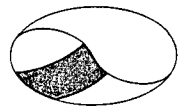
GL00820

ROBINSON, NOBLE & CARR, INC.
GROUND WATER & ENVIRONMENTAL GEOLOGISTS
5915 ORCHARD STREET WEST
TACOMA, WASHINGTON 98467
(206) 475-7711



February 24, 1981

EG&G Idaho, Inc.
P.O. Box 1625
Idaho Falls, Idaho 83415

Attention: M. R. Dolenc

Subject: Wine Valley Inn, drilling program

Gentlemen:

The well design, drilling program and cost estimate is attached. It is possible I have overdesigned the well, and would appreciate your comments regarding any design changes you feel appropriate.

My discussions with local drilling contractors proved useful. These included discussions with:

Weeks Drilling - Sebastopol, 707-542-3272

Dosier and Gregson - Vallejo, 707-6429-9698

A. K. Drilling - Petaluma, 707-762-5264

Weeks Drilling (Ward Thompson) appears best equipped and most capable of providing the best product. Dosier and Gregson Drilling seemed less interested, and anxious to circumvent some basic design requirements such as adequate surface seals. A. & K. Drilling, furnished Wine Valley the basic drill rig data for the proposer's January 21, 1981 submittal. They recently spent about 6 months in completing a 500-foot geothermal well at Calistoga. The proposed drilling should be accomplished in about two weeks.

I have not yet prepared technical specifications, but with the

drilling plan and cost estimate of $26,900 in hand, the work remaining to complete the specification will be minimal. I will await your comments and input before proceeding.

Yours truly,

ROBINSON, NOBLE & CARR, INC.

James R. Carr
Vice President

JRC/in

PROPOSED DRILLING PROGRAM

FOR

WINE VALLEY INN,

Calistoga, California

February, 1981

General

The drilling program and well design outlined below is based on information from:

- Resource assessment of low and moderate temperature geothermal waters, Calistoga, California; California Division of Mines and Geology, November, 1980.
- Data from the proposer.
- Discussions with several drilling contractors, from the Calistoga area.

A well yield of 75 gpm should be adequate to sustain the intended use. The optimum drilling depth is about 400 feet. The static water level should be about 30 feet below ground surface. Therefore a blow out preventor (BOP) should not be required. The design calls for overlapping casing and double grout in the upper 70 feet of hole to preclude leakage into the shallow potable aquifer. The preliminary completion design is shown in the attached drawing.

Rig Selection

The preliminary design is based on work being done with rotary drilling equipment. However, cable tool equipment would also be suitable if certain design modifications were made. It is expected that drilling to a depth of 300 feet will be done with fluid (mud) rotary, while drilling from 300 to 400 feet would be done with air rotary equipment. Therefore, the drilling contractor's equipment should have both air and mud capability. The large diameter surface hole to 70 feet could be drilled with bucket auger equipment which has been used successfully to similar depths in the Calistoga area.

Drilling Procedure

1. Drill a 20-inch or larger diameter hole to a depth of about 70 feet. Actual depth would be determined by the geologic conditions encountered. Twenty-inch diameter hole should be drilled into an impermeable clay unit.

2. Set 16-inch diameter casing with .375-inch wall thickness to the total depth drilled and anchor with ready mix grout from the total depth to surface.

3. Drill 14 3/4-inch hole with fluid rotary to a depth of about 300 feet or through the unconsolidated materials. A lightweight bentonite drilling fluid will be suitable. Circulation rate should be at least 600 gpm. Mud pits should have a volume of at least 5,000 gallons and be designed to provide optimum settlement of cuttings. A

shale shaker on the circulation system is also recommended. Drill collars and stabilizers will be required to assure a straight hole.

4. Set 12-inch I.D. .375-inch wall casing to a total depth drilled and pressure grout from the total depth to surface. Casing lengths will be joined by welding. Centralizers should be located at 50-foot intervals on the 12-inch casing.

5. Drilling method will be switched from fluid (mud) to air rotary, and 10 5/8-diameter hole will be drilled to 400 feet through the volcanic sequence to the top of the Franciscan Formation. Foam injected with 5 to 10 gpm of cold water can be used to assist in removal of cuttings. Air compressor should have a capacity of 600 cfm at 250 psi.

   If drilling with air and foam is not possible, or too time consuming, the production zone may be drilled with a carefully selected and controlled drilling fluid.

6. Set 6-inch I.D. (.280 wall) casing; 6-inch I.D. continuous slot stainless steel screen and blank 6-inch tail pipe, spacers and riser from the total depth to the surface. The entire completion assembly and 6-inch casing will have welded joints and be installed with centralizers to provide a uniform annulus.

7. Add selected gravel pack material to the annular space to a depth no less than 200 feet.

8. Develop the well by high velocity (150 psi) jetting with water and polyphosphate solution. Development by air-lifting may also be required.

9. An experienced geologist will identify and log all cuttings as drilling progresses. Geophysical logs should include:

   - Multi-electrode electric logging and self potential
   - Hole caliper
   - Temperature

   These logs are to be run after step 2 (drilling 14 3/4-inch hole and prior to installing and cementing the 12-inch casing); and after step 5 (drilling the 10 3/4-inch hole prior to installing the 6-inch completion assembly).

   The geologic and geophysical logs will be used to determine the depth of casing settings and the completion design.

10. The drilling rig will be demobilized from the site and the site restored to its original condition.

11. After completion and development, the well will be tested. It is anticipated that the drilling contractor's equipment will be used to install the test pump.

12. Because of the temperature of the geothermal fluid, it may be necessary to make special lease-purchase arrangements for the pumping equipment. The test will be made at several pumping rates (i.e. 50, 75 and 100 gpm). The duration of each pulse will be between 12 and 24 hours. Flow and pumping level measurements will be made throughout testing and recovery.

13. Temperature and field chemical analysis will be made on site, and samples will be collected and submitted to appropriate laboratories for full chemical analyses.

14. If the well's production is suitable for the proposer's use, the well head will be finished with valves and fittings as required.

15. If the well is incapable of producing a usable amount of fluid, it will be abandoned in accordance with state regulations.

Cost Estimate

To accomplish the above-described program, we have prepared the attached estimate of costs. Based on the items shown, unit prices and estimated quantities, the cost of drilling and constructing the 400-foot well is $26,900. This represents an average cost of about $67/foot, not including cost of pumping and testing.

As previously mentioned, it may be necessary to contract the pumping equipment on a lease item purchase basis. The cost of pumping equipment is estimated to be between $10,000 and $12,000. If the well is successful and the test pump fits the well yield and pumping head requirements, the pump could be purchased by the proposer. If the test pump is not suitable as the production pump, then lease payments based on hours of operation and rehabilitation costs may be appropriate.

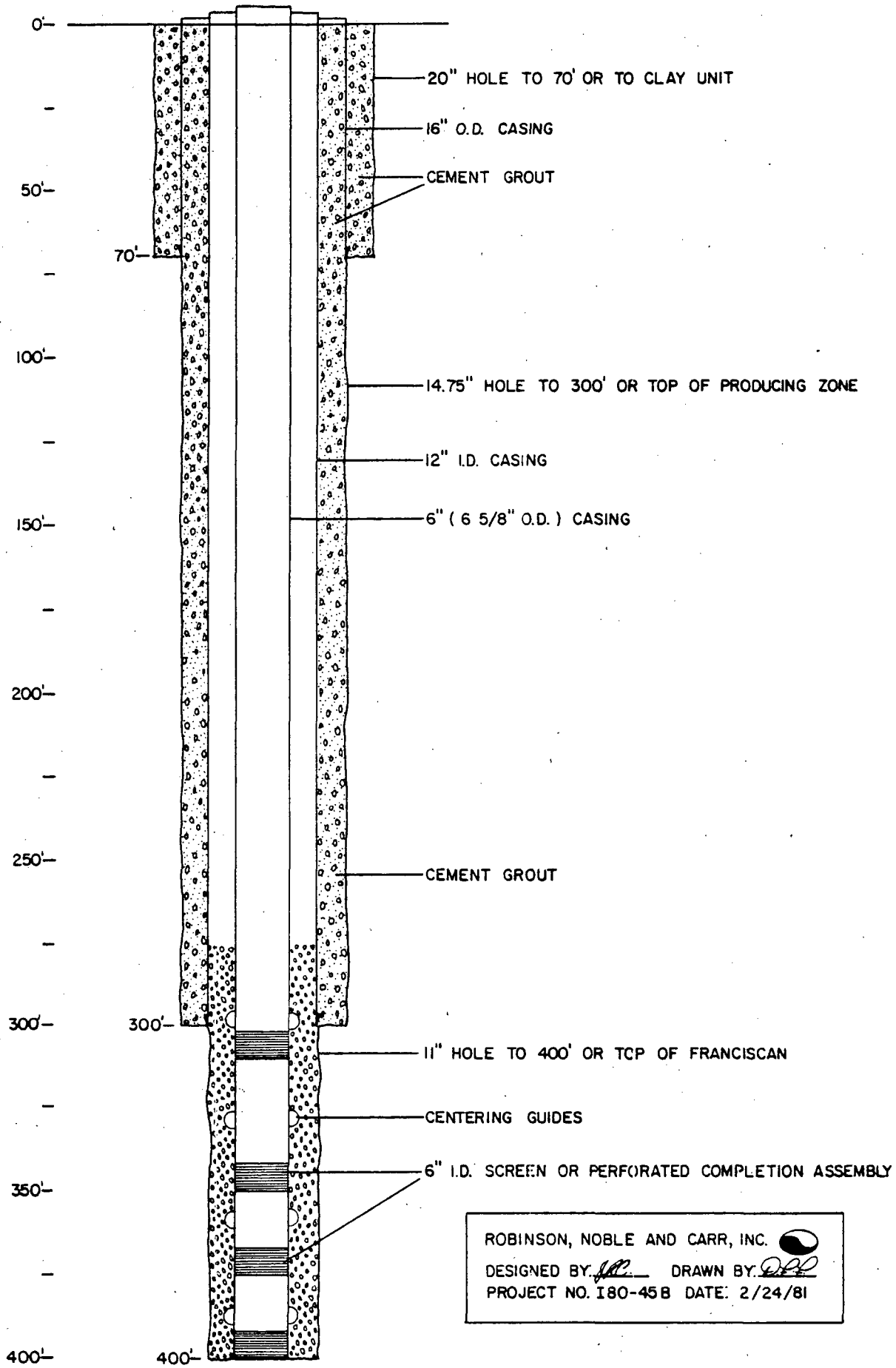
The above cost estimates are for drilling, construction, and testing. They do not include special consultants and special services such as geophysical logging, and well cementing, if required. Ideally, the selected contractor will have the experience and the equipment to perform the cementing as required. Geologic and geophysical logging can be performed by the consultants.

COST ESTIMATE

	Item	Unit Price	Est. Quant.	Est. Cost
1.	Mob and demob	$1000		$1000
2.	Drill 20-inch	20/ft	70 ft	1400
3.	16-inch casing	30/ft	70 ft	1750
4.	Cement 16 x 20-inch 80 ft^3	500	1	500
5.	Drill 14 3/4-inch	20/ft	230 ft	4600
6.	12-inch casing	20/ft	300 ft	6000
7.	Cement 12 x 15-inch 100 ft^3	300	1	300
8.	Drill 10 5/8-inch	22/ft	100 ft	2200
9.	6-inch casing	8/ft	350 ft	2800
10.	6-inch screen (304 stainless)	65/ft	50 ft	3250
11.	Gravel pack 100 ft^3	7/ft^3	100 ft^3	700
12.	Hourly work cement, develop, etc.	100/hr	24 hrs	2400
			Estimated cost	$26,900

Average cost/ft $\frac{\$26,900}{400 \text{ ft}} = \$67.25/\text{ft}$

WINE VALLEY INN
PRELIMIN / COMPLETION DESIGN GEOTHERMA RODUTION WELL



ROBINSON, NOBLE AND CARR, INC.
DESIGNED BY: JRC DRAWN BY: DRL
PROJECT NO. 180-458 DATE: 2/24/81

NOTE: DEPTHS SHOWN ARE APPROXIMATE

APPLIED EARTH SCIENCES, INC.

Consulting Engineering Geologists and Geotechnical Engineers

7765 HEALDSBURG AVENUE SUITE 12 SEBASTOPOL, CALIFORNIA 95472 (707) 823-4082

February 25, 1981

Mr. Max Dolemc
Department of Energy
Idaho Operation Center
550 Second Street,
Idaho Falls, Idaho 83401

Subject: Supplemental Information, SCAP NO. DE-SC07-801ID12139
Wine Valley Inn, Calistoge, California

Dear Mr. Dolemc:

Transmitted herewith are the supplemental information that you requested during our telephone conversation of February 12, 1981.

In October 1 80, we drilled a 333 foot well, Wilson #1 in the Wine Valley Inn property. The driller's well log indicates about 200 feet of slluvial materials including gravells, clays and tuff beds which are underlain by highly siliceous tuffaceous beds. The drilling was terminated at refusal with 6½ inch carbide bit at the depth of 333 feet.

According to the driller, the bottom temperature was estimated to be about 170°F and the flow was about 23 gallons per minute. The well has been grouted between 160 to 150 feet and will eventually be grouted to the surface. Presently, the well is capped.

We expect that similar geologic conditions exist throughout the project site. With understanding of the geologic conditions existing at the project area and the data from the Wilson #1, we have design the following drilling and testing program for the next production well, Wilson #2. We included a schematic drawing of the well.

DRILLING PROCEDURE AND TESTING

1. Set 14 inch starter casing to 20 feet.

2. Drill with 11 inch bit to 300 feet with mud. We plan to use mud because of high potential for caving in.

3. Install 8 inch casing to 300 feet

4. Grout 8 inch casing to 300 feet for 1) blow out protection, and 2) prevention of contamination of upper aquifer.

5. Continue drilling with 8 inch bit to 350 feet, then blow with air for two hours, measure water flow and temperature and obtain water sample for chemical analysis.

6. We will submit the well log, temperature gradient chart, water flow data, results of water chemical analysis for your reviw.

7. After receipt of respond from your office, we will continue drilling with 8 inch bit to a maximum 1000 feet, untill we reach an aquifer with wufficient quantity and temperature. The bit may be changed to 6¼ inch if difficulties occur.

8. Install 6 inch ~~liner~~ casing from top to bottom.

9. Perform 10 hour pumping test and obtain water sample for chemical analysis. We will also obtain temerature gradient, and run an Electric Log.

10. Well capping

CONTINUOUS LOGGING

Our geologist will supervise the drilling operation. He will log each well continuously during the duration of drilling. He will obtain cuttings from every change in lithology. He will also record drilling time per foot at selected intervals.

WATER ANALYSIS

We have contacted Brelje and Race, Consulting Engineers in Santa Rosa who have performed numerous water analysis for geothermal well water from Geyser-Calistoga areas. They suggested fourteen parameters tests for the existing and proposed thermal wells. These tests include, PH, Specific Conductance, Total Dissolved Solids, Calcium, Magnacium, Potassium, Boron, Sulphate, Chloride, Arsenic, Iron, Flourite, and Silica.

We trust this is the information that require at this time. If you have any further questions regarding this letter, please do not hesitate to call us.

Yours very truly,

APPLIED EARTH SCIENCES, INC.

Naohiko Noguchi

Naohiko Noguchi
Principal
Chief Engineering Geologist

NN/ms

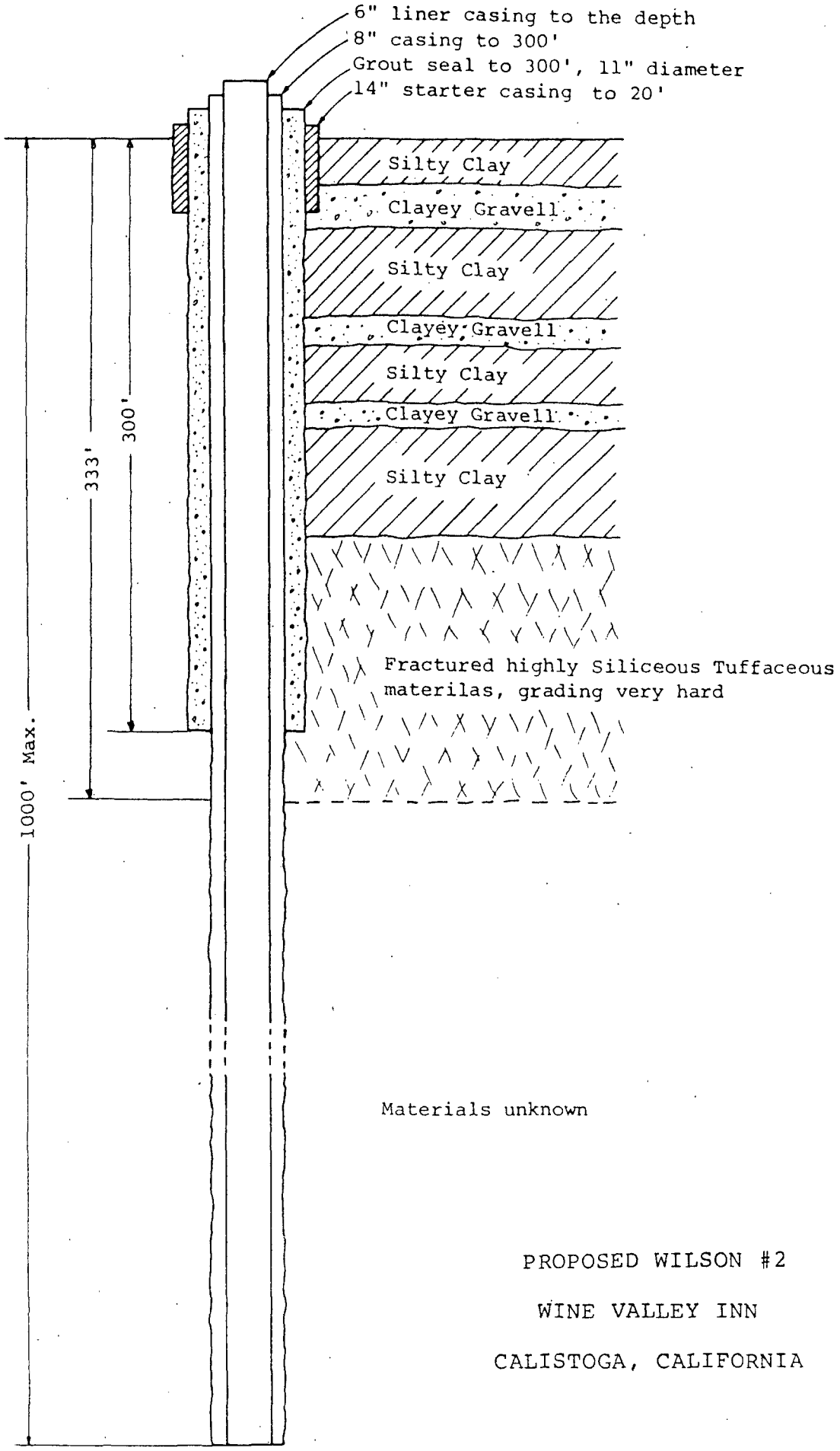
Enclosure

Revisions: By _____ Date _____ By _____ Date _____

By NN Date 2-25-81

Checked By _____

Job Number _____ Name Winw Valley Inn Location Calistoga



Materials unknown

PROPOSED WILSON #2

WINE VALLEY INN

CALISTOGA, CALIFORNIA

APPLIED EARTH SCIENCES, INC.

PROPOSED DRILLING PROGRAM

FOR

WINE VALLEY INN,

Calistoga, California

February, 1981

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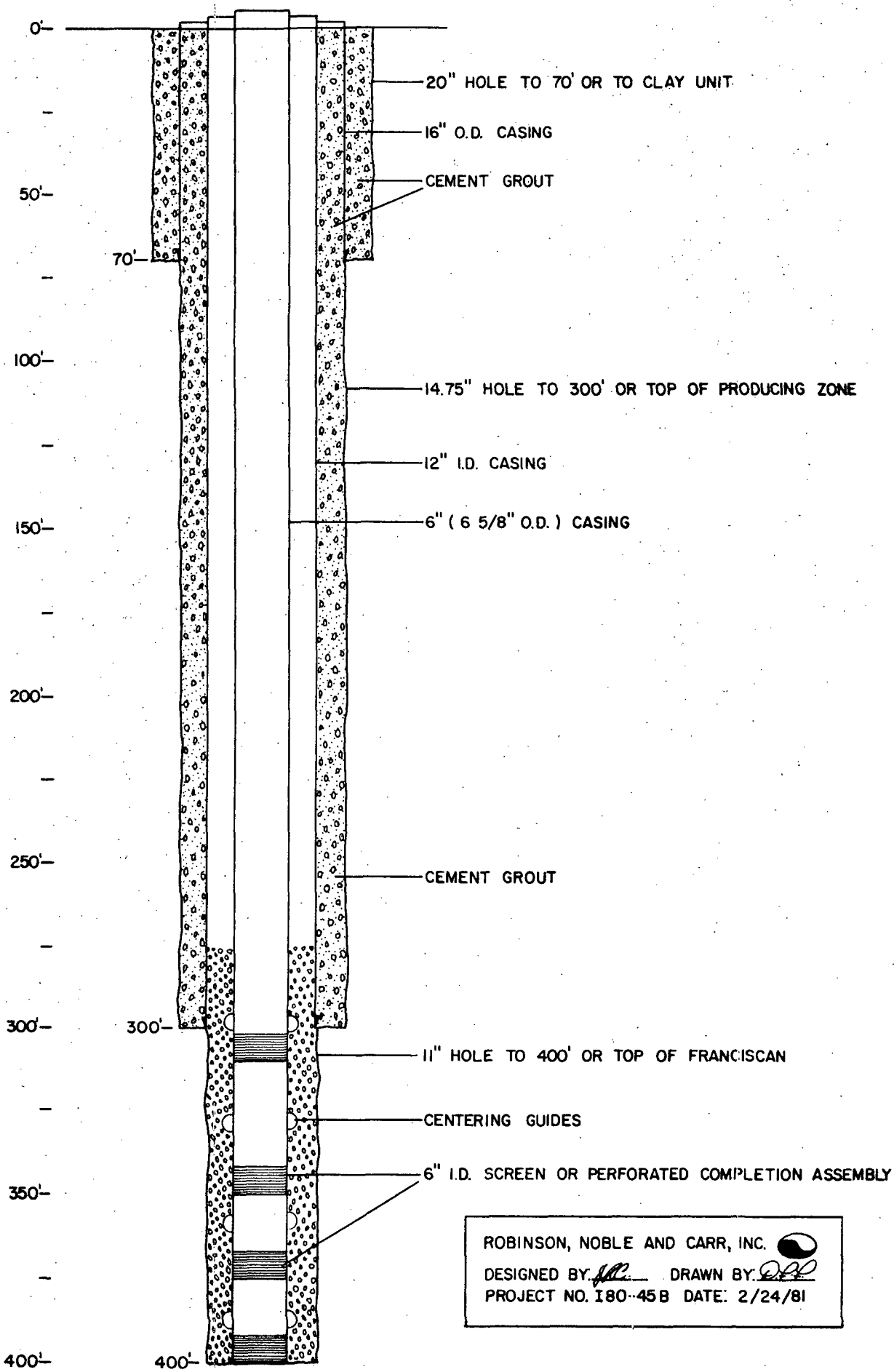
WINE VALLEY INN
PRELIMIN COMPLETION DESIGN GEOTHERMA RODUTION WELL



ROBINSON, NOBLE AND CARR, INC.
DESIGNED BY: JRC DRAWN BY: DRL
PROJECT NO. 180-45B DATE: 2/24/81

NOTE: DEPTHS SHOWN ARE APPROXIMATE

ID F-203
Ref: E&T
(Rev. 12-80)

UNITED STATES DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

USER-COUPLED CONFIRMATION DRILLING PROGRAM

MEMO OF CONVERSATION

Project: Wine Valley

Person Calling: Jim Carr — Date 2/19/81

Representing: Robinson, Noble & Carr — Time 11:00 AM

Person Called: Dennis Goldman — Phone Number 526-0594

Representing: EG&G Reservoir

City:

Subject: Drilling & Testing

Distribution
~~DOE-NV~~
DOE-ID Brent Clark, Susan Poulsen
UURI Jon Zeibolt, Mike Wright
EG&G Reservoir
EG&G Environmental
Monitor Team Secretary Mary Delere, Jan Stevens
Other

(1) The lower drilling costs of $24/ft is correct. However, this is just the cost of Drilling. The cost of A completed well (casing, grout, etc included) is about $65/ft, as presented in the proposal.

(2) The driller listed in the clarification notices, A&K Drilling, is believed to be rather "Flakey". They just completed one 500 ft well in the area and took about 5 months due to problems. Weeks Drilling appears to be one of the more capable companies.

(3) No local drillers are willing to use their test pumps in a geothermal well. It appears that a pump will have to be purchased as part of testing costs. One dealer is willing to exchange pumps, if not correct, pump.

Signature Dennis Goldman

(Continue on reverse side)

21 January 1981

Mr. Brent Clark
Department of Energy
Idaho Operations Office
550 Second Street
Idaho Falls, Idaho 83401

Subject: SCAP NO. DE-SC07-80ID12139
Wine Valley Inn

Dear Mr. Clark:

Attached is the additional information you requested prior tc to negotiating the contract. We believe that the data we have supplied will permit an adequate technical evaluation.

Item 12, attachment 2 has not been sent to us. It is the City Calistoga Council minutes of January 6th which has the building approvals and permit approvals. We have delayed sending this additional information without those minutes. As soon as we receive that information, we will promptly forward it.

One further note, our item numbers do not correspond exactly with your memo dated December 15, 1980. If you have any questions please do not hesitate to contact us. May I thank you in advance for your cooperation

Sincerely

John Lewis
Architect

se

LEWIS & NICHOL AIA ARCHITECTS & PLANNERS
po box 263 sebastopol ca 95472 707·829·2256

ITEM 1: Documentation required from Division of Oil and Gas.

The following attachments are being submitted as required from D.O.G.

Attachments:

1. Report on Proposed Geothermal Operations.
2. Notice of Intention to Drill a Geothermal Resources Well.
3. Individual Geothermal Resources Well Cash Bond.
4. Notarization of the Principal.
5. Designation of Agent for Individual or Partnership.

FORM OGG111 (11/79)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

No. P G380-063

DISTRICT G - 3

REPORT ON PROPOSED GEOTHERMAL OPERATIONS

Ms. Constance S. Wilson, Agent
C/O Ed Mills
601 California St.
San Francisco, CA 94108

Santa Rosa, California
August 28, 1980

Your _____ proposal to drill well "Wilson" 1
API No. 055-90048, Section 36, T. 9N, R. 7W, MD B. & M., _____ field,
_____ Geothermal Resource Area, Napa County,
dated 8/27/80, received 8/27/80 has been examined in conjunction with records filed in this office.

A. THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.

2. Water with any beneficial use shall be protected from degradation and waste at all times.

B. THIS DIVISION SHALL BE NOTIFIED:

1. One day prior to the commencement of drilling.

2. To inspect the blowout prevention equipment.

3. Before altering the proposed program, suspending operations, or placing any cement plugs. Additional requirements will be outlined at that time.

NOTE:

1. Call Santa Rosa Division of Oil and Gas for field engineer.
24-hour answering service (707) 525-0479.

2. Call Division Geothermal Unit in Sacramento in case of emergencies.

a. From 0800 to 1700 (916) 445-9686.

b. Nights and weekends (916) 662-4683 (answering service).

KFS:rw
Ind. B.

cc: USGS
DWR
DF&G
CRWQCB
Sacramento Geothermal Unit

M. G. MEFFERD, State Oil and Gas Supervisor

By _____ (Signature) L. Ferguson For
K. F. Stelling, Geothermal District Engr.

A copy of this report and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 60 days after completion, suspension, or abandonment.

Form OGG105 (1/80)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

Notice of Intention to Drill a Geothermal Resources Well

(SUBMIT IN DUPLICATE)

Operator	Well Designation
CONSTANCE J. WILSON	"WILSON" 1
Field: —	County: NAPA; Sec.: 36; T: 9N; R: 7W; B.&M.: MD
Name (Person submitting report - print or type): DENNIS E. MCNULTY	Street Address: FLYING LAKE ST. HWY 29 SANTA ROSA
Title (Agent or officer of company): OFFICER FOR CONSTANCE J. WILSON	City: CALISTOGA; State: CA; Zip Code: 94515

Signature: [signature] for Constance Wilson Date: 8-22-85 Telephone Number: [illegible]

The appropriate drilling fee, an indemnity or cash bond, a complete drilling program, and a parcel map showing the operator's surface rights, mineral rights, and the location of the proposed well must accompany this notice.

Location of well: 101± meters W (Direction) along section/~~property~~ line, and 3198'± meters N (Direction) at right angles to said line from the SE corner of section/~~property~~ (Cross out one) 36 or _____

Elevation of prepared site above/~~below~~ sea level: 183 meters. (Cross out one)

Is the surface location or intended productive interval within 100 feet of property boundary? Yes [X] No [ ] (660' 24')

If well is to be directionally drilled, show proposed coordinates (from surface location) at total depth: N/A

_____ meters (Direction) _____ and _____ meters (Direction)

RECEIVED
AUG 27 1985
DIVISION OF OIL & GAS
SANTA ROSA

PROPOSED CASING PROGRAM

All depth measurements taken from top of Drilling Table (Derrick Floor, Rotary Table or Kelly Bushing) that is 1.0 meters above ground

SIZE OF CASING CM API	WEIGHT (Kg)	GRADE AND TYPE	NEW OR USED	TOP OF CASING (m)	SIZE OF HOLE (cm)	VOLUME OF CEMENT (m³)	CEMENTING DEPTHS	CALCULATED FILL BEHIND CASING
STARTER CASING 25 CM	9.62	X42 API SL	NEW	1.0	35.0	.0493	19 m	0.037 m³
MAIN CASING 16 CM	5.87	X42 API SL	NEW	1.5	25.0	.0268	91-107 m	16.042 m³

Intended zone(s) of completion: N/D PRESSURE (Name, depth, and expected pressure). Estimated total depth: 3000'-3500' meters

ENVIRONMENTAL INFORMATION

(SEE REVERSE SIDE)

If a governmental agency has prepared an environmental document, please submit a copy of the document with this notice or supply the following information:

Government Agency: City of Calistoga Contact Person: _____

Address: _____ Phone: ( ) _____

Document title: _____ S.C.H. No.: _____

STATE OF CALIFORNIA BOND NO. .....

INDIVIDUAL GEOTHERMAL RESOURCES WELL CASH BOND

(SEE INSTRUCTIONS ON REVERSE SIDE FOR APPLICABLE AMOUNT)

Know All Men by These Presents:

WE

That I, Constance [illegible]

as principal, present a total cash deposit of [illegible] THOUSAND AND NO/100 DOLLARS ($~~2,000.00~~) in the form of: [illegible]

Cashiers Check No 0455492, in the amount of $ 2,000, and/or
Certified Check No. ....., in the amount of $ ....., and/or
Certificate of Deposit No. ....., in the amount of $ ....., and/or
Passbook Account No. ....., in the amount of $ .....
accompanied by a properly executed assignment form; or

a total deposit of ~~Two~~ THOUSAND ~~ONE~~ HUNDRED AND NO/100 DOLLARS ($.....00.00) in the form of bearer bonds listed by number on the reverse side of this form, issued by the:

United States Government in the amount of $ ....., and/or
State of California in the amount of $ ~~Eight~~ [illegible]

all made payable solely to the State Division of Oil and Gas.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT,

WHEREAS, said principal is about to acquire ownership or operation, drill, redrill, deepen, maintain, or abandon a

Low (high or low) - temperature geothermal resources well designated as Wilson 1 Sec. 36

T. 9N, R. 7W, M.D. B. & M., and is required to file this bond in connection therewith in accordance with Section 3728.5, of Chapter 4 of Division 3 of the Public Resources Code of the State of California.

NOW, THEREFORE, if said .....

NOTARIZATION OF THE PRINCIPAL:

STATE OF CALIFORNIA
ty & COUNTY OF San Francisco } ss.

On this 26th day of August, in the year 1980,

before me, Gladys I. Wren
a Notary Public in and for said County and State, personally appeared

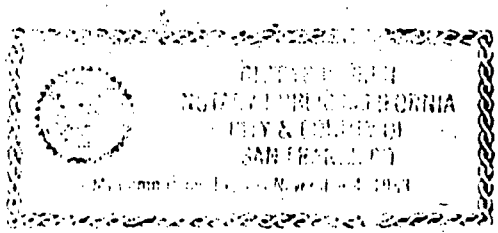
Constance S. Wilson

known to me to be the person whose name is subscribed to the within instrument

xx

, and acknowledged to me that xx

she subscribed her name thereto



Gladys I. Wren
Notary Public in and for said County and State

INSTRUCTIONS

1. *If the principal is a corporation, the corporate seal must be affixed.*

2. *If the principals are partners, their individual names shall appear in the body of the bond, with the recital that they are partners composing a firm, and naming said firm.*

3. *The name of the principal as well as the designation and number of the well on the bond must agree exactly with that shown on the notice of intention to acquire ownership or operation, drill, redrill, deepen, permanently alter the casing, or abandon.*

4. *The signature of the principal must be notarized.*

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
1416 NINTH STREET, ROOM 1316, SACRAMENTO 95814

DESIGNATION OF AGENT FOR INDIVIDUAL OR PARTNERSHIP

In compliance with Section 3721, Division 3, Public Resources Code, notice is hereby given and I (I, we)

hereby certify that I (I, we) Constance S. Wilson

of Woodside, State of California, have appointed, authorized and

empowered Constance S. Wilson c/o Ed Mills

whose address is 601 California Street, San Francisco, Calif. 94108
(Postal Address) (City) (Zip Code)

State of California, as my (my, our) agent for the State of California* Constance S. Wilson

upon whom all orders, notices and processes under the provisions of said act may be served.

This notice revokes all former appointments made for said purpose.

IN WITNESS WHEREOF I (I, we) have signed this certificate this 26 day of August 1980

Constance S. Wilson, Owner
(Name and Title)

Constance S. Wilson
(Signature)

Witness:
(Signature)

Agents acceptance:

Accepted
(Signature)

Sec. 3721. Every owner or operator of any well shall designate an agent, giving his post office address, who resides in this State, upon whom may be served all orders, notices, and processes of the supervisor, a board, or any court of law. Every person so appointing an agent shall, within five days after the termination of any such agency, notify the supervisor, in writing, of such termination, and unless operations are discontinued, shall appoint a new agent.

NOTE: An operator may appoint himself as agent.

* Should the owner or operator filing this form choose to appoint more than one agent, the phrase, "the State of California," should be deleted and the exact area for which the agent is to be appointed should be inserted. A separate form must be filed for each agent.

ITEM 2: Existing Well Data and Location

The existing well was drilled to a depth of 320'. Hot water was found, however, its temperature, flow and composition has not been determined. The well was drilled with a 9" bit and cased with 6" .188 steel casing.

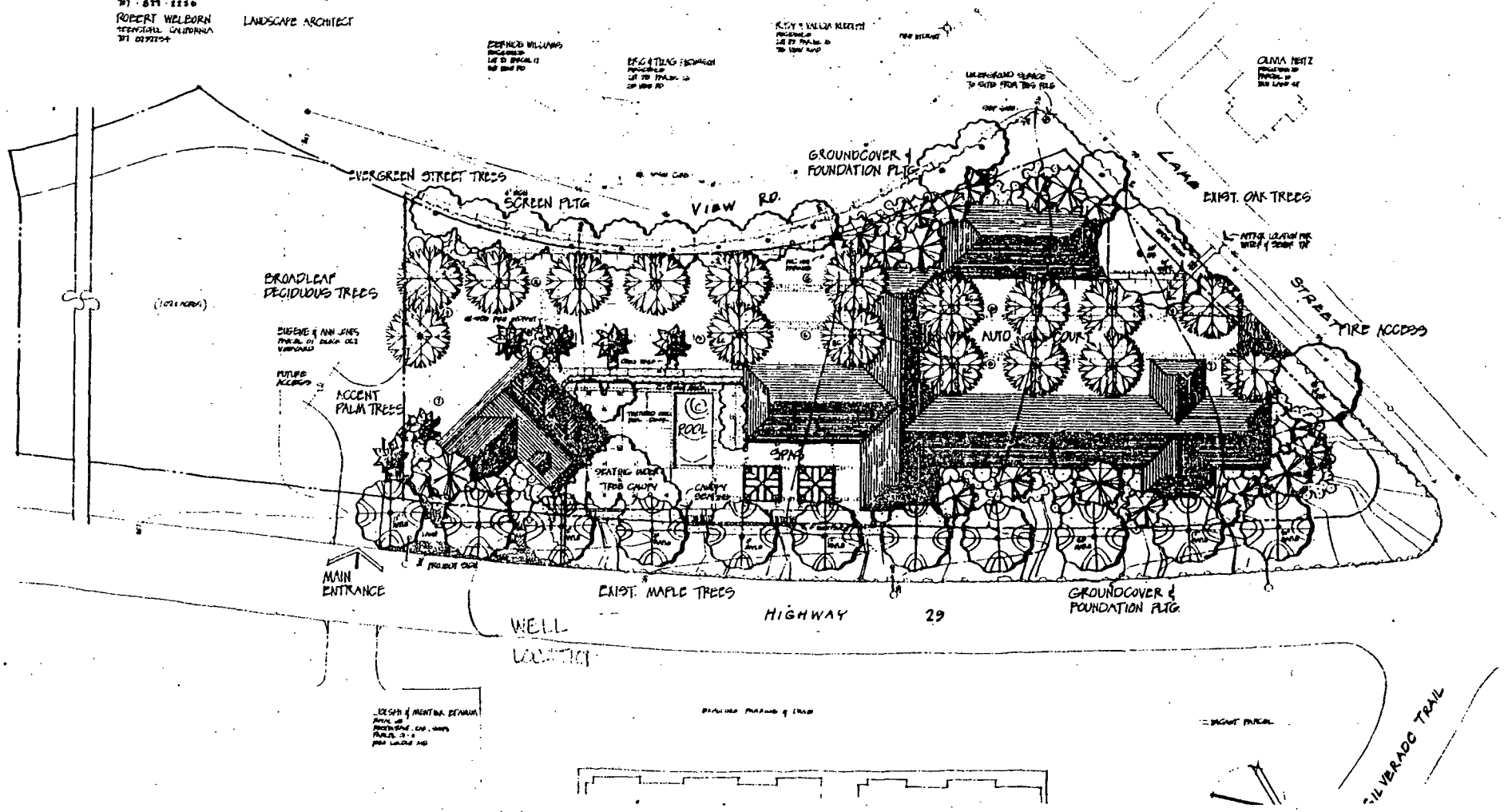
Attachment:

1. Site plan.

WINE VALLEY INN a mineral water spa . . CALISTOGA CA.

LEWIS AND NICHOL ARCHITECTS AND PLANNERS AIA

ROBERT WELBORN LANDSCAPE ARCHITECT



ITEM 3: Exploration Study

The D.O.E. Idaho Operations Office will solicit report from the D.O.E. San Francisco Office per our telephone conversation.

ITEM 4: Evaluation Criteria For The Down-hole Heat Exchanger

The Down-hole Heat Exchanger as originally submitted will not be used. Problems in obtaining appropriate equipment and maintenance factors have made a surface heat exhanger with an injection well more desireable. ITEM 13 covers this process in more detail.

ITEM 5: Form 60

Refer to accompanying addendum.

COST SUMMARY

MANAGEMENT:

Management Time (90 hrs. @ $50/hr)	=	$ 4,500.00
Travel Trips (10 Trips @ $100 ea)	=	1,000.00
Reports (5 Reports @ $1,500 ea)	=	7,500.00
	TOTAL.....	$14,975.00

Note: $50/hr. includes costs for overhead expenses. The multiplier used is 3.5 x $14.30 (hourly rate).

DRILLING:

5 Wells @ 360' Deep @ $62.40/Lin.Foot.

Cost	=	$93,600.00
Contingency	=	4,100.00
	TOTAL.....	$97,700.00

GEOLOGISTS: (Lump Sum Quoted)

Time and Materials.

5 Wells at $1,300 each	=	$ 6,500.00
Contingency	=	1,025.00
	TOTAL.....	$ 7,525.00

ITEM 6 and 7:

See accompanying revised schedule by task. Milestone scheduling will remain per original submittal.

SCHEDULE

TASKS	SCHEDULE
Set-up Project with DOE	12/15/80 to 2/9/81
Management	2/9/81 to End Project
Drilling and Logging (including injection well)	2/23/81 to 4/30/81
Flow Testing	Running Concurrently With Drilling and Logging
Reporting	4/30/81 to 5/31/81
Dissemination of Information	(As requested).

ITEM 8: Peak Heat and Cooling Demand

Revised peak heating and cooling demand calculations and revised Energy Requirements Graph.

GEOTHERMAL FLUID - LOADS SUMMARY

I. ABSORPTION COOLING

A. ROOM LOADS - Peak at 4:00 p.m., September
Sensible Heat Loads

1. Guest Rooms:

20 Upper units facing east-west x 6829 BTUH =	136,580	
10 Upper units facing north-south x 5101 =	51,010	
15 Lower units facing east-west x 5488 =	82,320	
5 Lower units facing north-south x 3760 =	18,800	
Subtotal:	288,710	BTUH

2. Mansion House:

Excluding conference load	90,400	
Conference	13,440	
Subtotal:	103,840	BTUH

3. Exercise Room:	30,847	BTUH
4. Massage Room:	34,700	BTUH
TOTAL ROOM SENSIBLE LOADS.....	458,097	BTUH

5. Latent Loads:

a) People:		
Guest Rooms: 55 rms. x 2p x 190 =	20,900	BTUH
Mansion Hse: 24p x 190 BTUH =	4,560	BTUH
Exercise: 17p x 1165 BTUH =	19,805	BTUH
Massage: 25p x 325 BTUH =	8,125	BTUH
b) Kitchens: 2 x 2000 =	4,000	BTUH
c) Ventilation: 0	-0-	
Total Latent Loads:	57,390	BTUH
6. TOTAL ROOM LOADS.....	515,487	BTUH

B. LOSSES: 5%
CONTINGENCY: 10%
15%

TOTAL DESIGN LOAD:

515,487 BTUH x 1.15 = 592,810 BTUH

= 49.4 TONS

C. ABSORPTION CHILLER LOAD:

Sensible heat factor = $\frac{458,097}{515,487}$ = .89

T_{dp} = 53.3°F

Chilled Water Temperature 50°F

ARKLA 25 Ton Absorption Chiller.
Peak Hot Water Inlet Flow Req'd. @ 85° Condenser Water.

HOT WATER* INLET TEMP.	CHILLER* CAPACITY TONS	C.O.P.	GPM FOR 49 TONS	BTUH
180°F	20.5	.72	215 GPM	815,088
170°F	15.0	.70	294 GPM	846,066
160°F	8.5	.59	519 GPM	988,071

*At 90 GPM FLOW

D. ANNUAL LOAD: (P.G.E. procedure for calculating equiv. full-load operating hours for air cond. equip.)

$$Teq = Tin - \frac{I}{EUA}$$

$$= 75 - \frac{665}{(164x.095+60x.61+392x.060)} = 66.2°F$$

EQUIVALENT HRS OF FULL LOAD OPERATION = $\frac{1000 \text{ HRS}}{\text{YR}}$

ANNUAL LOAD = HOURLY PEAK x 1000 HRS

HOT WATER INLET TEMP.	GALLONS HOT WATER	BTU / YR
180°F	$12.9x10^6$	$815x10^6$
170°F	$17.64x10^6$	$846x10^6$
160°F	$31.14x10^6$	$988x10^6$

II. SPACE HEATING

A. ROOM LOADS: (28°F Design Temp. [outside air])

1. Guest Rooms:

30 Upper Units @ 6533 BTUH	195,990	
20 Lower Units @ 6133 BTUH	122,660	
28 End Walls @ 894 BTUH	25,032	
	343,682	BTUH

2. Mansion House: 132,000 BTUH

3. Exercise Room: 33,116 BTUH

4. Sauna/Massage: 45,789 BTUH

TOTAL HEAT LOSS.....554,587 BTUH

B. MISC. LOSSES: 5%
CONTINGENCY: 10%
15%

TOTAL DESIGN HEAT LOAD:

554,587 x 1.15 = 637,775 BTUH

@ 20° ΔT, $\frac{637{,}775 \text{ BTUH}}{20° \Delta T} \times \frac{1 \text{ GAL}}{8.33 \text{LB}} \times \frac{1 \text{ HR}}{60 \text{MIN}} = 63.8$ GPM

C. ANNUAL HEAT LOAD:

$$\frac{637{,}775 \text{ BTUH} \times 24 \text{ Hr/Day} \times 2918°\text{F Day/Yr}}{42°\text{F } \Delta T} = 1063 \times 10^6 \frac{\text{BTU}}{\text{YR}}$$

III. SERVICE HOT WATER

A. GUEST ROOMS: (T=140°, Tinlet = 59° ΔT = 81°)

1. Peak Hourly Load = 275 GAL/HR = 185,551 BTU/HR
   x 1.15 LOSSES & CONTINGENCY:

   316 GAL/HR, 213,384 BTU/HR

2. Annual Load = 281,050 GAL/YR = 190×10^6 BTU/YR
   x 1.15 LOSSES & CONTINGENCY =

   323,208 GAL/YR, 219×10^6 BTU/YR

B. LAUNDRY: (T=180°F, Tinlet = 59, ΔT = 121°F)

1. Peak Hourly Load = 137.5 GAL/HR = 138,590 BTU/HR
   x 1.15 LOSSES, CONTINGENCY =

   158.13 GAL/HR = 159,379 BTU/HR

2. Annual Load = 297,110 GAL/YR = 299×10^6 BTU/YR
   x 1.15 LOSSES, CONTINGENCY =

   341,677 GAL/YR = 344×10^6 BTU/YR

C. TOTAL HOT WATER:

1. Peak:

	GAL/HR	ΔT	BTU/HR
Guest Rooms	316	81	213,384
Laundry	158	121	159,379
TOTAL	474	101 (ave.)	372,763 BTU/HR

2. Annual:

	GAL/YR	ΔT	BTU/YR
Guest Rooms	323,208	81	219×10^6
Laundry	341,677	121	344×10^6
TOTAL	664,885	101 (ave.)	563×10^6 BTU/YR

IV. SPAS:

2 - 12ft Diam. In-ground Tubs, 105°F, Uncovered

A. PEAK LOAD:

Surface losses, per ASHRAE, @ 60°ΔT	=	142,380 BTU
Conduction heat loss to ground: add 10%	=	14,238
TOTAL		156,618
x 1.25 for Misc. Losses & Contingency	=	195,773 BTUH

B. ANNUAL LOAD:

1. Degree Days Below 105°

Degree Days Below 65°	=	2,918
+ 365 Days x (105° - 65°)	=	+14,600
- Degree Days Above 65°	=	- 604
TOTAL DEGREE DAYS BELOW 105°	=	16,914°F-DAYS/YR

2. Annual Load

$$\frac{195{,}773 \text{ BTUH @ } 60°\text{F } \Delta\text{T} \times 24 \text{ HR/DAY} \times 16{,}914°\text{F - DAY/YR}}{60°}$$

$$= 1325 \times 10^6 \text{ BTU/YR}$$

V. POOL: (25' x 50', Uncovered)

A. Peak Load

1. Ave. Net Hourly Heat Loss, December = 201,000 BTUH
2. Surface Heat Loss, December, per ASHRAE = 345,000 BTUH
3. Capacity Required for 2 1/2 Day Start-Up, in December = 408,104 BTUH

$\therefore$ Peak Load $\approx$ 410,000 BTUH

x 1.15 Contingency & Misc. Losses = 472,000 BTUH

B. Annual Load

Per Study By Sigworth, Wei, Rosenfeld, A 576 Ft^2 Pool required 421 x 10^6 BTU/YR.

$\therefore$ For the 1250 Ft^2 Pool:

Annual Load $\approx 421 \times 10^6 \times \frac{1250}{576} = 914$ BTU/YR

x 1.15 (Contingency & Misc. Losses) = 1051 x 10^6 BTU/YR

LOAD SUMMARY

ITEM	PEAK LOAD				ANNUAL LOAD	UTILIZATION FACTOR
	KBTUH	CLEAN WATER GPM	CLEAN WATER ΔT	CLEAN WATER TINLET	10^6 BTU/YR	
Absorption Cooling	815	215	7.6	180	815×10^6	.11
Space Heating	638	64	20	160	1063	.19
Laundry Hot Water	159	2.6	121	180	344	.25
Guest Room Hot Water (1 hr. Storage)	213	5.3 or 3.6	81 121	140 180	219	.12
Spas	196	19	21	140	1325	.77
Pool	472	45	21	140	1051	.25
TOTAL	1855 K ①				4817×10^6	.30 ①
TOTAL, WITHOUT ABSORPTION COOLING	1678 K				4002	.27

GEOTHERMAL RESOURCE REQUIREMENTS: (with 20° Heat Exchanger Approach)

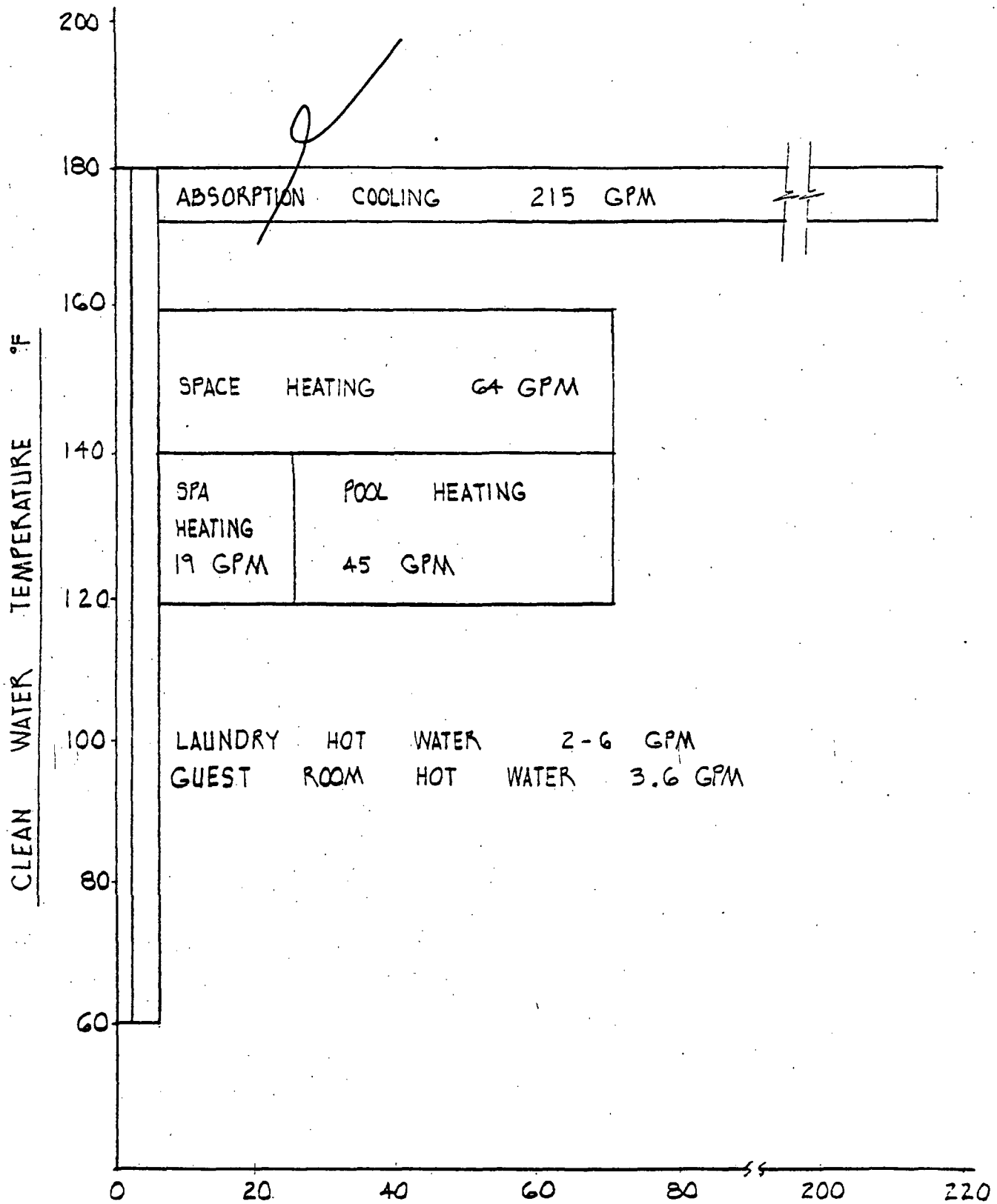
With Absorption Cooling:

221.2GPM @ 200°F
(Absorption cooling load requires high temperature and flow)

Without Absorption Cooling:

(64+2.6+3.6) = 70.2 GPM @ 200°F
(180° Laundry hot water is highest temperature requirement)

① "Total peak load" assumes space heating and absorption cooling peak loads will not occur simultaneously; therefore total peak load includes cooling peak, but not heating peak load. Utilization factor is calculated using this total peak load.



FOR PEAK LOADS

ITEM-8

WINE VALLEY INN

ITEM 9: New Variable Plan

Refer to revised variable cost share plan.

REVISED VARIABLE COST SHARE PLAN

PROPOSER'S COST SHARE IN PER CENT (%) FOR CONDITIONS SHOWN

Water Quality Equal to or Below 20,000 ppm TDS

Pumping Depth Equal to or less than 400 feet

* = Desired Flow and Temperature Conditions

FLOW RATE (GALLONS PER MINUTE)

WELLHEAD TEMPERATURE IN DEGREES F.	BELOW 50	51-99	100-149	150-199	200-250	ABOVE 250
BELOW	10%	10%	10%	10%	10%	10%
111 - 125	10%	10%	10%	25%	25%	25%
126 - 140	25%	25%	25%	35%	40%	40%
141 - 155	35%	40%	45%	45%	50%	50%
156 - 170	50%	60%	60%	60%	65%	65%
171 - 185	65%	70%	70%	70%	75%	75%
ABOVE 186	65%	75%	75%	80%	80%*	80%

ITEM 10: Current Status

We have drilled preliminary well. Refer to ITEM 2 for additional data.

ITEM 11: California's Injection Well Regulations and Proposed Drilling Rig.

1954.1. Right of Entry.

Any owner or operator, or employee thereof, who refuses to permit the supervisor or the district deputy, or his inspector, to inspect a well, or who willfully hinders or delays the enforcement of the provisions of this chapter, and every person, whether as principal, agent, servant, employee, or otherwise, who violates, fails, neglects, or refuses to comply with any of the provisions of this chapter, or who fails or neglects or refuses to furnish any report or record which may be required pursuant to the provisions of this chapter, or who willfully renders a false or fraudulent report, is guilty of a misdemeanor, punishable by a fine of not less than one hundred dollars ($100), nor more than five hundred dollars ($500), or by imprisonment for not exceeding six months, or by both such fine and imprisonment, for each such offense.

Article 6. Injection

1960. Definition.

Injection wells are those used for the disposal of waste fluids, the augmentation of reservoir fluids, pressure maintenance of reservoirs or for any other purpose authorized by the supervisor. New wells may be drilled and/or old wells may be converted for water injection or disposal service. Notices, bonds and fees are required for drilling or conversion as stated in Article 3.

1961. Projects.

Following is an outline which sets forth the requirements for initiating an injection project. Data and exhibits need only extend or cover the injection zone and zones which will possibly be affected by an injection project:

(a) Letter setting forth the entire plan of operations, which should include:
(1) Reservoir conditions.
(2) Method of injection: through casing, tubing, or tubing with a packer.
(3) Source of injection fluid.
(4) Estimates of daily amount of water to be injected.

(b) Map showing contours on a geologic marker at or near the intended zone of injection.

(c) One or more cross sections showing the wells involved.

(d) Analyses of fluid to be injected and of fluid from intended zone of injection.

(e) Copies of letter or notification sent to neighboring operators if deemed advisable by the supervisor.

1962. Project Approval.

A written approval of a project will be sent to the operator and such approval will contain those provisions specified by the division as necessary for safe operations. Injection shall not commence until approval has been obtained from the division.

1963. Notice to Drill New Well or Convert Existing Well.

Prior to the operator doing work on a well, the appropriate notices must be approved by the division. Proposals to drill new wells for injection purposes shall be filed on the division form entitled Notice of Intention to Drill New Well (OGG 105). Proposals to convert existing wells shall be filed on the division form entitled Rework/Supplementary Notice.

Bonds and fees are required for all proposed wells. The bonds and fees for an injection well are the same as those required for a development well.

Injection wells shall conform to the division's spacing regulations.

NOTE: Authority cited: Section 3714, Public Resources Code. Reference: Sections 3712, 3723, 3724, and 3725, Public Resources Code.

HISTORY:

1. Amendment filed 8-16-79; effective thirtieth day thereafter (Register 79, No. 33).

1964. Subsequent Work.

A Rework/Supplementary Notice is required for any subsequent work that alters the well casing(s) or changes the use of the well as provided in Section 1966(f).

NOTE: Authority cited: Section 3714, Public Resources Code. Reference: Sections 3724, 3724.2, 3724.3, Public Resources Code.

HISTORY:

1. Amendment filed 8-16-79; effective thirtieth day thereafter (Register 79, No. 33).

1965. Injection Reports.

HISTORY:

1. Repealer filed 12-3-76 as procedural and organizational; effective upon filing (Register 76, No. 49).

1966. Surveillance.

(a) Surveillance of waste water disposal or injection projects is necessary on a continuing basis to establish to the satisfaction of the supervisor that all water is confined to the intended zone of injection.

(b) When an operator proposes to drill an injection well, convert a producing or idle well to an injection well, or rework an injection well and return it to injection service, the operator shall be required to demonstrate complete casing integrity to the division by means of a specific test.

(c) To establish the integrity of the casing and the annular cement above the shoe of the casing, within 30 days after injection is started into a well, the operator shall make sufficient surveys to demonstrate that all the injected fluid is confined to the intended zone of injection. Thereafter, such surveys shall be made at least every two years, or more often if ordered by the supervisor or his representative. All such surveys shall be witnessed by a division engineer.

(d) After the well has been placed on injection, a division inspector shall visit the well-site periodically. At these times, surface conditions shall be noted and, if any unsatisfactory conditions exist, the operator shall be notified of required remedial work. If this required work is not performed within 90 days, the approval issued by the division shall be rescinded. The supervisor may order that the repair work be done immediately if it is determined that damage is occurring at a rapid rate.

(e) Injection pressures shall be recorded and compared with the pressures reported on the monthly injection reports. Any discrepancies shall be rectified immediately by the operator. A graph of pressures and rates versus time shall be maintained by the operator. Reasons for anomalies shall be promptly ascertained. If these reasons are such that it appears damage is being done, approval by the division may be rescinded, and injection shall cease.

(f) When an injection well has been idle for two years, the division may inform the operator, by letter, that approval for use of the well for injection purposes is rescinded. If the operator intends to reclaim the well for injection purposes, a Rework/Supplementary Notice shall be filed proposing to demonstrate by specified tests that the injected fluid will be confined to the intended zone of injection.

NOTE: Authority cited: Section 3714, Public Resources Code. Reference: Section 3712, Public Resources Code.

HISTORY:

1. Amendment filed 8-16-79; effective thirtieth day thereafter (Register 79, No. 33).

1967. Abandonment.

NOTE: Authority cited: Section 3714, Public Resources Code. Reference: Sections 3712, 3729, and 3740, Public Resources Code.

HISTORY:

1. Amendment filed 12-3-76 as procedural and organizational; effective upon filing (Register 76, No. 49).
2. Repealer filed 8-16-79; effective thirtieth day thereafter (Register 79, No. 33).

Article 7. Subsidence

1970. Responsibility.

The prime responsibility for subsidence detection and abatement in geothermal areas in the State of California lies with the Division of Oil and Gas.

1971. Imperial Valley Subsidence Regulations.

(a) Surveys and Bench Marks.

(1) Subsidence bench marks, at wellsites, tied to existing first- and/or second-order networks, are required for all wells that will be tested or produced. These bench marks shall be the responsibility of and at the expense of the operator. Surveys shall precede extensive production testing of the well.

(2) All survey work shall be coordinated with the County Surveyor.

(3) All work shall be done under the direct supervision of a Registered Civil Engineer or Licensed Land Surveyor.

(4) An adequate series of bench marks shall be set as required by the division and shall be tied to existing survey nets.

(5) All field work, computations, etc., shall conform to National Geodetic Survey standards. Refer to "Manual of Geodetic Leveling" (1948).

(6) All surveys shall be second-order or better.

(7) All single-point tie-ins shall be double-run. Survey loops between two points on existing surveys may be single-run.

(8) Equipment shall be equal to or better than that accepted by the National Geodetic Survey for second-order surveys. The N.G.S. procedures shall be followed.

(9) Types of acceptable bench marks are:

(A) Brass rod driven to refusal or 9 meters (about 30 feet) and fitted with an acceptable brass plate.

(B) Permanent structure (head walls, bridges, etc.) with installed plate.

(10) Bench marks at wellsites shall be situated so as to minimize the possibility of being destroyed during any subsequent work-over activity at the wells. Each bench mark shall be well marked so as to be plainly visible to work-over crews.

STATE OF CALIFORNIA—RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
1904 McBRIDE LANE
SANTA ROSA, CALIFORNIA 95401
(707) 525-0479

November 25, 1980

Mr. Dennis E. McNulty
P.O. Box 405
Occidental, CA 95465

Dear Mr. McNulty:

Your schematic drawing of a typical injection well is correct and would meet the requirements of the Division of Oil and Gas. Depths of casing and cement required to protect ground waters change depending upon individual well geology.

The question of an environmentally sound injection program is not an easy one to answer. The Division of Oil and Gas will make every effort to ensure that life, health, property, public welfare and maximum economic recovery are considered in any application to drill a well.

You have asked for a statement that "no chemicals can be released". No chemicals could be released until they came to the perforated area of the casing and their path from that point would be back into the reservoir.

Current studies of the Calistoga area indicate that the geothermal waters are being heated by the basement rock below the city. The heated waters, because of their temperature, pickup certain chemicals in solution such as boron, and transport them to the surface through wells drilled into the reservoir. The waters containing boron and other harmful chemicals are at present being discharged to the surface at various locations around the City of Calistoga. Your proposal to inject waters back to the reservoir is by far better than existing conditions and the only acceptable means of disposal.

Because the extent of the heat source for geothermal application is not known, it would be impossible to determine if the reservoir would eventually cool because of injection. The volumes of injected fluid from one well would probably not effect the reservoir to any great extent. Effects on ground water currently used for domestic purposes should not be effected because the harmful components of the injected fluid would be below the usable water table. Many other factors govern injection wells, such as, rate of injection, pressure, temperature of injected fluids and regional geology. I have enclosed a copy of our current requirements for an injection project. These requirements allow the Division of Oil and Gas to evaluate each project and make a determination as to its acceptability.

At present, the results of establishing an injection project could only be evaluated after the project had been used for some time. If our surveillance later found that the injection program did adversely effect the reservoir, the Division of Oil and Gas would not hesitate in withdrawing its permit to inject.

Sincerely,

Kenneth F. Stelling

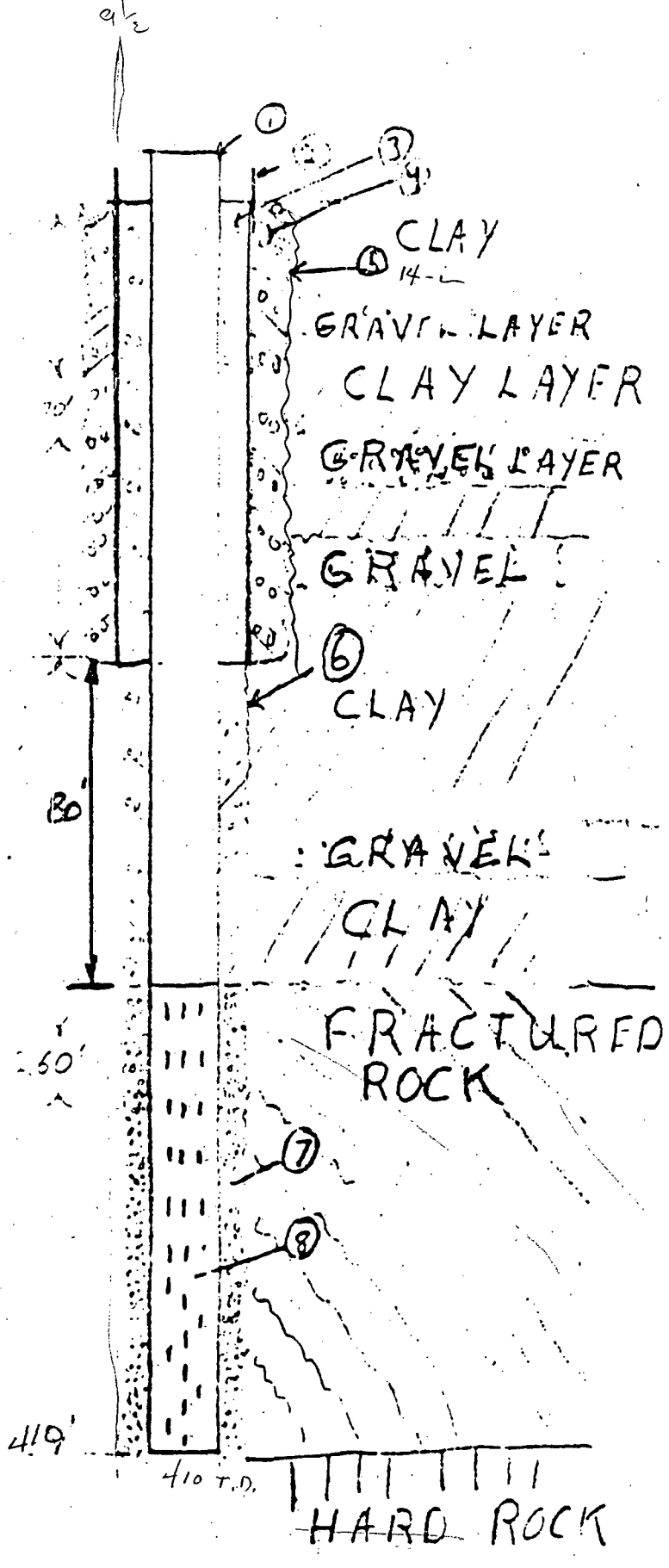
Kenneth F. Stelling
Geothermal District Engineer

KFS:rw

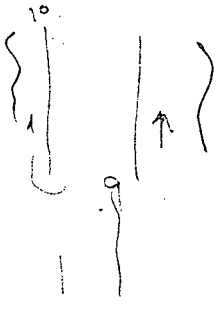
cc: City of Calistoga Planning Commission

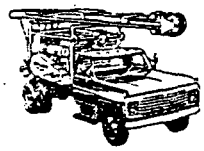
Enclosures

TYPICAL HOT WATER WELL



- ① 6" CASING 330'
- ② 10" CONDUCTOR CASING 70'
- ③ 150' GROUT SEAL
- ④ 70' SAFTY SEAL
- ⑤ 14" DRILL HOLE
- ⑥ 9½" DRILL HOLE
- ⑦ GRAVEL PACK
- ⑧ 100' OF PERFORATIONS





A & K Drilling

*1708 PUTNAM WAY · PETALUMA, CALIFORNIA 94952 · (707) 762-5264 · LICENSE #307800

8 Jan 81

Drill rig specifications:

1. Make: 1975 Reed-Simplex Drilling Rig, all-hydraulic unit.
2. Mounted on: 6x6 rebuilt Army truck.
3. Weight: 64,000 pounds.
4. Drive engine: 350 Cummings diesel, 350 hp.
5. Drill unit: Top head drive 43,000 pounds of torque.
6. Drill stem: 20-ft lengths of 4½ inch drill pipe, racking 420 ft of stem on rig.
7. Drill capacity: 1600 ft, 10 inch hole w/4½ inch stem.
   2400 " 6 " " 2 7/8 inch stem.
8. Down pressure: 30,000 pounds of drill-down pressure.
9. Draw pressure: 64,000 pounds of up-pressure w/rotation.
10. Air unit: 600 cfm compressor at 250 psi.
11. Mud pump: Gorman-Rupp centrifugal pump @ 180 psi at 400 gpm.

DAVID L. ANDERSON
Owner
A & K Drilling
*POB 645
Petaluma CA 94953

ITEM 12: Permits and Licenses

All approvals have been obtained from all public agencies as required.

We have just completed a second set of approvals based on a series of revisions. The revisions were primarily architectural changes, including exercise and massage rooms; reorienting the entrance to lesson the impact on the intersection of Highway 29 and Silverado Trail, and enlarging the Mansion House.

We anticipate construction to commence in May/June of 1981.

Attachments:

1. City of Calistoga Planning Commission minutes, December 17, 1980.

2. City of Calistoga City Council minutes, January 6, 1981.

3. Grant Deed dated October 3, 1980.

ITEM 14: Permits

Refer to ITEM 12.

ITEM 15: Resource Disposal

During all drilling operations, both past and future, the resource will and has been contained in shallow site ponds and evaporated to the atmosphere. This is in accordance with all California D.O.G. requirements. The same standards shall be in effect for any bailing and testing procedures.

ITEM 16: Exploration - Summary of Intent

Exploration, as per Page 41, Volume I Technical Proposal is not required. Our intentions are to complete the drilling program as required by the project demands. An injection well would be a part of this program.

ITEM 17: Any data as relates to well

As stated in ITEM 2, there is no engineering data available for evaluation.

CITY OF CALISTOGA PLANNING COMMISSION

MINUTES

DECEMBER 17, 1980

The City of Calistoga Planning Commission met in regular session at the Calistoga Community Center with Chairperson Diane Barrett and Commissioners Bud Fullerton, Jack Gingles, Bill Nystrom and Don Selvey in attendance. The meeting was called to order at 7:00 p.m., Chairperson Barrett presiding.

On motion of Nystrom, seconded by Fullerton, carried unanimously, the minutes of the November 19, 1980, meeting were approved as printed.

USE PERMIT - FLICKINGER AND SQUIRE (CONTINUED)

The Use Permit request of Philip Flickinger and William F. and Rita K. Squire to construct three structures for professional office suites and retail shops on A.P. No's. 1-101-10, 11 and 12 was continued from the October 15, 1980 meeting at which time an Initial Study was presented and Staff recommended that a Negative Declaration be prepared. The Applicants submitted a revised Site Plan dated 12-2-80.

Planning Director Holanda submitted a Staff Report which included the following considerations and recommendation:

ENVIRONMENTAL CONSIDERATION

A Negative Declaration was recommended on October 15, 1980.

GENERAL CONSIDERATIONS

1. No public opposition to the project.
2. Revised plans have been submitted by the Applicant.
3. Subject Use Permit is consistent with the goals and objectives of the General Plan.
4. Find that the proposed project conforms to Section 17.21-4 of the Calistoga Municipal Code.
5. That the Applicant enter into a deferred agreement with the City relative to future street improvements and the installation of curbs, gutters, and sidewalks.

RECOMMENDATION

Recommend to the City Council that the Use Permit be granted upon the condition that the Applicant enters into a deferred agreement with the City regarding future street improvements and the installation of curbs, gutters and sidewalks.

Commissioner Selvey moved to recommend that the Council grant subject Use Permit upon the following conditions:

1. That the mature palm trees be retained.
2. That a five foot side yard setback be required.
3. That prior to construction, curbs, gutters, sidewalks and street improvements be accomplished.

The motion died for lack of a second.

On motion of Commissioner Nystrom, seconded by Commissioner Fullerton, carried, the Commission adopted Staff considerations and recommendation and recommends that the City Council file a Negative Declaration and grant subject Use Permit upon the condition that the Applicant enters into a deferred agreement with the City regarding future street improvements and the installation of curbs, gutters and sidewalks. Furthermore, the Commission encourages the Applicant to save as many mature trees as possible. UPON THE QUESTION - Commissioner Selvey stated that a deferred agreement does not apply in this case due to the fact Wapoo Avenue is so close to the State Highway and more development is likely to occur. There is no logic in approving a development of this size unless street improvements are required. COMMISSIONERS BARRETT AND SELVEY VOTED NO. Chairperson Barrett requested that the following statement be made a part of the above proceedings: That she has no opposition to the project but opposes the deferred agreement concept.

USE PERMIT - WINE VALLEY INN REVISION (CONTINUED)

The Applicant, Dennis McNulty, requests a revision to the Wine Valley Inn Use Permit which was granted by the City Council on 4-3-79. This matter was the subject of a Public Hearing at the November 19, 1980 meeting at which time deliberation was continued and Staff was directed to prepare an Initial Study and the Applicant was requested to furnish additional information.

Initial Study was submitted by Planning Director Holanda and the following documentation was submitted by the Applicant: Correspondence from Calistoga Fire Department dated 12-3-80, Parking Survey prepared by Walt Smith and Associates, Environmental Planners, dated 12-1-80, correspondence from Division of Oil and Gas dated 11-25-80, and a letter from the Department of Transportation, State of California dated 12-16-80. The Applicant submitted a revised Site Plan dated 12-10-80, and along with his representatives, made a presentation to the Commission.

After considerable discussion, the Commission developed the following findings:

1. There was no opposition to subject Use Permit revisions during the Public Hearing.
2. The project is consistent with the General Plan.
3. The project is not in conflict with Section 17.21-4 of the Municipal Code.

On motion of Nystrom, seconded by Gingles, carried unanimously, the Commission recommends that the Council file a Negative Declaration and grant the Use Permit Revisions shown on the revised site plan dated 12-10-80, subject to the following conditions:

1. That final improvement plans be approved by the Consulting Civil Engineer prior to construction.
2. That any noise inducing equipment at the property be provided with adequate noise buffering.
3. That the Applicant complies with the recommendations of the Department of Transportation in correspondence dated 12-16-80.
4. That the easement shown on the revised plan be recorded prior to the submittal of final improvement plans.

USE PERMIT - DENNIS McNULTY (CONTINUED)

The Use Permit applied for by Dennis McNulty is a proposal to develop a hot water well for use of heating and cooling a restaurant structure and this matter was continued from the 11-19-80, meeting at which time a Public Hearing was conducted and the Commission continued deliberation and directed Staff to prepare an Initial Study.

Planning Director Holanda presented the Commission with an Initial Study and the Commission developed the following findings:

1. That there was no opposition to subject Use Permit during the Public Hearing
2. That the project is consistent with the General Plan.
3. That the project is not in conflict with Section 17.21-4 of the Municipal Code.

On motion of Gingles, seconded by Nystrom, carried unanimously, the Commission recommend that the Council file a Negative Declaration and grant subject Use Permit upon the following condition:

1. That any noise inducing equipment at the property be provided with adequate noise buffering.

REVIEW OF FENCE REQUIREMENTS

After discussion of the Fence Requirements, Staff was advised to place this issue on a future Agenda for the newly appointed Planning Commission.

On motion of Gingles, seconded by Selvey, carried unanimously, the meeting was adjourned.

Jo Noble,
Planning Aide

APPROVED:

DIANE BARRETT, CHAIRPERSON

RECORDING REQUESTED BY

WESTERN TITLE INSURANCE COMPANY

AND WHEN RECORDED MAIL TO

NAME Ms. Constance S. Wilson
ADDRESS 445 Whiskey Hill Road
CITY & STATE Woodside, CA 94062

Title Order No. 31775 Escrow No. 137401-NE

MAIL TAX STATEMENTS TO

NAME same as above
ADDRESS
CITY & STATE

VOL 1180 PAGE 907
RECORDED IN OFFICIAL RECORDS
OF NAPA COUNTY CALIF.
FIRST AMERICAN TITLE COMPANY
OCT 24 1980
AT 11:25A M.
ELEANOR E. KIMBROUGH
COUNTY RECORDER

3 1

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Documentary transfer tax $ [redacted] 4.19.95 cp

- Computed on full value of property conveyed, or
- X Computed on full value less liens and encumbrances remaining thereon at time of sale.

WESTERN TITLE INSURANCE COMPANY: C. Colley

Signature of declarant or agent determining tax—firm name

Individual Grant Deed

WESTERN TITLE FORM NO. 104

FOR VALUE RECEIVED, EARL D. BROWN, a single man

GRANT to CONSTANCE S. WILSON, an unmarried woman

all that real property situate in the City of Calistoga

County of Napa , State of California, described as follows:

COMMENCING at the point formed by the intersection of the Southeastern line of Lake Street, and the Northeastern line of View Road, as shown on the map entitled, "Grand View Addition No. 2", filed March 2, 1951 in Book 5 of Maps, at page 50 in the Office of the County Recorder of said Napa County; running thence along the Eastern line of View Road, South 35° 43' East 104.37 feet and thence on a curve to the right with a radius of 325.00 feet and a central angle of 35° 23' 13" for a distance of 200.72 feet: thence North 80° 09' 54" East, 150.35 feet to the Western line of the State Highway leading from Calistoga to Middletown; thence Northerly, along said Western line to the intersection thereof with the Southeastern line of Lake Street; thence Southwesterly, along said Southeastern line to the point of commencement.

Assessors Parcel Number: 11-062-04

Dated October 3, 19 80

X Earl D. Brown
EARL D. BROWN

STATE OF CALIFORNIA
County of Marin } ss.

On October 15, 19 80, before me, the undersigned, a Notary Public, in and for said State, personally appeared EARL D. BROWN known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

Sylvia L. Shoulder
Notary Public
Sylvia L. Shoulder

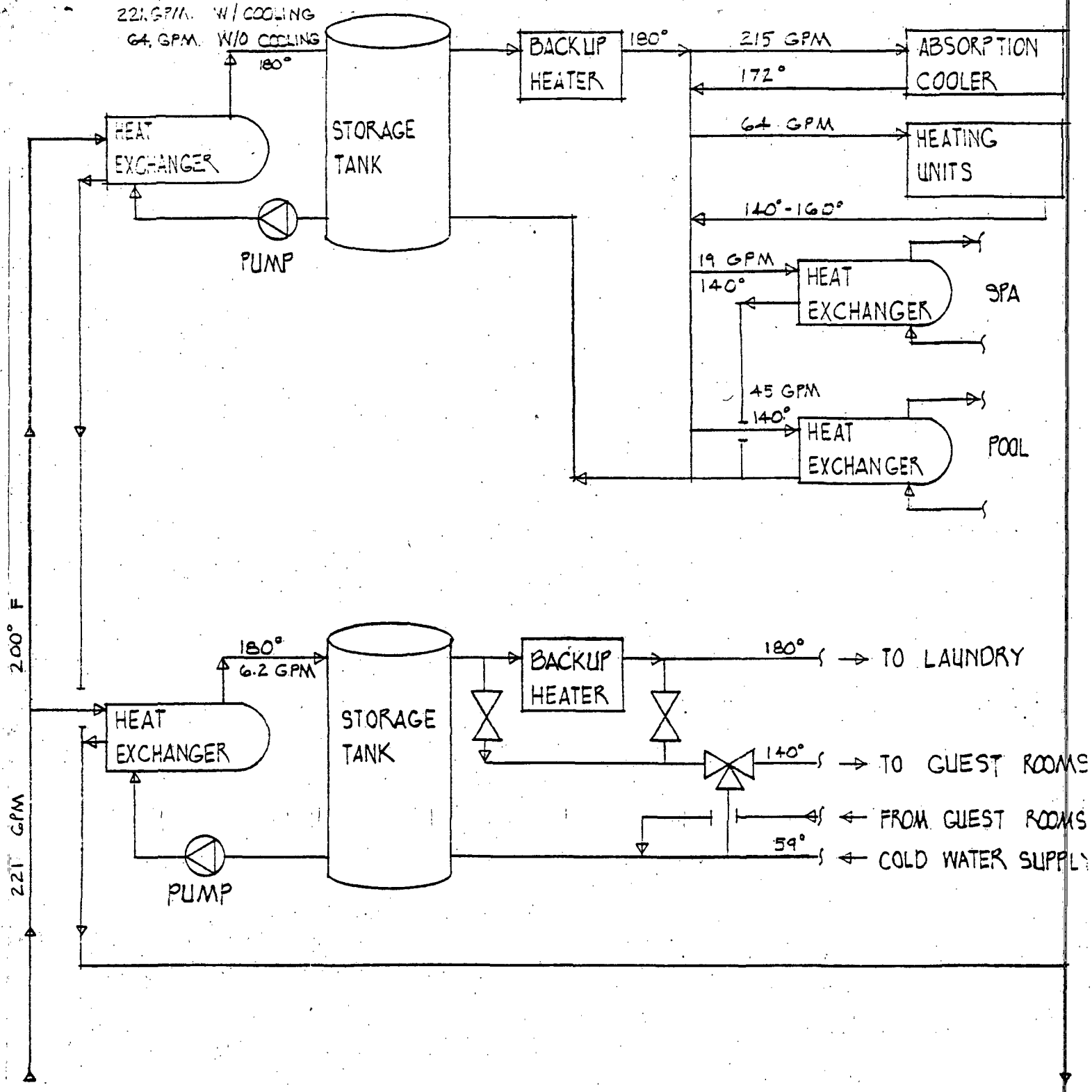
FOR NOTARY SEAL OR STAMP

OFFICIAL SEAL
SYLVIA L. SHOULDER
NOTARY PUBLIC - CALIFORNIA
MARIN COUNTY
MY COMMISSION EXPIRES AUGUST 7, 1981

CM1914

ITEM 13: Schematic

Refer to revised schematic.



PRELIMINARY SCHEMATIC

WINE VALLEY INN

P. G. L

ITEM - 8

ID F-203
Ref: E&T
(Rev. 12-80)

UNITED STATES DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

FEB 13 1981

USER-COUPLED CONFIRMATION DRILLING PROGRAM

MEMO OF CONVERSATION

Project: Wine Valley Inn

Person Calling: Sue Spencer Date 2-9-81

Representing: Time

Person Called: Ken Stelling Phone Number (707) 525-0479

Representing: Calif. Div. of Oil & Gas

City:

Subject: Permitting, etc.

Distribution
DOE-NV
DOE-ID
UURI
EG&G Reservoir
EG&G Environmental
Monitor Team Secretary
Other ~~Evans, Jerkft, Clark, Wingers~~

1. The Wilson #1 well has not been plugged due to a poor cement job (as rumored). The cementing of the well has not yet been completed.

2. Wine Valley is getting ready to apply for their injection permits. They had completed the necessary chemical analysis on their production well.

3. They mentioned to Stelling that they think there may be hotter water at depth than they encountered. They are considering (according to the driller) deepening Wilson #1. If it isn't successful, then they would turn it into an injection well.

4. In California, geothermal is treated like oil & gas -- the right to the resource goes with the property. No additional water right or resource right is involved. Claims are resolved through unitization or requiring production from different strata.

Signature

(Continue on reverse side)

ID F-203
Ref: E&T
(Rev. 12-80)

UNITED STATES DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

USER-COUPLED CONFIRMATION DRILLING PROGRAM

MEMO OF CONVERSATION

Project: Dixie Valley Inn

Person Calling: Sue Spencer Date 2-9-81

Representing: Time

Person Called: Ken Stelling Phone Number (701) 525-0479

Representing: Calif. Div. of Oil & Gas

City:

Subject: Permitting, etc.

Distribution
DOE-NV
DOE-ID
UURI
EG&G Reservoir
EG&G Environmental
Monitor Team Secretary
Other Straw, Jessup, Clark, Wingers

1. The Wilson #1 well has not been plugged due to a poor cement job (as rumored). The cementing of the well has not yet been completed.

2. Dixie Valley is getting ready to apply for their injection permits. They have completed the necessary chemical analysis on their production well.

3. They mentioned to Stelling that they think there may be hotter water at depth than they encountered. They are considering (according to the driller) deepening Wilson #1. If it is/is successful, then they would turn it into an injection well.

4. In California, geothermal is treated like oil & gas -- the right to the resource goes with the property. No additional water right or resource right is involved. Claims are resolved through unitization or requiring production from different strata.

Signature

(Continue on reverse side)

ID F-203
Ref: E&T
(Rev. 12-80)

UNITED STATES DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

USER-COUPLED CONFIRMATION DRILLING PROGRAM

MEMO OF CONVERSATION

Project: Wine Valley Inn

Person Calling: SG Spencer — Date 2/4/81

Representing: EG&G — Time

Person Called: Ken Stelling — Phone Number

Representing: Calif. Div'n of Oil & Gas

City: Santa Rosa

Subject: Leo Soong letter

Distribution
DOE-NV
DOE-ID Prestwich, Brent Clark
UURI
EG&G Reservoir
EG&G Environmental SGS
Monitor Team Secretary Dolenc, Strawn
Other Ed DeBella

The Crystal Geyser Water Co. is one of several bottling companies in Calistoga which bottle "mineral" water. They are, in general, concerned that injection from the geothermal developments will chemically affect their water supply. That is a legitimate concern.

DOG has not reacted to Mr. Soong's complaints, and they cannot until Wine Valley officially applies for an injection permit. At that point, DOG will require the applicant to provide a chemical analysis of the produced fluids, & to provide a chemical analysis of the cooled fluids. If the quality is still good, then the injection can be approved.

Stelling is somewhat familiar with the Wine Valley project, but they have not approached DOG since they started drilling their production well. Stelling says that Wine Valley ceased drilling on that well when they heard that their proposal would not be considered if the payback was for a completed well.

There is some concern that the bottling companies are involved in some shady dealing (e.g., bottling tap water). Stelling's feeling is that these companies may

Signature

(Continue on reverse side)

be trying to stop further development before they have to divulge some of their own secrets.

All of the State agencies involved are sponsoring a regulatory "show-and-tell" in Calistoga on March 3, 1981, to explain state regulatory policies & procedures to the city council & to the public. Stelling recommends that we send someone.

An appropriate response from DOE to Mr. Soong would be to say that permits or proof that they can be obtained is a condition of the contract before it is signed. Therefore, no federal funds would be expended if the permits could not be obtained.

If the injection well is not part of the UCCDP contract, then that is also an appropriate response.

WINE VALLEY

Comments (wording for) on Appendix B.

Task 3 - Exploration

A. The participant shall provide to DOE, prior to drilling, all available data and the rational used by the Participant for site selection and

Zones of prodn - other 3 GT wells nearby /
gt fluid gradient
potable wtr zones - chem + thermal contamination
ck w/ OD on stripping Boron from wtr.
label of Bo in city wtr.
ck w/ ~~Vdegate~~ Co w.r.t. present wtr quality;
Public Works Dept.
source depth etc.

2-9-81

January 29, 1981

Mr. Brent Clark
Department of Energy
Idaho Operations Office
550 Second St.
Idaho Falls, Idaho 83401

Subject: SCAP No. DE-SC07-801D12139
Wine Valley Inn, Calistoga, CA

Dear Mr. Clark:

Attached are the minutes of the City Council of Calistoga regarding the Use Permit approvals for the Wine Valley Inn. Both the April 3, 1979 and January 6, 1981 minutes are enclosed. The January 6th minutes have not yet been approved as the Council meets monthly. We shall forward the approved minutes as soon as they are obtained.

If you have any questions regarding this or any other matter please contact us.

Yours truly,

Allan Nichol
ARCHITECT

AN/jd
attachments

LEWIS & NICHOL AIA ARCHITECTS & PLANNERS
po box 263 sebastopol ca 95472 707·829·2256

April 3, 1979

The City Council of the City of Calistoga met in regular session on April 3, 1979, at the Community Center with Mayor Kagel, Councilmen Rulli, Smith, Thomas and Wilkinson in attendance. Also present City Administrator Holanda and City Attorney Jones.

The meeting was called to order at 7:00 P.M., Mayor Kagel presiding.

The Treasurer's report and Police Chief's report presented at the Council Meeting are noted to be on file in the City Clerk's Office.

City Administrator Holanda asked to delete the following item from his agenda:

1 g Growth Management Plan: Discussion

Councilman Smith asked to add the following item to his agenda:

2 b Resolution re temporary closing of State Highway 29

Mayor Kagel asked to add the following item to his agenda:

4 c Dining Club

AGENDA APPROVED AS AMENDED On motion of Councilperson Wilkinson, seconded by Councilman Thomas and unanimously carried the agenda was approved as amended.

MINUTES APPROVED AS RECEIVED IN MAIL On motion of Councilperson Wilkinson, seconded by Councilman Rulli and unanimously carried the minutes were approved as received in the mail.

LAND ACQUISITION FOR PARKING LOT City Administrator Holanda requested that

4. That at such time as the City determines there is an adequate supply of water in the municipal system, the Applicant may apply to the Public Works Department for water service.

5. That the spa and pool facilities be made available only to guests at the Inn.

6. That the Applicant enter into a deferred agreement with the City of Calistoga for the installation of curbs, gutters and sidewalks and that landscape screening be maintained by the Applicant.

7. That any noise inducing equipment at the property be provided with adequate noise buffering.

8. That only low level landscape lighting be used on subject property.

9. That both Lake Street exits will be subject to "right hand turn only" controls with the proper signs being provided by the Applicant.

10. That at such time as the City determines the necessity of a "keep clear lane" the Applicant, at his expense, shall provide same.

11. That the Applicant shall comply with the conditions setforth in the Division of Environmental Health correspondence dated February 14, 1979

RECLAIMED WASTEWATER PIPELINE It was requested by City Administrator Holanda that the Council direct and authorize the appropriate parties to execute the contract on the reclaimed wastewater pipeline. It was moved by Councilperson Wilkinson, seconded by Councilman Thomas and unanimously carried the appropriate parties be authorized and directed to execute the contract on the Reclaimed Wastewater Pipeline.

It was moved by Councilman Smith, seconded by Councilman Thomas and unanimously carried, the Mayor and City Clerk are authorized and directed to execute Engineering Services Agreement Amendment 2 for Step 3 Services.

The City Council of the City of Calistoga met in regular session on January 6, 1981, at the Community Center with Mayor Berkhout, Councilmembers Avila, Rulli and Wilkinson in attendance. Absent Councilmember Keller. Also present City Administrator Holanda and Acting City Attorney Bennett.

The meeting was called to order at 7:00 P.M., Mayor Berkhout presiding.

CONSENT CALENDAR It was moved by Councilmember Avila, seconded by Councilmember Rulli and unanimously carried the following Consent Calendar items be approved:

1. Pay Bills
2. Minutes for the December 2nd, December 2nd Special Meeting, December 9th and December 23rd. The minutes for the meeting of December 16th were not approved. Councilmember Wilkinson requested they be held over until she could listen to the tape again.

Councilmember Keller noted present at 7:06 P.M.

Councilmember Wilkinson introduced, read the heading and moved the adoption of the following Resolution:

RESOLUTION NO. 1-81

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CALISTOGA, COUNTY OF NAPA, STATE OF CALIFORNIA, COMMENDING LOUIS W. (BILL) THOMAS FOR HIS PUBLIC SERVICE AS A MEMBER OF THE CALISTOGA VOLUNTEER FIRE DEPARTMENT

Said motion was seconded by Councilmember Avila, whereupon the Mayor put the question and instructed the Clerk to call the roll of Councilmembers present and on roll call was adopted by the following vote:

AYES:	Councilmembers	Avila, Keller, Rulli, Wilkinson, Mayor Berkhout
NOES:	"	None
ABSENT:	"	None

Mayor Berkhout presented Bill Thomas with the Resolution and extended his congratulations on a job well done.

FHA LETTER FROM MR. RICE The letter received from Mr. Rice of FHA concerning Water Preapplication was discussed by the City Council. The City Council will meet with Mr. Rice for further discussion on Friday, January 16, 1981 at 10:00 a.m. in the Conference Room.

STUDY SESSION DATE RE: WATER RATES AND WATER PROJECTS The City Council, Water Advisory Committee and Kennedy/Jenks Engineers will meet January 19, 1981 at 3:00 P.M. in the Community Center for a Study Session re: Water Rates and Water Projects.

USE PERMIT - FAIRWAY VISTA CONDOMINIUM PROJECT It was moved by Councilmember Avila the applicant be granted a Use Permit contingent on a letter being submitted by Vrabel Realty containing the proposal as presented by Mr. Laidlas with the exception of the grant offer and based on the following conditions as recommended by the Planning Commission:

1. That the development of an Ordinance regarding mitigation of overcrowded schools be accomplished by the City through the cooperation of the School District and that the Applicant shall be subject to the provisions of said Ordinance.

2. That the Applicant and the City mutually agree to work through the Calistoga Area Park and Recreation Commission to accomplish the mitigation of recreational facilities for subject development prior to the acceptance of a Tentative Map.

3. That the Applicant comply with the recommendations submitted by the Consulting Civil Engineer in his letter dated 6-18-80 and the recommendations submitted by Thomas M. Origer, Senior Staff Archeologist, Sonoma State University Academic Foundation, Inc. in correspondence dated 7-28-80.

4. That the project will be subject to sewer and water hookups at such time as made available by the City.

Said motion was seconded by Councilmember Keller and carried by the following vote:

Ayes: Avila, Keller, Wilkinson, Mayor Berkhout

Noes: Rulli

The Council will ratify the approval of the Use Permit at its meeting January 20, 1981.

USE PERMIT - PROFESSIONAL OFFICE SUITES AND RETAIL SHOPS - FLICKINGER AND SQUIRE It was moved by Councilmember Rulli the use permit be approved with the following conditions:

1. Two palm trees not be removed.

2. An exception to off-street parking requirements be granted because of remaining trees.

3. Curbs, gutters and sidewalks be installed (no street improvements).

4. Building not be rented to high water users.

Said motion was seconded by Councilmember Wilkinson and unanimously carried.

USE PERMIT REVISION - WINE VALLEY INN It was moved by Councilmember Keller the use permit be granted based on Recommendations of the Planning Commission, revised use permit recommendations and staff recommendations as of December 31, 1980 as follows:

1. That the Applicant furnish the project with ground water wells for domestic use subject to compliance with the Napa County Division of Environmental Health and that the Applicant also provide its own water source for landscaping purposes.

2. That in the event the Applicant is unable to produce an adequate supply of potable water to support the proposed project, the Applicant will be allowed to negotiate with the City of Calistoga in an effort to produce sufficient quantity of water on City property to be introduced into the City water system at the Applicant's expense.

3. That prior to the issuance of a building permit, the Applicant must apply and pay fees for water service to the on-site fire hydrant and a seal be placed at the fire hydrant location to guarantee that the water is not used for any use other than fire protection.

4. That at such time as the City determines there is an adequate supply of water in the municipal system, the Applicant may apply to the Public Works Department for water service.

5. That the spa and pool facilities be made available only to guests at the Inn. CORRECTED to - Allow the spa and pool facilities to be used by general public - as of 12-31-80.

6. That the Applicant enter into a deferred agreement with the City of Calistoga for the installation of curbs, gutters and sidewalks and that the landscape screening be maintained by the Applicant.

7. That any noise inducing equipment at the property be provided with adequate noise buffering.

8. That only low level landscape lighting be used on subject property.

9. That both Lake Street exists will be subject to "right hand turn only" controls with the proper signs being provided by the Applicant. (Corrected by Recommendations of 12-31-80.)

10. That at such time as the City determines the necessity of a "keep clear lane", the Applicant, at his expense, shall provide same.

Recommendations of 12-31-80:

1. That final improvement plans be approved by the Consulting Civil Engineer prior to construction.

2. That any noise inducing equipment at the property be provided with adequate noise buffering.

3. That the Applicant complies with the recommendations of the Department of Transportation in correspondence dated 12-16-80.

4. That the easement shown on the revised plan be recorded prior to the submittal of final improvement plans.

5. Total units to be reduced from 60 to 55.

Said motion was seconded by Councilmember Avila and unanimously carried.

USE PERMIT - HOT WATER WELL - DENNIS McNULTY It was moved by Councilmember Avila, seconded by Councilmember Keller the Use Permit for Hot Water Well be approved with the following conditions:

1. That any noise inducing equipment at the property be provided with adequate noise buffering.

2. Napa County Department of Public Health Recommendations be incorporated as a condition:

   a) That the applicant apply for a well permit from the County of Napa prior to initiation work on the project.

   b) That if the hot water is to be plumbed directly into the domestic water system, it must first meet all chemical and bacteriological standards as required in the California Domestic Water Quality and Monitering Regulations and installation shall conform to the California Waterworks Standards.

Said motion was unanimously carried.

Councilmember Wilkinson introduced and moved the adoption of the following Ordinance:

ORDINANCE NO. 366

ORDINANCE OF THE CITY OF CALISTOGA AMENDING THE MUNICIPAL CODE BY ESTABLISHING NEW FEES IN CHAPTER 17 THEREOF RELATING TO ZONE CHANGE, USE PERMITS AND VARIANCE APPLICATIONS

Said motion was seconded by Councilmember Rulli, whereupon the Mayor put the question and instructed the Clerk to call the roll of Councilmembers present and on roll call was adopted by the following vote:

AYES:	Councilmembers	Avila, Keller, Rulli, Wilkinson, Mayor Berkhout
NOES:	"	None
ABSENT:	"	None

PUBLIC HEARING CONTINUED - HUD COMMUNITY DEVELOPMENT BLOCK GRANT FY 1981
The Mayor announced the next order of business would be the public hearing on HUD Community Development Block Grant FY 1981. He then asked if there were any opponents or proponents who wished to speak. Hearing none, he asked twice more if there were any opponents or proponents who wished to speak, and hearing none, he declared the Public Hearing Closed. He then asked for comments from the Council. After a brief discussion, it was moved by Councilmember Avila, seconded by Councilmember Keller and unanimously carried the City proceed with HUD Grants as available.

PLANNING COMMISSIONERS APPOINTED Mayor Berkhout recommended Bud Fullerton, Diane Barrett, Jack Gingles, Bill Hensley and Lou Wuertele be appointed to the Planning Commission. He asked if any Councilmember had any recommendations. Councilmember Keller concurred with the Mayor as to Fullerton, Barrett, Gingles, Wuertele, but felt that consideration should be given to Michael Fallow, because of his length of residence in Calistoga, his qualifications and reasons for desiring to be a Planning Commissioner. It was moved by Councilmember Wilkinson, seconded by Councilmember Rulli the Mayor's recommendation for Planning Commissioners be approved. The motion carred by the following vote: Yes, Avila, Rulli, Wilkinson, Mayor Berkhout. No, Keller.

PLANNING COMMISSIONERS TERMS It was moved by Councilmember Wilkinson Barrett, Fullerton and Wuertele be appointed for four (4) years and Hensley and Gingles be appointed for two (2) years. Said motion was seconded by Councilmember Avila and unanimously carried.

Mayor Berkhout requested a letter of thanks be sent to the outgoing commissioners.

AMERICAN LEGION DONATION TO CEMETERY It was moved by Mayor Berkhout and seconded by Councilmember Wilkinson a letter of thanks be sent to Rev. Volkman thanking him for the generous donation on behalf of the American Legion in the sum of $500 to be used for cleaning up the cemetery. The motion was unanimously carried.

FINANCIAL REPORT BY JANUARY 15 It was moved by Mayor Berkhout, seconded by Councilmember Rulli and unanimously carried that a Financial Report be submitted to the Council no later than January 15, 1981.

VICTOR HOLANDA RESIGNS AS CITY ADMINISTRATOR City Administrator Holanda read the following letter of resignation:

January 6, 1981

Honorable City Council
City of Calistoga
1232 Washington Street
Calistoga, CA 94515

Ladies and Gentlemen:

The decision to comply with your request for my resignation was difficult. However, it is my understanding after discussing this matter with the majority of you making this request, you are cognizant of the consequences of your request and subsequently your actions. Furthermore, it is my understanding that this request for my resignation is predicated on your belief that it is in the best interest of the Community.

As I have indicated to you and my staff, that as a professional, I shall conduct myself accordingly and comply with your request by submitting my resignation. Therefore, I would like to take a few moments to thank all my friends and acquaintenances and the citizens of Calistoga especially my Senior Citizen friends for their support in maing my 4-½ years in Calistoga very challenging, rewarding and educational. A special thank you goes to six individuals who have contributed to my successful 4-½ years: Mary Duffy, Jo Noble, Charlotte Beverlin, Al Triglia, George Smith and Steve Anderson.

Therefore, Mr. Mayor and members of the Council, I hereby tender my resignation effective February 1, 1981. My last working day will be January 16, 1981 due to the fact I will take vacation from January 16th to the 30th.

I wish you and the members of this Council the very best in dealing with the challenges you will be facing.

Sincerely,

VICTOR HOLANDA
City Administrator

It was moved by Mayor Berkhout the resignation of Victor Holanda be accepted. His last working day was to be January 16th. He will receive paid vacation due him and three (3) months severence pay. The motion was seconded by Councilmember Rulli and carried by the following vote:

AYES: Councilmembers Rulli, Wilkinson and Mayor Berkhout

NOES: " Avila and Keller

It was moved by Councilmember Avila, seconded by Councilmember Wilkinson and unanimously carried to adjourn to a special adjourned meeting on Friday, January 16th at 9:00 a.m. in the Conference Room to appoint an agent for the HUD Project.

APPROVED_____ _____
CITY CLERK

MAYOR_____

Alan Nichol
Dennis McNaulty
Leonard Fisher
John Lewis

Telecon 2-9-81
w/ wine valley rep's

also present: me
max Dolan
Brent Clark
Jon Strawn
Dennis Goldman

No E.R. was written - not req'd by CA DOG.
Permits sent here from Wilson #1 - have not begun permits on UCCDP well.
Only 1 well at a time - not the 5 prod'n wells they propose. @ 360' each
Well diagram -
now ~~plan~~ T - 1000'
NOW - 1 - 400' well.
Cost Share (Revised) 50 spm @ = 186
hole is open - we can log it for temp ?. YES.
1890' well to the E has 134°C

Can we sample water when we log it?

UCCDP Mtg @ ID DOE 2-9-81

Max Dolenc
Sue Prestwich
Brent Clark
Dennis Goldman
Jon Straw
Jon Z
} in attendance. (in prep'n for call to owne valley people)

Vale & Magic Res. next 2 priority projects — offer;
Lakeview OR (NW Geothermal Comp.)

Genl discussion:

OR — Requires wtr approp. permit

CA — wtr & GT rights go w/ fee ownership.

Lakeview has applied for wtr permit

Status on NW GT — Geoproducts } review pronto.

Brent to ~~call~~ meet w NW GT thurs morn.

Geoproducts hangup is drlg contractor — not any permitting Land + Resource ownership is "clear".

Check into what is process to get right to water in CA — w/ A GT.

Draft Cooperative Agreement done:
NW Geothermal.
Geoproducts

Draft C-A. to be done by Friday:
Vale
Magic Reservoir.

Telecon from Kent Stelling CA DOG: Doug Stockton his boss. Head GT man for CA DOG.

Wine Valley — Wilson #1 drilled, — perfd 170 — TD (330')
flowed 20 gpm @ 140°F
Sought to

Attachment 1
December 17, 1980
DBLO-61-80

SUMMARY TECHNICAL EVALUTION REPORT

1. Contractor: Ms. Connie Wilson

2. SCAP No. DE-SC07-801D12139

3. Description: This project is to provide energy for space heating, domestic hot water supply, and heating of pools and spas for the Wine Valley Inn.

4. Summary of Review:

A. Environmental & Institutional

- It is not clear who will prepare the environmental report. The listed participants seem to lack sufficient expertise to perform a detailed environmental analysis.

- Page 105 states "We do not see any environmental issues arising out of this project." There is not enough information included in the project to determine if their assessment is correct. Potential concerns include:
  1. noise during drilling
  2. disposal during drilling and testing
  3. protection of shallow groundwater
  4. protection of existing geothermal uses.

- Permitting, as stated in the proposal, applies only to the well is currently being drilled:
  1. new well permits have to be obtained
  2. construction permits have to be obtained.

- Another EIR may not be necessary. DOE should review the exis EIR and reflect their evaluation in the negotiations.

- In general, the TDS of geothermal fluids is low (300 - 500 m but the boron is high. This will limit the fluid disposal o Therefore, additional fluid disposal options should be consi i.e. in addition to downhole heat exchangers or reinjection.

B. Resource

- It is not clear how the resource is to be used. The criter selecting a downhole enchanger should be identified. A co that reflects both options should be identified.

- Request the exploration report by Les Young, California D of Mines and Geology.

- If surface exploration is necessary, 10 ft temperature pro recommended (approximately 12).

C. Drilling

- The cost of the injection well, as stated in the proposal, is $10,600. This cost seems low, especially if State laws require injecting below ground water aquifers.

- The exploration and drilling tasks lack detail and are inconsistent.
  1. Task 3 for the SOW is unclear. It discusses drilling gradient wells, but they are not mentioned elsewhere.

- All information on the 330 ft test well should be immediately made available to DOE, i.e. exact location of the drill site, drill samples, logging data, etc.

- Further define the drilling of gradient wells, if such are planned.

- Reduce time for drilling from 7 weeks to 3 weeks.

- Reduce time schedule for flow testing to 2 weeks.

- Require a short term pump test be run prior to well completion. Well testing should include temperature logging, pump testing (including duration, pumping rate data collection, instrumentation and analysis), and fluid sampling.

- The proposed consultants, Applied Earth Sciences, do not have experience in geothermal reservoir testing and analysis or in geothermal well drilling. It is recommended that the project find a more qualified consultant.

- A preliminary drilling program should be outlined. Specific items to be addressed should include:

  1. Drilling method, i.e. mud rotary, air rotary, cable tool, etc.
  2. Drilling fluid program.
  3. Production zone drilling techniques should be identified.
  4. Well completion techniques should be identified.
  5. Formation testing techniques should be identified, i.e. drilling record and logs, temperature and geophysical logs, drilling fluid loss records, etc.
  6. A production well construction plan should be identified. This should include depth, diameter, casing and cementing plans.
  7. Drilling cost in the Calistoga area is $27.50/ft.
  8. The use of oil field casing is questioned. Why not use welded black iron pipe?

D. Utilization

- The calculated flow rates appear to be in error. It was not evident in the write-up as to what value was used for differential temperatures, but using a ΔT of 40° with an inlet temperature of 180°F, 24.08 gpm was calculated for the space heating load compared to 17.87 gpm in the proposal.

- The lower temperature requirements (i.e. 140°F) amounted to 24.92 gpm compared to 40.79 gpm calculated in the proposal. The pool heating requirement was calculated to be 15.49 gpm compared to 27.64 gpm. It appears that a differential temperature was used that is lower than the (140-85) 55° ΔT that is on the flow diagram (p 25).

- On Page 25 there is a summary of flow rates which shows that the required flows are additive and amount to 58.66 gpm. If the proposed cascading system is used, the space heating flow would be available at 140°F to use downstream for spa or pool heating and this would reduce the total required flow. A flow of approximately 25 gpm would be sufficient for the heating requirements as presented. This is significantly lower than the 71 gpm that appears on the cost share plan.

- The cost share evaluation is dependent on flow and temperature of the well. For downhole heat exchanger systems such as this one, the flow parameter may not be adequate to measure the success of the geothermal resource. The successful utilization of the well is strongly dependent on proper design of the heat exchanger and well casing.

- On Page 87-88 there is mention of using a geothermally-heated absorption refrigeration system. Although the temperature range of the equipment is within the 180°F resource, there is no backup calculation as to the required flow rates. A complete cooling load calculation will be required to determine the energy requirements.

E. Conclusion

Based on monitor team input, more information and clarification should be obtained from the Wine Valley Inn before an adequate technical evaluation can be presented. In many areas of the planned development the proposal is lacking in detail and has conflicting statements in it. It is recommended the proposer be contacted and the following requests be made:

1. Request a copy of the Environmental Report that was sent to the California Division of Oil and Gas and have it sent to us.
2. Request a schedule with a cost and task breakdown.
3. Provide a new milestone summary.
4. Provide an accurate description of their energy requirements.
5. Submit a new variable cost share plan if the energy requirements change.
6. Request state requirements for well construction, abandonment and fluid disposal.
7. Request the Exploration Report by Les Young and all available information that exists on the 330 ft well that already exists.
8. Provide copies of the drilling and construction permits.
9. Provide any data that exists on fluid chemistry.

EG&G Idaho, Inc.

DEC 2 2 1980

MEMO OF CONVERSATION

FORM EG&G-561
(Rev. 1-77)

PERSON CALLING: John Lewis, Allen Nichol

DATE December 15, 1980

REPRESENTING: Lewis & Nichol, Architects & Planning

TIME 3 PM

PERSON CALLED: Brent Clark, Susan Prestwich, Max Dolenc & Jon Strawn

PHONE NUMBER (707) 829-2256

REPRESENTING: DOE/EG&G

CITY: Sebastopol, California

SUBJECT: Request for additional information Prior to negotiating the Wine Valley Inn Proposal

DISTRIBUTION

DOE UCCDP Program Mgr. - Susan Prestich
UURI UCCDP Program Mgr. - Mike Wright
Joe Fiore — Dennis Goldman - EG&G
James Carr — Sue Spencer - EG&G
Jon Strawn - EG&G — Jack Dixon - EG&G
E. G. DiBello - EG&G

From the results of the monitor teams responses, additional information was requested from John Lewis, before an adequate technical evaluation could be performed on the Wine Valley Inn Proposal, SCAP No. DE-SC07-80ID 12139. This memo summarizes that request, and presents a sample letter to be sent to John Lewis from DOE documenting our telephone conversation.

Per our telephone discussion of December 15, 1980 the following information is necessary to initiate the negotiation process.

1. Please submit to DOE two copies of the Environmental Impact Report (Drillers Report) that was submitted to the California Division of Oil & Gas.
2. Please provide DOE with any currently available existing information on the 330 foot test well. This should include well diameter, depth, casing, and its location with respect to the planned well. It is understood that some data will not be available for thirty days.
3. The request we made for the exploration report by Les Young will be initiated by our office through DOE-SAN.
4. It is understood that the request for downhole heat exchanger information, particularly water analysis, will not be available for thirty days.
5. Please submit to DOE a detailed cost (by task) breakdown of those figures shown on your "Form 60". (Volume II, pages 3 and 4)
6. Please provide DOE with a detailed schedule by task summary.
7. Please provide DOE with a new milestone summary.

SIGNATURE

(CONTINUE ON REVERSE SIDE)

8. Please provide DOE with an accurate description of energy requirements; i.e., peak heat demand.
9. If the energy requirements change from not using a downhole heat exchanger, please submit a new variable cost share plan.
10. Provide an accurate process schematic for the specific end-use design.
11. Please identify the present well drilling status, and provide a more definitive outline of the production well drilling and testing phase of the project. — prelim well is drilled
12. Please provide the California State requirements for well construction, abandonment, and fluid disposal.
13. Please provide copies of all the drilling and construction permits.
14. Please identify all fluid disposal options that are being considered.
15. Provide any existing data on fluid chemistry.

"Loc for planned well sec. 36-9N-7W
31± meters FEL, 975± M FSL.
183 m. el.

Jon A. Strawn
MONITOR TEAM SECRETARY MRD

new cost share

success
~186°F
~150 gpm
~DOE 20%

~186°
~51-1/4 gpm
25% DOE

171 - 185°
2 200 gpm
25% DOE

70' 10" CSG in 14" hole
330' 6" " " 9 5/8"

spotted 150-70'.
Wilson #1 is well name.

UNIVERSITY OF UTAH RESEARCH INSTITUTE

UURI

EARTH SCIENCE LABORATORY
420 CHIPETA WAY, SUITE 120
SALT LAKE CITY, UTAH 84108
TELEPHONE 801-581-5283

MEMORANDUM

January 2, 1981

TO: Max Dolenc

FROM: Jon Zeisloft

SUBJECT: UCCDP Pre-Negotiation Review-Proposal #023 (Wine Valley Inn)

The following recommendations and comments are for use in negotiating a contract with the Wine Valley Inn proposers, and taken directly from notes of my telephone conversation with you 12-11-80. As an opening general statement, we (ESL proposal review team) feel that no aspect of the proposal is adequately detailed. As examples there is no basis for their budget items, no drilling program is presented, expertise of project personnel needs amplification, the proposers are not sure whether they will use a down-hole pump or heat exchanger, and whether or not they will use gradient holes; they are lacking in addressing institutional factors and whether to flow test or not. The DOE negotiator must secure clear definition of all aspects of the proposal prior to signing a contract. In addition a flow chart, satisfactory to DOE, should be presented with two alternate paths allowing for both pumping and heat exchanger use (differences in at least drill hole testing, budget and cost share plan should be shown). In addition, this flow chart must show decision points, at which times DOE shall review data and decide on proceeding to the next project step. In addition to these general comments the following specific points were discussed.

Drilling--What is basis for $75,700 drilling/logging cost? We feel that is excessive. Based on calling local drilling contractors a maximum of $40,000 should be allowed (the maximum of contractor quotes was $27.50/foot to drill an 18" hole to 400' and install 12"x.25" casing). Proposer must clarify why they seek money for an injection well if they plan to use a heat exchanger. A detailed drilling program must be presented by the proposer to substantiate their anticipated costs. Since it is rumored the proposers are currently drilling the production well, the proposal may be invalid, as drill holes will not (per the UCCDP SCAP) be financed after-the-fact; a drill site visit may be mandatory to clarify this point.

Testing--An acceptable (to DOE) testing program must be presented by the proposer as a condition of signing the contract.

Environmental--Proposer must address the problem of disposing of Boron-rich geothermal fluids, to federal, state and local agencies' satisfaction. This must be a condition of the contract. Has an environmental study been done in preparation for building the resort? If so, DOE should not have to fund any duplication of that work.

Cost Share--Since there are two types of completion proposed, there should be two cost share charts presented.

Management and Personnel--Proposer must submit a satisfactory management organization chart. No one discussed in the proposal has substantial geothermal experience; proposer must identify to DOE's satisfaction a project manager with appropriate geothermal experience, as well as a well site geologist and engineer. Further it is suggested that a hydrologist be consulted to advise with respect to fluid production and to advise with respect to any potential liabilities from damaging nearby producing wells.

Institutional--Institutional factors mentioned on pg. 105 must be addressed. Further, proposer should demonstrate to DOE that no factors remain unsolved which could seriously delay or stop the project.

Business--"Lump" costing is unacceptable. Proposer must provide details of predicted costs.

Although not part of our area of the review process, we suggest that appropriate engineers (at EG&G?) consider the rate of heat exchange in the reservoir if a heat exchanger is used.

JZ:jr

PROPOSAL EVALUATION SUMMARY NO. 023

Technical score - 204

Business score - 10

Ms. Connie Wilson (Small Business)
Wine Valley Inn - A mineral water spa and motel
Calistoga, California

John Lewis	$108,180	DOE Cost
As soon as possible (2-3 months)	$120,200	Total Cost

Production Well

Percent Geothermal: 100%

$/10^{6}Btu: $5.85 (assuming 5% O&M)

Utilization Factor: 18.4%

Btu/yr/DOE funds: 3.50×10^4
$/Installed kW: $333

Reject Temp.: 138°F

Annual Equiv. #2 oil: 38,602 gal

Summary

This project is to provide energy for space heating, domestic hot water supply, and heating of pools and spas for the Wine Valley Inn. Exploration is not included in this project. No drilling program is provided. The successful project is defined as having a flow rate greater than 71 gpm and a temperature greater than 186°F. Production will be from fractured rock. No test plan is specified. The project team includes Lewis and Nichol, Architects (project management), Applied Earth Sciences Incorporated (drilling, testing), Mr. Paul Larkin, and Mr. Leonard Fisher (mechanical engineers).

Technical Strengths

Resource. The project is in an area with a resource that is currently in use, and no serious problems are seen in obtaining either the required temperatures or flow rates.

End-Use. Good cascaded use of geothermal fluids is presented. Economics are promising, and the overall project has low cost.

Technical Weaknesses

Exploration. Additional geologic reconnaissance work to locate the optimum drill site is not identified, even though such work may help. There seems to be an internal inconsistency with regard to whether they plan to drill gradient wells.

Drilling. No preliminary drilling plan is included in the proposal; however, drilling the inferred shallow production well does not require a detailed plan. The proposed depth of the well is uncertain. A pumping depth of 400 ft is discussed on page 104, but the proposed well may be only 200-300 ft.

Testing. The proposal does not address testing the production well.

End-Use. The end-use description is confusing, and requires a thorough review of heat loads. Parameters used in heat load calculations are not explained, and seem to indicate a lack of understanding of heating degree-day information. It is not clear which option is to be implemented.

Cost-Economics: The $75,000 drilling costs appear unreasonable for a 200 to 400 ft well. There is an inconsistency in total costs shown on the summary page ($144,240) with those shown on page 48 ($120,200). No operational and maintenance costs are given.

Cost-Share. The cost-share for the proposer should be 80% at 171-185°F, which are the desired resource temperatures. Furthermore, if they plan to use a down-hole heat exchanger if insufficient flows are obtained, the cost-share formula should show a higher proposers's share for flows less than 50 gpm.

Environmental. The proposal assumes minimal environmental concerns. The lack of a drilling plan does not allow an evaluation of maintaining the integrity of shallower aquifiers. The proposal indicates that other springs in the area have dried up due to pumping in wells, but it does not indicate whether this well would contribute to these ground water interference problems. Fluid disposal plans are vague; it is not clear if the resource is pumped.

Institutional. The proposal states on page 105 that here are legal, social, and institutional issues, but fails to address them.

Permits. No drilling or testing permits have been obtained, yet the proposer seems fairly familiar with procedures for obtaining them. California permitting process should be checked; the proposer states that the right to use the geothermal resources passes with the land.

Personnel. The project team lacks necessary expertise in hydrogeology, exploration geology, HVAC engineering, drilling management, and environmental issues. The project manager does not appear to have the requisite geological expertise necessary to review the subcontractor's direction and decisions.

Project Management. The project organization is very vague. Personnel responsibilities, task assignments, and reporting lines are not clear, e.g., how do John Lewis, Connie Wilson, and Ed Mills interact?

Conclusions

There is some indication that the well proposed here may either already be in progress or have been already drilled. A site visit prior to any CA would clarify this situation.

BUSINESS COMMITTEE SUMMARY

PROPOSAL: MS. CONNIE WILSON. NO. 023

Score
Criterion 7 _____
Criterion 8 _____
Criterion 9 _____

SUMMARY

The proposal to develop a Wine Valley Inn was lacking in the detail required by the SCAP and required to come to favorable conclusions.

BUSINESS STRENGTHS

1. Leonard Fisher, who has geothermal experience will be used in a limited HVAC consulting capacity.

BUSINESS WEAKNESSES

1. 2-3 month project schedule appear ambitous (environmental work alone will require much of that time in view of Co. requirements)

2. Lump sum costs are not broken down or otherwise supported.

3. No enough drilling data to support drilling budget. Given a relatively shallow depth requirement, VFC 200 feet (referenced on p. 105 of Vol. I) the drilling cost comes to an unreasonable $488.50/ft.

4. General lack of substantive justification and explanation.

5. No O/H and G&A rates; no contingencies; 3.33 multiplier on direct labor is unsupported and appears excessive.

6. Cost were not tied to a schedule and work scope.

7. No sound or reasonable financial plan has been provided.

8. No letters of commitment or expressions of interest were included.

9. No details concerning the referenced limited partnership to finance total 1.7×10^6 project.

10. The organizational promise is very problematical, e.g., franchise (Best Western) negotiation has not been initiated; limited partnership, viz, the Wine Valley Inn Assoc. coes not appear ready to serve the project as owner; who is the general partner?

11. No financial statements covering the proposer--lots of pro forms, however.

12. Primary consultant, new in business, has no geothermal experience.

13. No indication of business experience relevant to a spa operation.