professional Services

RES/vt

c: Margaret E. McConnell, Administrator, SPO  
Frank Mancini, Az Dept of Commerce, Energy Office  
Bob Dyson, United States Forest Services/Alpine Region  
Nyles Lackey, P.E., Project Officer, U S Dept of Energy  
Az Oil & Gas Commission  
Steven Rauzi, Arizona Geological Survey  
File (Contract A3-0041-001)



# SPECIAL TERMS AND CONDITIONS

STATE PROCUREMENT OFFICE  
EXECUTIVE TOWER, SUITE 101  
1700 WEST WASHINGTON  
PHOENIX, ARIZONA 85007  
(602) 542-5511

A3-0041

SOLICITATION NO.: \_\_\_\_\_

F. Y. I.

or to such other address as either party may from time to time furnish in writing to the other by notice hereunder. Any notice so mailed shall be deemed to have been given as of the date such notice is received as shown on the return receipt. Furthermore, such notice may be given by delivering personally such notice, if intended for the State, to the STATE PURCHASING ADMINISTRATOR and the DIRECTOR OF THE ARIZONA DEPARTMENT OF ADMINISTRATION, and, if intended for the Contractor, to the person named in the Offer of this contract (SPO Form 203), or to such other person as either party may from time to time furnish in writing to the other by notice hereunder. Any notice so delivered shall be deemed to have been given as of the date such notice is personally delivered to the other party.

17. The contractor shall fully coordinate his or her activities in the performance of the contract with those of the State Agency. As the work of the contractor progresses, advice and information on matters covered by the contract shall be made available by the contractor to the State Agency throughout the effective period of the contract.

18. The contract shall be subject to modification and supplementation only upon the written agreement by and between the duly authorized representatives of the contractor and the State Procurement Office of the State of Arizona. Any such modification or supplementation, including any increases or decreases in the amount of the contractors' compensation, shall be accomplished by a formal written amendment, entitled as an "Amendment", and signed by the parties identified in the preceding sentence. The contractor expressly and explicitly understands and agrees that no other method and/or no other document, including correspondence, acts, and oral communications by or from any person, shall be used or construed as a modification or supplementation to the contract.

19. The contractor agrees and understands that the contract shall constitute an assignment by the contractor to the State of Arizona of all rights, title and interest in and to all causes of action that the contractor may have under the antitrust laws of the United States or the State of Arizona for which causes of action have accrued or will accrue as the result of or in relation to the particular goods or services purchased or procured by the contractor in the fulfillment of the contract with the State of Arizona.



# SPECIAL TERMS AND CONDITIONS

STATE PROCUREMENT OFFICE

EXECUTIVE TOWER, SUITE 101  
1700 WEST WASHINGTON  
PHOENIX, ARIZONA 85007  
(602) 542-5511

A3-0041

SOLICITATION NO.: \_\_\_\_\_

F. Y. I.

- 37. **Amendments:** Any change in the contract including the Scope of Work described herein, whether by modification or supplementation, must be accomplished by a formal contract amendment signed and approved by and between the duly authorized representatives of the contractor and the State Procurement Office of the State of Arizona. Any such amendment shall specify an effective date, any increases or decreases in the amount of the contractors' compensation if applicable and entitled as an "Amendment", and signed by the parties identified in the preceding sentence. The contractor expressly and explicitly understands and agrees that no other method and/or no other document, including correspondence, acts, and oral communications by or from any person, shall be used or construed as an amendment or modification or supplementation to the contract.
  
- 38. **Disputes:** The contract is not subject to arbitration. The State and the contractor shall meet to discuss and attempt to resolve any dispute. However, should the dispute go unresolved to the satisfaction of both parties, the contractor shall have the right to pursue the Arizona Procurement Code/Administrative Appeal Process for Claims, prior to an appeal to the judicial system.



# United States Department of the Interior



## GEOLOGICAL SURVEY

Office of Earthquakes, Volcanoes, and Engineering  
Drilling Project  
Mail Stop 923  
345 Middlefield Road  
Menlo Park, CA 94025-3591

February 7, 1994

Mr. Steven L. Rauzi  
Oil and Gas Conservation Commission  
Arizona Geological Survey  
845 North Park Ave., Suite 100  
Tucson, AZ 85719

Dear Mr. Rauzi:

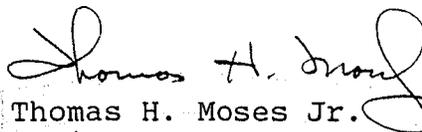
The Geothermal Studies Project of the U.S. Geological Survey in conjunction with the U. S. Department of Energy would like to arrange for the orderly transfer of ownership of the geothermal test well known as Alpine #1 Federal (AZ State Permit #878) located in the NW quarter of the SW quarter of Section 23, Township 6 North, Range 30 East, Apache County, Arizona, from Tonto Drilling Services, Inc., Salt Lake City, Utah, to the U.S. Geological Survey. We are requesting this transfer in order to continue the current scientific studies and to use this opportunity to solicit additional funding for deepening the hole to basement.

Enclosed is the original of a letter from Mr. John E. Mock, Director of the Department of Energy's Geothermal Division, to the Arizona Oil and Gas Commission stating that funds will be available to the U.S. Geological Survey's Geothermal Studies Project for plugging and abandoning the well in accordance with the regulations set forth by the Arizona Oil and Gas Commission.

The U.S. Department of Agriculture, Forest Service, has already issued a Memorandum of Understanding between the U.S. Geological Survey and the U.S. Forest Service which transfers the surface access and site cleanup requirement of Alpine #1 Federal from Tonto Drilling Services, Inc., to the U.S. Geological Survey. I believe you have already received a copy of the MOU.

The U.S. Geological Survey appreciates your interest in preserving this hole for additional scientific endeavors during the next two or three years and looks forward to continued cooperative efforts on future wells of interest.

Sincerely,

  
Thomas H. Moses Jr.  
Engineer

Enclosure



## Department of Energy

Washington, DC 20585

January 31, 1994

Mr. Steven L. Rauzi  
Oil and Gas Administrator  
Arizona Geological Survey  
845 North Park Ave., Suite 100  
Tucson, AZ 85719

Dear Mr. Rauzi:

As I mentioned to you in my letter of November 15, 1993, we have a continuing interest in the State of Arizona - U.S. Department of Energy Hot-Dry-Rock test well completed in August, 1993. Our accomplishments of obtaining continuous core, commercial geophysical logs, and high-resolution temperature logs represented a substantial body of scientific data. However, two important objectives of great scientific value, critical to the assessment of the hot-dry-rock geothermal potential of the Springerville area, were not achieved.

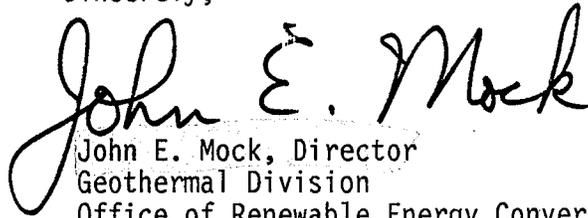
- 1) Penetration of Precambrian basement rocks. Any potential geothermal reservoir will be located in the crystalline basement, but the hole bottomed out short of the Precambrian target. One of the critical questions regarding the geothermal potential of this area turns on whether the high heat flow observed in the sedimentary section continues a significant distance into the crystalline basement rocks.
- 2) Open-hole investigations including logging, downhole measurements, and fluid sampling. The nature of the procurement precluded completion of these important tasks.

The successful conclusion of the original contract requirements has led us to the following suggestion. Rather than abandon the well at this point, there is an opportunity for additional coring and testing before abandonment. The USGS is proposing to take over as operator of the well and to assume all responsibility from the present contractor (Tonto Drilling Inc.), and DOE will provide funding of up to \$25,000 to ensure a satisfactory plugging and abandonment of the well at the conclusion of this process.

The USGS will operate the hole as a thermal observation well until a satisfactory equilibrium temperature profile has been obtained. The researchers hope to deepen the well to reach Precambrian basement rocks, and additional funding will be sought by Mr. James Witcher of New Mexico State University (NMSU) and Dr. John Sass, Chief of the Heat-Mining Project, USGS. Upon completion of the scientific studies, the hole will be plugged and abandoned by the USGS or completed in a manner consistent with its employment as a long-term observation well for climatic-change studies and other purposes.

I greatly appreciate your cooperation and support in this project. Thank you again for your interest.

Sincerely,



John E. Mock, Director  
Geothermal Division  
Office of Renewable Energy Conversion  
Energy Efficiency and Renewable Energy

*"Evidence of authority" i.e. authorization from Secretary or undersecretary of Mock's authority to commit \$25,000*

*Call Thomas Moses and advise him of Council's advice that Commission needs "Evidence of authority." SCR 3-11-94*



United States  
Department of  
Agriculture

Forest  
Service

Alpine  
Ranger  
District

P.O. Box 469  
Alpine, AZ 85920  
602 339-4384  
TTY 602 339-4566

Reply To: 2720

Date: January 24, 1994

Mr. G.A. McLaren  
Tonto Drilling Services  
2200 South 4000 West  
Salt Lake City, Utah 84120-0128

Dear Mr. McLaren:

The Forest Service has entered into an agreement with the Geological Survey (USGS) whereby the geothermal well at Alpine, Arizona is now being managed by the USGS. Effective immediately, the Special Use Permit issued to Tonto Drilling on 6/11/93 to conduct geophysical exploration at the Alpine well location is terminated.

The USGS is responsible for the well site and any reclamation work, thus Tonto Drilling Services is relieved of any further responsibilities at this site. By copy of this letter, the Forest Service releases the surety bond issued by the Insurance Company of the State of Pennsylvania.

I appreciate your spirit of cooperation throughout this project and wish you every success.

Sincerely,

  
Dean L. Berkey  
District Ranger

RAD/bjs

cc: Jim Witcher, NMSU  
Steven Rauzi, AZ Geological Survey  
John Hass, BLM  
John Sass, USGS  
Tim Moses, USGS  
Insurance Co. of Pennsylvania



Caring for the Land and Serving People

FS-6200-28b(3/92)

MEMORANDUM OF UNDERSTANDING  
between the  
APACHE NATIONAL FOREST  
U.S. FOREST SERVICE  
DEPARTMENT OF AGRICULTURE  
and the  
GEOTHERMAL STUDIES PROJECT  
U.S. GEOLOGICAL SURVEY  
DEPARTMENT OF INTERIOR

WHEREAS, The U.S. Geological Survey, herein referred to as USGS, desires to use as an observation hole an existing drill hole in Apache National Forest, and

WHEREAS, The U.S. Forest Service, herein referred to as USFS, is authorized under the Act of 1897 and Sections 251.1 and 251.2 of Title 36, Code of Federal Regulations, to make available to the USGS the use of National Forest lands for this purpose.

NOW, THEREFORE, The Apache National Forest herein referred to as the Forest Service, acting by and through the Forest Supervisor, Springerville, Arizona, and the USGS agree as follows:

A. THE USFS WILL:

1. Grant Permission, subject to existing laws, regulations, and all valid existing claims, to the USGS for the use of lands in the Alpine Ranger District, Apache National Forest for the purpose of monitoring and maintaining an existing drill hole located as shown on Exhibit A.

B. THE USGS WILL:

1. Prior to use and occupancy of National Forest lands, establish liaison with the Alpine District Ranger of the Apache National Forest, Alpine, Arizona, and take up directly with the District Ranger all matters relating to such use of National Forest lands.
2. Agree to maintain improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the Forest Supervisor and, in exercising the privileges authorized by this Agreement, comply with the regulations of the Department of Agriculture and laws which are applicable to the area of operations covered by this Agreement; and fully repair all damage, other than ordinary wear and tear, to National Forest roads and trails, resulting from the exercise of the privileges authorized by this Agreement.

3. Do everything reasonable within its power and require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon request of the Forest Service, to prevent and suppress fires on or near the land to be occupied under this memorandum of understanding.
4. Agree, upon completion of the study, to clean-up, restore, and re-vegetate the site to the satisfaction of the Forest Supervisor.
5. Notify the Alpine District Ranger, in writing, at least 10 days prior to any planned changes in the proposed operation.
6. Abide by the well completion stipulations as required by the Bureau of Land Management and the State of Arizona.

C. THE USFS AND THE USGS MUTUALLY AGREE:

1. That this Interagency Agreement may be terminated or amended at any time by mutual consent of the USFS and the USGS. Following such termination, negotiations will be undertaken for a substitute agreement, if such is needed.
2. That upon final termination of this or any substitute Interagency Agreement, the USGS will remove any improvements that have been erected, unless otherwise agreed upon in writing, and will leave the site in a condition acceptable to the USFS. If determination is made to leave any said improvements in place, the USGS, to the extent it may lawfully do, will transfer said improvements to the USFS.

DEPARTMENT OF AGRICULTURE, U.S. FOREST SERVICE  
Apache National Forest

Date 1/18/94 by *John P. Bedell*  
Title Forest Supervisor

DEPARTMENT OF INTERIOR, U.S. GEOLOGICAL SURVEY  
Geothermal Studies Project

Date 9-8-93 by *James H. Drouil*  
Title Engr.

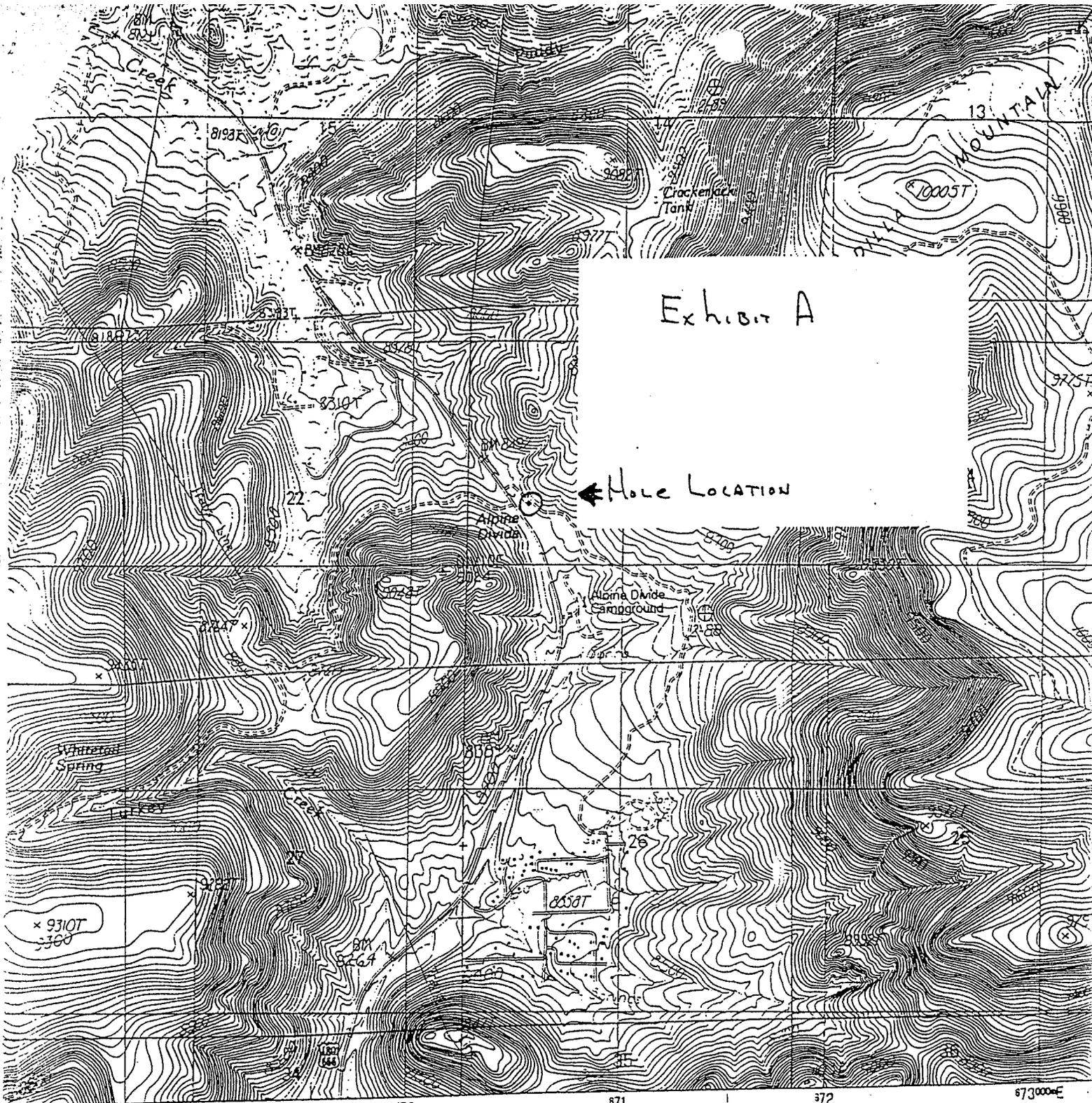
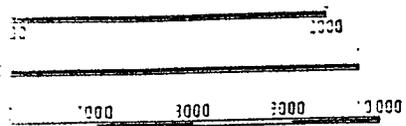


Exhibit A

← Hole Location



QUADRANGLE LOCATION

1	2	3	1	Esper
			2	Nelson Reservoir
			3	Loon Knoll
4		5	4	Ruid Knoll
			5	Escuilla Mountain
			6	Buffalo Crossing
			7	Alpine
6	7	8	8	Luna Lake

ADJOINING 7.5' QUADRANGLE NAMES

ROAD LEGEND

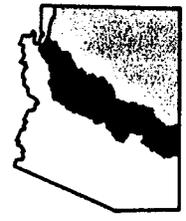
- Improved Road . . . . .
- Unimproved Road . . . . .
- Trail . . . . .
- Interstate Route
- U.S. Route
- State

NUTRIOSO, ARIZONA  
PROVISIONAL EDITION



# State of Arizona Arizona Geological Survey

845 North Park Avenue, #100  
Tucson, Arizona 85719  
(602) 882-4795



Fife Symington  
Governor

Larry D. Fellows  
Director and State Geologist

20,000  
10,000

February 9, 1994

391-2940

Mr. L.W. Brooks  
c/o Don Switzenberg  
7585 Redfield  
Scottsdale, Arizona 85260

Partnership  
47 yrs in OG business  
letter from AG office to p+r wells  
Developing cost to p+r  
Called David → AZGS (Bruce Davidson refer to Cathy)  
Request schematic and p+r quotes  
230,000 to serve quiet title  
Bloom back on real estate market (housing development)  
Can't afford to dilly with wells in this stage of game.  
Letting apt go & returning to Denver 3/1  
∴ mail c/o Switzenberg.

Re: Power Ranches geothermal wells 1 and 2

Dear Mr. Brooks:

I have enclosed the information that you requested on the referenced wells. This information includes a wellbore schematic showing the current mechanical condition of each of the wells and the plugging cost estimate by Wellsite Engineering, Farmington, New Mexico, for each of the wells. Cement and mush plugs are indicated on the wellbore schematics.

In addition, I have enclosed a copy of the Commission's Rules on plugging (R12-7-231 and R12-7-232) and the completion reports for each of the referenced wells.

Let me know if I may be of further assistance.

Sincerely,

*Steven L. Rauzi*

Steven L. Rauzi  
Oil & Gas Program Administrator

Enclosures

\* David Thropas called 2-8-94 to express interest in geothermal wells, wants to review geophysical logs, well files, and AOGCC minutes of meetings. Advise him of AOGCC mts on 3/1/94 and will send him agenda.

\* Delsky calls 2/10/94 and requests copy of these and MOU

★ Amanda, MSE Environmental, Environ site assessment on property in Octillo (25-4E) advised none & she wanted to know closest wells. Advise 25-6E 2 power wells. advised her they are not in compliance & potential litigation problem

PAM

PLEASE SEND AGENDA FOR  
AOGCC 3/11/94 MTG TO:

MR DAVID TREPAS  
PO BOX 2211  
SCOTSDALE AZ 85252

(602) 994-8382

He called 2/18/94

- Noted wells on geothermal map of AZ
- Looking for geophysical logs if available + would like to examine.
- Advised well files + logs in this office
- Expressed interest in doing something with the wells.
- Advised him of current status + AOGCC desire to P+A wells.
- Invite him to next AOGCC mtg to express his intentions to AOGCC
- He may be in office to review files and minutes of past mtgs

\* Call + advise Dubsky of his call.



STATE OF ARIZONA

OFFICE OF THE ATTORNEY GENERAL

GRANT WOODS  
ATTORNEY GENERAL

1275 WEST WASHINGTON, PHOENIX 85007

MAIN PHONE : 542-5025  
TELECOPIER : 542-4085

January 21, 1994

United Title Agency of Arizona, Inc.  
3030 North Central, Suite 1102  
Phoenix, Arizona 85012

Re: Trust No. 1248

Dear Gentlemen:

The records of the Maricopa County Recorders Office indicate that your company is trustee of the above-noted trust which owns certain real property located on Power Road in Higley, Arizona. The primary beneficiary of the trust is Power Enterprises and the secondary beneficiary is Gilbert-Arizona Power Road Property Joint Venture.

The Oil and Gas Commission of the State of Arizona granted permission in the 1970s for the drilling of two geothermal wells on the property. The two wells were drilled and have remained on the property although they have not been in operation for a number of years.

It has been determined by the Commission that, by virtue of the bankruptcy of the owners of the wells and a quiet title action in the late 1980s, ownership of the wells has reverted to the owner of the real property, Trust No. 1248.

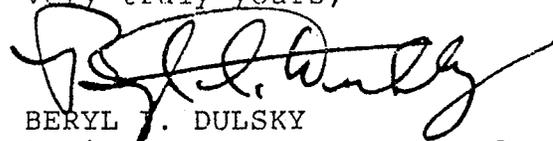
Under Arizona law, a well which is no longer in use must be "plugged and abandoned." The responsibility for performing and paying for such work is that of the property owner in the event of a reverter of well ownership.

This office has been instructed, in its capacity as attorney for the Oil and Gas Commission, to inform you that the Commission expects that the Trust will undertake such work and will pay for it. I invite you to contact me at 542-1610 at your

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earliest convenience so that we may discuss this matter and arrange for the prompt and expeditious plugging and abandonment of these two wells.

Very truly yours,



BERYL J. DULSKY  
Assistant Attorney General  
Civil Unit Chief,  
Environmental Enforcement Section

BID:ach/7985A:31

cc: Power Enterprises  
21826 South Power Road  
Higley, Arizona 85236

Gilbert-Arizona Power Road Property Joint Venture  
c/o Mr. Donald Switzenberg  
22350 North Pina Road, Suite A  
Scottsdale, Arizona 85255

bcc: Mr. Steve Rauzi

March 11, 1994

Frank J. Mancini

Soc. Sec. Agency

*[Handwritten signature]*  
G. S. [unclear]

OGCCM Visitors

Az. Dept. of Commerce

B C M

Az. AG.

AGO