GL02859 - 1 of 5

OCCIDENTAL GEOTHERMAL, INC.

5000 Stockdale Highway, Bakersfield, California 93309
(805) 327-7351

FC
USGS
AGSD
Memo 4
NV
Churchill Co.
10/14/77

October 14, 1977

Office of Area Geothermal Supervisor
United States Geological Survey
Conservation Division
345 Middlefield Road
Menlo Park, California 94025

Attn: Mr. David Bickmore

Re: Proposed Plan of Operation
Allen Springs Area
Churchill County, Nevada

Gentlemen:

Enclosed you will find our Proposed Plan of Operation to drill wells on two of our adjoining leases at the south end of the Allen Springs area, Churchill County, Nevada. Although the plan includes locations for eleven wells, we do not intend to drill all of these locations at this time, but do wish to have the flexibility of drilling what we consider to be the most desirable locations as more information may become available.

Under separate cover we are sending you Figure I, a montage of the exhibits within the Plan of Operation, and includes enlarged sections of topographic maps of the immediate area of interest. Also under separate cover you will receive an Application for Permit to Drill (Form 9-331C) for each of the eleven locations identified in the Plan of Operation.

Occidental has made arrangements with Robert Elston, Director, Nevada Archaeological Survey, University of Nevada, Reno, to investigate and prepare a cultural resource inventory for this prospect. His report should be in your hands around November 1, 1977.

We would like to have drilling operations underway by early December and would appreciate all help in processing this application. If further information is required, please contact us.

Very truly yours,

OCCIDENTAL GEOTHERMAL, INC.

Malcolm H. Mossman

Malcolm H. Mossman
Vice President

MHM/gad
Encls.

PROPOSED PLAN OF OPERATION

TO DRILL GEOTHERMAL TEST WELLS

ON UNITED STATES GEOTHERMAL RESOURCES LEASES

N-8496 and N-8497

Allen Springs Area

Churchill County, Nevada

Occidental Geothermal, Inc.

Bakersfield, California
October 14, 1977

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ATTACHMENTS

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Exhibit "C"	Typical Rig Specification.
Exhibit "D"	BOPE Stack, 300' to 700'
Exhibit "E"	BOPE Stack, 700' to 3,000'
Exhibit "F"	BOPE Stack for Air Drilling below 9-5/8" casing.

ENCLOSURE

Figure I	Montage of Exhibits

I. INTRODUCTION

Occidental Geothermal, Inc. proposes to drill one or more geothermal test wells to depths up to 3,000' on Federal Geothermal Resources Leases N-8496 and N-8497 in our Allen Springs prospect area, Churchill County, Nevada (see Exhibit "A-1"and Figure I). In accordance with 30 CFR 270.71, 270.34, 270.78, and GRO 1, 2, 3 and 4, the Applications, Plan of Operation and attached Exhibits are submitted for consideration and approval for the proposed work schedule.

Exhibit "A-1" is a topographic map of the prospect area at a scale of 1" = 1 mile, and shows the proposed well locations, drainage, and roads. This map is the result of splicing four 15 minute USGS quadrangle maps that adjoin at a common corner in Section 17, Township 16 North, Range 29 East MDB&M. These quadrangles are: Fallon, Carson Lake, Weber Reservoir and Allen Springs. For an enlarged detail of the more immediate area see Figure I.

The wells are to be drilled as straight (vertical) holes to projected depths of from 500' to 3000'. The approximate well locations in feet and directions from the nearest known and etablished section corner markers are given below. General access to the drill sites will be from Fallon, Nevada, south along U.S. Highway 95, then via unimproved dirt surface roads to the locations.

WELL LOCATIONS

These are the locations of Drill Sites A,B,C,D,E,F,G,H,I,J, & K:

The locations have been staked on the ground at a uniform size of 100 x 200 ft.

Origin (0,0) @ NE Cor Sec4-T15N-R29E, MDB&M.

From Origin:

0.0 ft.	due north and
2560 ft.	due west to SW Cor "A" then
200 ft.	due east to SE Cor "A" then
100 ft.	due north to NE Cor "A" then
200 ft.	due west to NW Cor "A".

From Origin:

81 ft.	due north and
2220 ft.	due west to SW Cor "B" then
100 ft.	due east to SE Cor "B" then
200 ft.	due north to NE Cor "B" then
100 ft.	due west to NW Cor "B".

From Origin:

3775 ft.	due north and
1085 ft.	due east to SE Cor "C" then
200 ft.	due north to NE Cor "C" then
100 ft.	due west to NW Cor "C" then
200 ft.	due south to SW Cor "C".

From Origin:
3890 ft. due north and
4145 ft. due east to SE Cor "D" then
200 ft. due north to NE Cor "D" then
100 ft. due west to NW Cor "D" then
200 ft. due south to SW Cor "D".

From Origin:
1985 ft. due north and
4190 ft. due east to SE Cor "E" then
200 ft. N30°E to NE Cor "E" then
100 ft. N60°W to NW Cor "E" then
200 ft. S30°W to SW Cor "E".

From Origin:
9380 ft. due north and
7890 ft. due east to NE Cor "F" then
100 ft. N75°W to NW Cor "F" then
200 ft. S15°W to SW Cor "F" then
100 ft. S75°E to SE Cor "F".

From Origin:
3735 ft. due north and
4335 ft. due east to NW Cor "G" then
200 ft. due south to SW Cor "G" then
100 ft. due east to SE Cor "G" then
200 ft. due north to NE Cor "G"

From Origin:
4620 ft. due north and
5975 ft. due east to SE Cor "H" then
200 ft. N45°E to NE Cor "H" then
100 ft. N45°W to NW Cor "H" then
200 ft. S45°W to SW Cor "H".

From Origin:
2025 ft. due north and
770 ft. due west to NW Cor "I" then
200 ft. due south to SW Cor "I" then
100 ft. due east to SE Cor "I" then
200 ft. due north to NE Cor "I".

From Origin:
7210 ft. due north and
840 ft. due east to NE Cor "J" then
200 ft. due west to NW Cor "J" then
100 ft. due south to SW Cor "J" then
200 ft. due east to SE Cor "J" .

From Origin:
3760 ft. due north and
2890 ft. due east to SW Cor "K" then
100 ft. due east to SE Cor "K" then
200 ft. due north to NE Cor "K" then
100 ft. due west to NW Cor "K".

II. DETAILS OF WORK

As of the date of this application, a rig with the following specifications has not been secured, but contacts are in progress with drilling contractors for equipment sufficient to meet all requirements for drilling, testing and completion of a test well with complete safety for personnel and equipment. An addendum listing the actual equipment to be used will be sent to the USGS as soon as possible after obtaining a drilling contract.

A. TYPICAL RIG LAYOUT - See Exhibit "B".

B. TYPICAL RIG SPECIFICATIONS - See Exhibit "C".

C. BLOWOUT EQUIPMENT DETAIL - See Exhibits "D" through "F".

D. SURVEYS AND BENCH MARKS

The immediate area involving this proposed Plan of Operation is one in which the section corners have not been established and section-line roads and quarter-corner markers are non-existent. The bench markers that have been emplaced are the points from which the surveyed well-site coordinates are measured. Base map and grid control will be from parts of four 15 minute USGS quadrangles (Fallon, Carson Lake, Weber Reservoir and Allen Springs) expanded to a scale of 1" = 2,000 feet. See Figure I.

Following field inspection of the proposed locations by the USGS and others, and any subsequent change in the proposed locations herein, the revised locations will be resurveyed with the results sent to the regulatory bodies as an addendum to complete the Plan of Operation. Any additional bench marks or surveys recommended by the Geothermal Supervisor will be established in accordance with his recommendations.

Existing bench marks will be used for location and elevation control and will not be disturbed by the exploration operations in any way.

The following section corners have been located:

N1/4-SEC4-T16N-R29E
NE Cor Sec 4-T16N-R29E
NE Cor Sec 3-T16N-R29E
SW Cor Sec 33-T17N-R29E
SW Cor Sec 34-T17N-R29E

The following elevation benchmarks have been located:

BM 3924 Sec 4-T15N-R29E
BM 3948 Sec 33-T16N-R29E
BM 4010 Sec 33-T16N-R29E
BM 4027 Sec 28-T16N-R29E
BM 4034 Sec 22-T16N-R29E
BM 4112 Sec 17-T16N-R29E
BM 3960 Sec 13-T16N-R29E
BM 3930 Sec 6-T16N-R29E
BM 3912 Sec 6-T16N-R29E
BM 3929 Sec 1-T16N-R29E

"Brass Cap" highway benchmarks occur at approximately .25 mile intervals along Highway 95.

E. PROPOSED DRILLING AND CASING DETAIL PROGRAM

1. Drill 26"± hole to 40'. Run and set 20" O.D. conductor pipe and cement the annulus with ready mix from the shoe to the surface. The pipe weight, grade and coupling will depend on availability.

2. Drill a 17 1/2" hole to 300'±. Run logs according to logging program. Run and cement to the surface 13 3/8" 54.5# K-55 buttress threaded, range 3 casing. Use a guide shoe, a float collar on top of the first joint, centralizers on the bottom three joints and every other joint to the surface. Weld the shoe and the top and botton of the first three joints.

3. Cement through the shoe with sufficient volume for surface returns using a slurry comprised of Class G cement mixed 1:1 with perlite, plus 40% silica flour, 3% gel, 0.5% friction reducer, and retarder as dictated by hole temperature. Use 1.30 cu. ft. of water per sack of cement to obtain a slurry yield of 2.12 cu. ft. per sack of cement and a weight of 100 lbs. per cu. ft.

4. Cut off the casing and weld on a 12" Ser. 900 flange and two XH couplings for side outlets. Install a Ser. 900 Hydril BOP (Exhibit D) and test the casing and BOP to 500 psi for 30 minutes before drilling out cement. Driller is to record and initial on the tour sheets the results of all pressure tests.

5. Drill 12 1/4" hole to 700'±. Condition the hole and run logs in accordance with the logging program. Run and cement to the surface 9 5/8" 40# N-80 buttress threaded, range 3 casing. Equip the casing with a guide shoe, a float collar on top of the first joint, centralizers on each of the bottom three joints and every other joint to the surface weld the shoe and the top and bottom of the next three collars.

6. Cement through the shoe with sufficient cement for surface returns using the same cement slurry as that for the surface casing.

7. Remove the BOPE and cut off the 13 3/8" casing below the side outlets. Install a 10" Ser. 600 casing head with 3" flanged side outlets. Install a 10" Ser. 600 steam valve and a 3000 psi BOPE stack consisting of blind and pipe rams plus a Hydril (See Exhibit E). Test the casing and BOPE to 1000 psi for 30 minutes. Notify the USGS if they wish to witness the test.

8. Drill 8 3/4" hole to 3000±. Coring and formaton testing will be conducted as warranted (See Logging & Testing Program).

Drilling Fluids

It is intended that the proposed hole will be drilled with mud to T.D. However, if curcumstances prevent doing so or should conditions exist making air or foam drilling more desirable, a compressor package may be employed using a BOPE stack depicted in Exhibit F.

Drill fluid plan (minimum weight to T.D.)

Depth	Materials	Viscosity	Water Loss
0' - 40'	Dry drilling or gel and water	55-65	no control
40' - 300'	Gel & water	55-65	no control
300' - 700'	Gel & water	45-55	no control
700' - 3000'	Gel & water	45-55	10 - 15 cc API

Add causticized lignite as dictated by hole temperature to control viscosity. Add Cypan for water loss control. Maintain an adequate supply of lost circulation material on hand at all times.

Hole Deviation

Run drift surveys on dull bits. Make all reasonable efforts to keep the average hole angle 5° or less. Run maximum recording thermometers in conjunction with drift shots.

Blowout Prevention Equipment & Precautions

a. Use a float while drilling.

b. Maintain in open position on rig floor a full opening safety valve that can be screwed quickly on drill pipe being used at the time.

c. A kelly cock is required between kelly and swivel.

Other:

Test BOPE once each trip for blind and pipe rams but not less than once each day for pipe rams; and at least once each week on the drill pipe for the Hydril. Inspect at least weekly all auxiliary control systems and maintain clean and clearly labeled controls. A blowout prevention drill shall be conducted weekly for each drilling crew. All blowout prevention tests and crew drills shall be recorded in the tour sheets.

Casing Safety Factors

20" Conductor Pipe - not subjected to pressure.

Surface Casing - 13 3/8" 54.5# K-55 buttress, set at 300'.

	Collapse (1)	Tension (2)	Burst (3)
Safety factor:	7.5	52	5.5

Protective Casing - 9 5/8" 40# N-80 buttress, set at 700'.

	Collapse (1)	Tension (2)	Burst (4)
Safety factor:	8.8	33	5.8

(1) Based upon empty casing with an external mud gradient of 0.5 psi per foot.
(2) Based on pipe body strength and full length of pipe suspended in air.
(3) Based on a maximum surface pressure of 500 psi.
(4) Based on a maximum surface pressure of 1000 psi.

F. LOGGING AND TESTING PROGRAM

Logging:

A well-site geologist will log the hole from surface to T.D. Electric-wireline logs will be run from T.D. to the shoe of the conductor pipe as deemed appropriate under existing wellbore conditions.

Testing:

Tests to evaluate the temperature, fluid content and composition, porosity, permeability, and productive capability will be conducted as deemed appropriate under existing well bore conditions both during the drilling and continued-observation phases of the program. Additional tests to determine the reliability of geophysical techniques may also be conducted.

G. OPTIONAL PROCEDURES FOR DRILLING AND TESTING ACTIVITIES

During drilling operations, hole conditions may suggest changes which require alternate procedures to further gain an insight to the geological and geophysical conditions. To gain such insight it may be desirable to conduct one or more of the following activities for further evaluation of the geothermal resource.

Activites deemed normal for drilling operations include:

1. Taking cores.
2. Plugging back.
3. Redrilling.
4. Perforating.
5. Running liners to seal off conate waters or to maintain integrity of hole.
6. Side Tracking.
7. Running tubing.
8. Setting packers.
9. Conducting flow test of short duration to determine flow characteristics.
10. Running a series of wireline electrical and temperature surveys for evaluation purposes.
11. Setting cement plugs.
12. Plugging and abandonment.

H. TOPOGRAPHIC FEATURES AND DRAINAGE PATTERNS

The immediate area of this proposed plan of action lies within an intermontane valley of typical Nevada basin-range physiography, six miles south of the southern limit of a very large, flat basin known as the Carson sink. The area is covered by eolian sand which has subdued the rolling relief of mature, coalescing alluvial fans which enter the basin from the north, west, and south. Except for the hills of Tertiary basalt and other flows to the north, west and south, no bedrock outcrops within the area except for a singular tufacovered granitic hill in the center of the area. Surface slopes in the area average 2 ft. per 100 ft. or less.

Two intermittent, secondary drainages start in and flow out of the area of interest. The maximum drainage area serviced by each of these washes is 4.9 and 8. sq. miles. There has been no significant downward channel-cutting, and the washes contain water only immediately following the most severe rainfalls. The bed load of these washes is poorly sorted, rounded, lithic-fragments of nearby bedrock ranging in size from sand to cobbles.

The semi-arid climate and eolian sand discourage plant growth. A soil layer has not been established on the present topographic surface. The most common types of plants are sagebrush and rabbit brush 1-2 ft. high, spaced 2 to 6 ft. apart with minor grass. A cottonwood and several tamarisk grow in the drainage of a flowing well.

Very little wildlife was seen during a 4 week observation period. Rattlesnakes, lizards, and small rodents occupy sagebrush areas. Cottontail and jack rabbits and a few blackbirds have been noted in the immediate vicinity of the flowing well. No varmits, predators, or other animals or birds have been seen.

Since geologic targets in this area are only generally located, all prospective well sites have been staked with the intention of minimizing environmental impact. All eleven (11) locations are adjacent to existing, well established roads. In order to minimize erosion and surface degradation, sites have been chosen on flat or only slightly sloping alluvial material with a minimum of vegetative cover. Each area was scanned for possible archeological sites with uniformly negative results, but an expert has been retained to confirm this finding. Facts pertaining to individual sites are listed below.

Sites "A" and "B"

These locations are within 150 ft. of each other on an alluvial fan which slopes SSE at 1 ft./100 ft. Both are accessible by an existing improved, graded road. Location "B" has been staked such that the drillsite will not be closer than 100 ft. from the lease boundary. However, location "A" which borders on the lease line was staked because the drillsite can be entirely contained in an unused gravel pit at this location. The bottom of the 6 ft. deep pit is graded smooth. The ground elevation is 3960 ft. above MSL.

Sites "D", "G", & "K"

Sites "D" and "G" are within an area where warm and hot waters have been found to occur within buried channel gravels at subsurface depths of 4 to 30 ft. Water will rise under artesian pressure to within 4 ft. below ground surface in these areas. Lateral flow has very abrupt boundaries, as these water occurrences are unpredictable and extremely localized. Site "K" may be underlain by similar aquifers, although no discovery pits to 6 ft. depth in this area have uncovered any subsurface water.

Site "E"

This area slopes uniformly to the north at 3 ft./100 t. It is in a basin of blown sand, which is partly stabilized by vegetation. The site itself is in a deflation pocket in which the sand depth is 0 to 1 ft. Beneath the sand is consolidated, compacted stratum of sand and/or alluvial material.

Sites "F" & "H"

Both of these sites are on hard pan. The hard pan is the result of silt deposition within two separate and very slight basins within one drainage. Site "F" is flat and barren of vegetation. Site "H" is somewhat covered by vegetation which traps blown sand in small piles around the bushes, but is otherwise flat.

Sites "C", "I", & "J"

These locations are all normal pediment surfaces, sparsely vegetated and with no distinguishing features.

III. EXISTING AND PLANNED ACCESS AND LATERAL ROADS

A map of the proposed well location is shown on Exhibit "A-1" and Figure I. Existing roads and trails will be used for access to the well sites. New road construction will not be necessary to complete access from the nearest roadways, which will minimize any unnecessary surface disturbance. The existing roads and trails may require some degree of improvement. Any necessary road work will comply with the BLM and USGS specifications.

IV. CULTURAL RESOURCES PRESERVATION

As required under GRO-4, to protect and preserve the cultural and archaeological inventory in the areas to be disturbed for any roads and drill sites, an approved competent archaeologist, will be engaged to examine the lands involved in this Plan of Operations. His report and exhibits, if any, will be an addendum to be attached to this proposal when the study is finished. Any area which might prove to be a part of the cultural inventory will be mitigated by adjusting the drill sites to less senstive coordinates.

All water to be used in the drilling operations will be acquired from wells in the Carson Lake area. The exact source will be determined after obtaining analyses of various water sources for compatibility with cement, etc. Any additional supplies, such as road improving materials, will also be purchased from local contractors, using approved sources of supply.

V. LOCATION OF CAMPSITES, AIRSTRIPS AND OTHER SUPPORTING FACILIITES

There is no need for any of these facilities to be constructed in the current Plan of Operations, and none are being contemplated. Drilling supplies, pipe and equipment will be stored at the well site and in Fallon, Nevada as required.

VI. LAND USE AND RESTORATION

A. ADDITIONAL AREAS OF SURFACE DISTURBANCE

In addition to access roads and drill pads, there are other areas which may have potential surface disturbance. These are down-dip drainages from the rig site, which could receive overflows of fluids from liquid dominant reservoirs under the highly unlikely possibility of an uncontrolled blowout. These areas would require dikes of earthen fill temporarily, and in this unforeseen event, additional berms would be constructed to contain superfluous fluids. At the conclusion of any site usage, a restoration program, including obliterating and revegetating of any surface disturbances resulting from the operations will be done in conjunction with the appropriate governmental agency.

B. POLLUTION OF SURFACE AND GROUNDWATERS

All fluids utilized or produced at the rig site will be controlled and stored in pits constructed in accordance with USGS requirements to avoid any contamination. After settling of solids, the fluids will be drained off and used to keep down dust on the roads and rig site with permission to do so as required. Any produced fluids will not be allowed to enter natural drainages without expressed permission from the regulatory agencies. Drilling fluids will be non-toxic.

C. DAMAGE TO FISH AND WILDLIFE

All surface disturbance will be kept to a minimum to limit destruction of wildlife habitat. There are no streams or lakes nearby which would suffer contamination and no fish which might be endangered as a result. Well discharge lines will be directed away from nearby vegetation to prevent injury or contamination.

D. NOISE AND AIR POLLUTION

Occidental Geothermal, Inc. will control noice levels and air emissions from operations in accordance with federal and state quality standards, and any locally imposed standards. The area is uninhabited, and noise would not be a nuisance factor.

Mufflers will be used on rig engines and compressors as standard equipment. Any testing of steam or effluents from the well will be under muffling devises designed by the best technology available as may be required under the circumstances.

E. HAZARDS TO PUBLIC HEALTH AND SAFETY

1. Access to and around the drilling rig and assessory equipment will be strictly regulated by authorized personnel of Occidental Geothermal, Inc.

2. A normal compliment of safety and accident prevention equipment will be available at all times.

3. All rig personnel will be familiarized with geothermal operations and associated hazards.

4. Any usage or occurrence of toxic substances will be noted and immediate response for safety of personnel will be taken.

VII. SOIL EROSION AND SUBSIDENCE

Any new roadway, grading, leveling or pad construction will be designed to prevent erosion or degradation of the surface. Care will be taken to avoid scarring or removal of excessive ground cover. Vehicular travel by rig personnel, company operatives and other authorized persons will be confined to existing roads and trails. Any upgrading of roads shall be done in accordance with local and county road standards, which might include the installation of culverts, construction of drainage ditches and gravelling or capping the road bed. Any soil disturbance will be returned as near to original state as is reasonably possible. Pits will be allowed to settle out before the final backfill.

This plan of Operation covers only exploratory and observation activities where only very modest quantities of fluids might be produced from beneath the earth's surface, and therefore susidence will not be an associated problem.

VIII. SUMPS AND PITS

All excavated materials from the cellar, sumps and rig-site leveling will be utilized in the construction of the berms around these features. These berms will be tamped to conform with good engineering practices, and leveled across the top to blend in with surroundings as near as possible. Any material left over from construction of the berms or from pad leveling will be stockpiled in an area adjacent to the drill pad and within the confines of the well-site boundaries. This material will be used later to backfill or restore to original the grades of excavations as needed. Contamination of the ground water resources will be avoided through the use of bentonitic drilling fluids containing no toxic materials. Sumps will be constructed in accordance with USGS requirements. Any hazardous unused or vacant pits will be fenced to protect wildlife or livestock. A program of backfilling and restoration will ultimately be proposed after a reasonable evaluation period.

IX. WASTE DISPOSAL INCLUDING LIQUIDS, SOLIDS, TRASH AND HUMAN WASTE

A sump will be located adjacent to the drilling pad and all fluids not contained in steel tanks will be contained in this pit. See Exhibit "B". The sump will be constructed to USGS specifications to prevent any adverse conditions. The drilled solids will be allowed to settle out and will be buried after the pit dries and is reclaimed. Garbage and other foreign materials will be deposited at an authorized dump. Excess fluids that are compatable with the environment will be used as dust inhibiters on the roads. All waste materials will be handled and disposed of in accordance with government regualtions.

During any testing operations, effluents produced as liquids during flow tests to determine reservoir characteristics will be confined to the sump. After drying, any residue will be buried before reclaiming the pit. Any steam which is flashed during testing (Est. 15-20%), will be vented to the atmosphere. It is expected that only flow tests of short duration, which would be limited to the capacity of the sump, would be carried out at this time. Any long-term testing would require an injection program.

X. PROTECTION OF THE ENVIRONMENT

A. FIRE PREVENTION

All brush and vegetation will be disposed of in a manner compatible with the Bureau of Land Management and U.S. Geological Survey regulations. Every reasonable effort will be made to avoid spillage of inflammable materials. Fire-fighting equipment will be located at the proposed well sites. Exhaust stacks from all engines will

be equipped with spark arrestors or built-in water cooled exhaust systems for spark control. All efforts will be taken to control and suppress fires started in or near Occidental Geothermal, Inc. operations. The authorized officer shall be informed as soon as possible of all fires in the rig area.

B. HYDROGEN SULFIDE CONTINGENCY PLAN

General Information

Occidental Geothermal, Inc. recognizes there is a remote chance that hydrogen sulfide gas could be encountered in the proposed wells. Although the presence of this toxic gas is not detectable by smell near the springs or wells located within two miles of the proposed well sites, Occidental will be prepared to protect all personnel in the event dangerous amounts of hydrogen sulfide are detected. The wells will be drilled using accepted drilling practices, including keeping an overbalance of hydrostatic pressure upon any zones that might contribute H_2S. If hydrogen sulfide gas were present in some zone penetrated by the well, and if lost circulation should then occur, it is possible that hydrogen sulfide could reach the surface. Should condition so warrant, complete containment of H_2S is provided through the use of the blowout equipment on the well.

Operating Procedures in Presence of Hydrogen Sulfide

If H_2S is detected, stop drilling and shut down the pump to determine if well is flowing. If so, weight up the mud system and control the kick keeping all unnecessary personnel up-wind and away from the rig activities. Under no conditions is drilling to be continued if the H_2S content is greater than 20 ppm. Should control of H_2S below 20 ppm not be possible, the well will be abandoned in accordance with USGS specifications.

If the well does not flow when the pump is shut down, circulate bottoms up through the choke line while monitoring H_2S concentrations, with personnel at an up-wind location. Resume drilling only when H_2S level is below 20 ppm.

The concentration of H_2S will be determined through the use of a Bendix Precision Gas Detector (N.I.O.S.H. #4LL TC-84-020) or equivalent. An audio-visual alarm will be installed on the mud system for early warning.

TOXIC EFFECTS OF HYDROGEN SULFIDE

ppm	%	0 to 2 minutes	15 to 30 minutes	30 minutes to 1 hours
10	0.001	Detectable by "rotton-egg" smell.	Detectable	Detectable. Maximum allowable concentration for 8-hour exposure without protective mask.

TOXIC EFFECTS OF HYDROGEN SULFIDE (Cont'd.)

ppm	%	0 to 2 minutes	15 to 30 minutes	30 minutes to 1 hours
100	0.01	Coughing, slight irritation of eyes. Loss of sense of smell.	Disturbed respiration. Pain in eyes. Sleepiness.	Throat and eye irritation
250	0.025	Loss of sense of smell.	Throat and eye irritation.	Throat and eye irritation.
350	0.035	Irritation of eyes. Loss of sense of smell.	Irritation of eyes and respiratory tract.	Painful secretion of tears, weariness; may cause death in longer exposure.
450	0.045	Irritation of eyes. Loss of sense of smell.	Difficult respiration. Irritation of eyes.	Increased irritation of eyes and nasal tract. Dull headache. Serious respiratory disturbances.
900	0.09	Coughing, unconsciousness. Serious respiratory disturbances.	Respiratory disturbances. Eye irritation. Unconsciousness.	Serious eye irritation. Slow pulse, rapid shallow breathing. Respiratory paralysis, convulsions, asphyxis and death.
1000	0.10	Unconsciousness.	Death	Death.

C. LIST OF MEDICAL DOCTORS, HOSPITALS, AND AMBULANCE SERVICES

Doctors

Darius F. Caffaratti, MD, 395 W. Williams, Fallon 423-3126
V. E. Elliott, MD, 395 W. Williams, Fallon 423-3126

Hospitals

Churchill Public Hospital, 155 N. Taylor, Fallon 423-3151
St. Mary's Hospital, 235 W. 6th, Reno 323-2041

Ambulances

Ground - Emergency - dial 911 or Naval Air Station 423-2410
Aids Ambulance, 395 S. Wells Ave., Reno 329-1144
Ambulance Service Co. Sierra, 395 S. Wells Ave., Reno 323-3123

Air - Aviation Services Inc., 1880 Gentry Way, Reno 825-6400
Air Nevada, 2601 E. Plumb Lane, Reno 329-1660

D. UNCONTROLLED BLOWOUT AND CONTINGENCY PLAN

An uncontrolled blowout can occur as a result of the loss of control or means to shut-in a well if a substantial flow of steam or fluid

is encountered in the bore hole with sufficient pressure to temporarily render the blowout equipment ineffective or inoperative. When this occurs, the person in charge of the drilling operations will immediately notify the Occidental Geothermal, Inc. Drilling Supervisor. If the flow cannot be contained, the Supervisor will take the following action:

1. Arrange for any injured persons to be dispatched to the nearest medical facility (see list of doctors, hospitals and ambulances above).

2. Put into motion plans for containment or confinement of the flow.

3. See that all access roads are secured to prevent entry to the drillsite of unauthorized persons.

4. Report the situation to the Drilling Superintendent who will follow the same procedure as outlined in the Major Spill Contingency Plan.

5. Notify "Wild Well Control" specialists and apprise them of the problem:

   Red Adair Company, Inc.
   Houston, Texas

   (713) 526-4717
   (713) 562-1602

6. Construct sumps or dikes to contain fluid flow if necessary.

7. Attempt to control well with rig personnel.

8. Attempt to remove any damaged wellhead facility or blowout prevention equipment and install operable equipment.

9. If contractor's personnel is unable to contain flow, notify "Wild Well Control" specialists.

10. Maintain an inspection of the drillsite for any erosion that could undermine the rig structure.

11. After the flow has been contained, proceed with operations as appropriate.

Injuries

In the event of injuries that may occur, connected with this operation, Occidental Geothermal procedures will be followed, with specific and immediate attention given to proper ground and/or air

transportation to a medical facility as required.

Refer to list of Medical Doctors, Hospitals and Ambulance Services for emergency phone numbers.

Copies of accident reports from Occidental Geothermal, Inc. and/or the contractor employing the injured individual will be submitted to the Nevada State Health Department and other organizations, as required.

E. SPILL PROGRAM AND CONTINGENCY PLANS

Introduction

The Allen Springs Prospect is located approximately 19 miles south of Fallon, Nevada in an unpopulated area of generally gentle sloping terrain encompassing several hills rising 200'± above the surroundings. Aside from prospecting pits, there is no apparent use of these leased lands other than roads for transportation to other areas. There is a trailer within 50 yards of the Lee Hot Springs well which is periodically occupied by a prospector.

1. Types of Potential Spills in Geothermal Drilling and Producing Operations

a. Drilling Fluids (Mud):

These are a mixture of water, bentonite and chemicals used in drilling operations. Mud is pumped down the drill pipe, through the bit, and carries drilled cuttings to the surface. The cuttings are screened out and the mud recirculated. A small amount of mud is dumped into the sump, along with the drilled cuttings and small quantities of water used to wash down the rig floor, etc. The sump is designed large enough to contain all cuttings, mud and water that will accumulate during the drilling of the well. The sump is an earthen pit used to confine the above materials and prevents contamination and any adverse environmental effects. The sump is positioned in such a manner as to prevent flooding by runoff water from a heavy rainstorm. See Exhibit "B".

Although the danger is slight, a spill could occur by the sump overflowing, the wall breaking or through fluid seepage. Some mud is spilled onto the area immediately around the well bore during normal drilling operations, but these volumes are small. A spill could occur if circulation were lost at a very shallow depth and mud channeled back to the surface, but is highly unlikely in this terrain.

b. Fuel Oil:

Any spillage from fuel oil delivery trucks, fuel oil storage tanks or fuel lines would be extremely small.

c. Lubricating Oils and Other Petroleum Products:

There is often some accumulation of lubricating oil associate with stationary engines and machinery at the drillsite. There may be some leakage from earth-moving equipment when and if used to build the drillsites and work on access roads.

2. Possible Water Quality Affects (from above types of spills)

a. Condensate or Drilling Muds

(1) Contaminate water, possibly making it unsuitable for human or wildlife consumption.

(2) Possible detrimental affect to flora of area.

(3) Increase turbidity of water by particulates in fluid or by soil erosion.

b. Petroleum Products

(1) Contaminate water.

(2) Cover wildlife and plant life.

3. Plan for Clean-up and Abatement

In the event of discharges of condensate, drilling muds, or petroleum products, the overall contingency plan for the Allen Springs Prospect Area in Churchill County, Nevada, is a follows:

a. Have source of spill repaired at earliest practical time. Continue working crews, equipment and vacuum trucks on cleanup until USGS and BLM standards are satisfied.

b. The person responsible for the operation will make an immediate investigation, then call the Occidental Geothermal Drilling Supervisor and advise him of spill. The Occidental Drilling Supervisor will, in turn, call out appropriate equipment, regulate field operations, or do other work as applicable for control and clean-up of spill. If spill is small (i.e., less than 250 gallons) and easily containable without endangering watershed, the Occidental Drilling Supervisor will direct and supervise complete clean-up and return to normal operations.

c. If spill is larger than 250 gallons, or is not easily contained, or endangers or has entered watershed, the Occidental Drilling Supervisor will proceed to take

necessary action to curtail, contain and clean-up spill, and notify personnel as follows:

(1) Call out appropriate equipment, regulate field operations, etc.

(2) Call for contract vacuum trucks or water pump trucks.

(3) Any local resident. Phone number will be furnished after field operations begin.

(4) Call Occidental Drilling Superintendent and advise of spill.

Office: 805-327-7351
Home: 805-871-6009

d. Specific Procedures for Clean-up & Abatement (if spill is larger than 250 gallons)

(1) For Drilling Mud:

(a) Repair sump or contain with dikes.

(b) Haul pumpable liquid to another sump or to an approved disposal site.

(2) For Petroleum Products

(a) Contain spill with available manpower.

(b) Use absorbents and dispose of same in county-approved area.

e. Field personnel responsible for carrying out Overall Contingency Plan:

(1) Drilling Contractor Tool Pusher

(2) Occidental Geothermal, Inc.
Drilling Supervisor

(3) Occidental Geothermal, Inc.
Exploration Field Supervisor

(4) Outside contractors for crews and equipment:

Cats, Backhoes & Water Trucks
A & K Earth Movers, Inc.
1200 Auction Road, Fallon 423-4913

W.E.S. Construction Co.
1095 E 2nd, Reno 322-5405 or
972-0800 or
358-1753

Welding
Precision Automotive & Machine Shop
745 E. Stillwater, Fallon 423-2756

Vacuum Truck Service
Ember Enterprises
845 S. McLean Street, Fallon 423-4926

(5) Other available trucking and construction firms in the area, as required:

4. The Drilling Superintendent Will:

a. Notify by telephone the following agencies or regulatory bodies as soon as practical, and work closely with them in all phases of operations:

United States Geological Survey
District Geothermal Supervisor
63 Keystone Ave., Reno
Office: (702) 784-5676

Bureau of Land Management
District Manager
Department of the Interior
300 Booth, Reno
Office: (702) 784-5452

United States Geological Survey
Conservation Division - Western Region Area
Geothermal Supervisor
2465 East Bayshore
Suite 400 - Second Floor
Palo Alto, California 94303
(415) 323-8111, Ex. 2845

Nevada Fish and Game Department
1100 Valley Road, Reno (702) 784-6214

Any livestock owners or landowners, if spill affects stock or property.

b. Telephone notification shall be confirmed by the Drilling Superintendent in writing within two (2) weeks of telephone notification, containing:

(1) Reason for discharge or spillage.

(2) Duration and volume of discharge.

(3) Steps taken to correct problem.

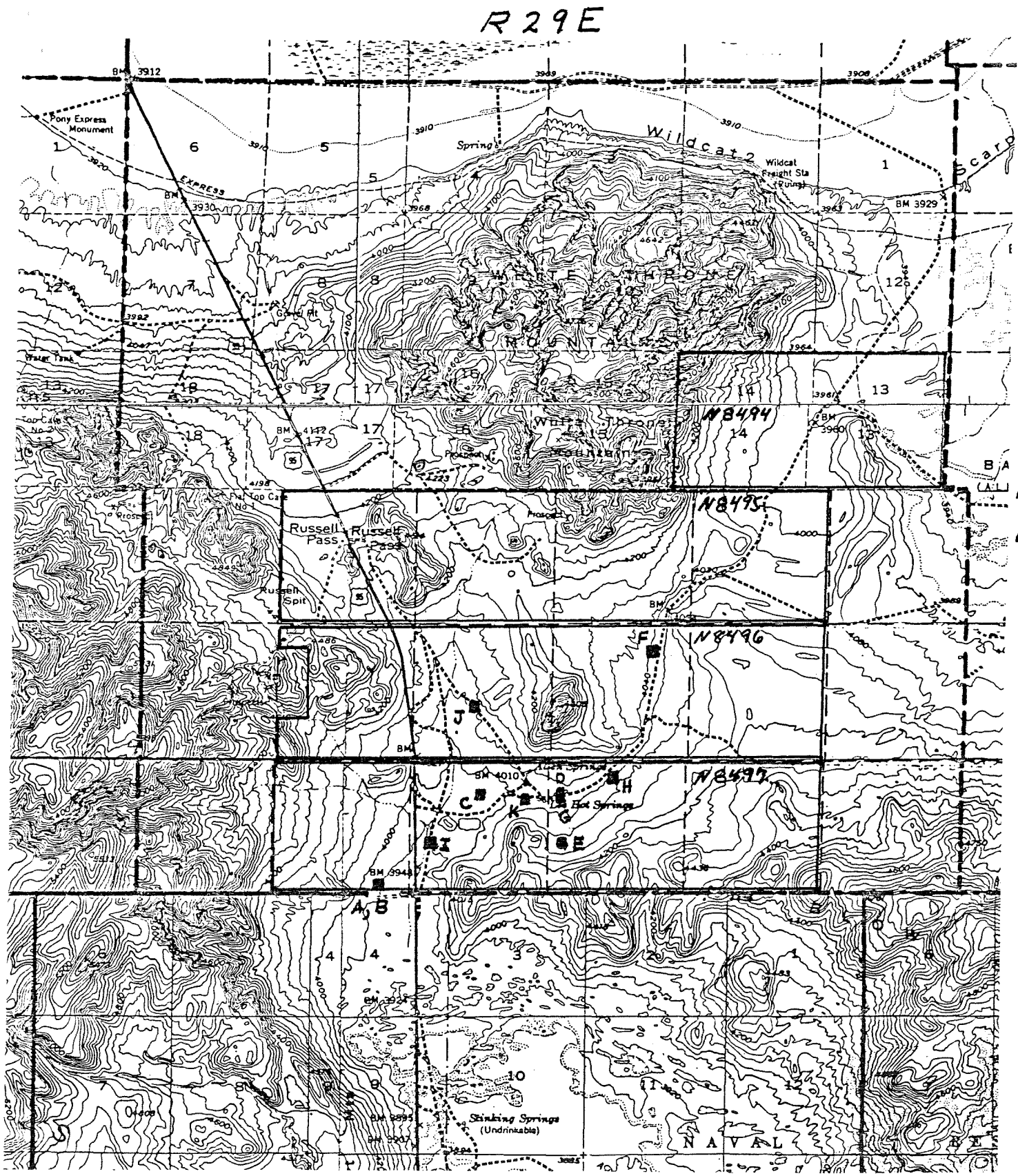
(4) Steps taken to prevent reoccurrence of problem.

XI. RESERVOIR DATA, PRESSURE AND TEMPERATURE REPORTS

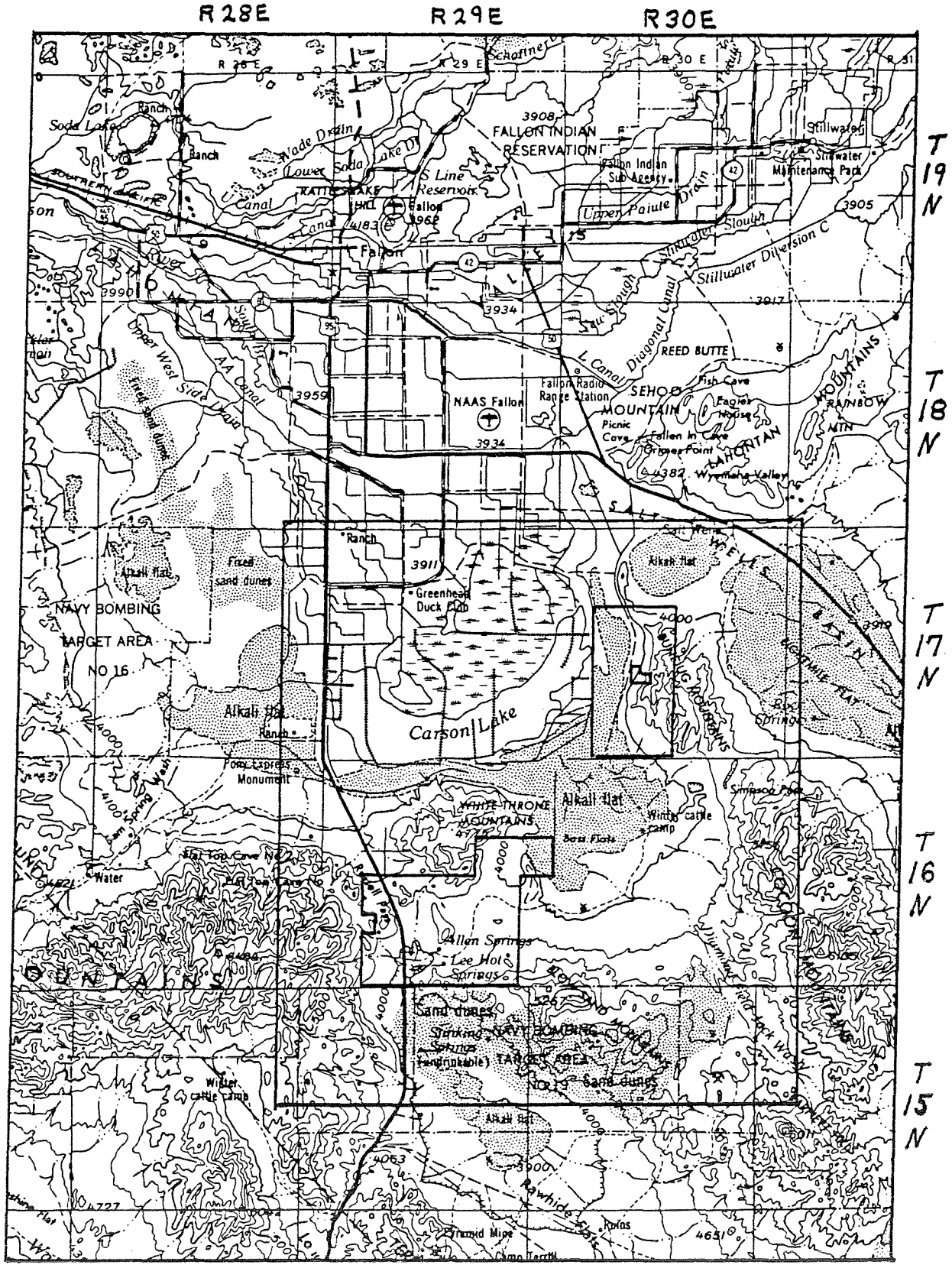
A record of the formations encountered, the thickness, lithologic characteristics and recorded temperatures, will be a part of the data-gathering process along with the initial results of any testing. All pressure data will be recorded, including the steam/water ratio, surface pressures and temperatures. This data, along with the quantity and quality of the steam and effluent from the well bore, will be reported immediately to the Supervisor within thirty (30) days after a well is completed. The Area Geothermal Supervisor will be notified of any cementing or testing operations in ample time to witness proposed operations, if he so desires.

XII. ABANDONMENT PROGRAM

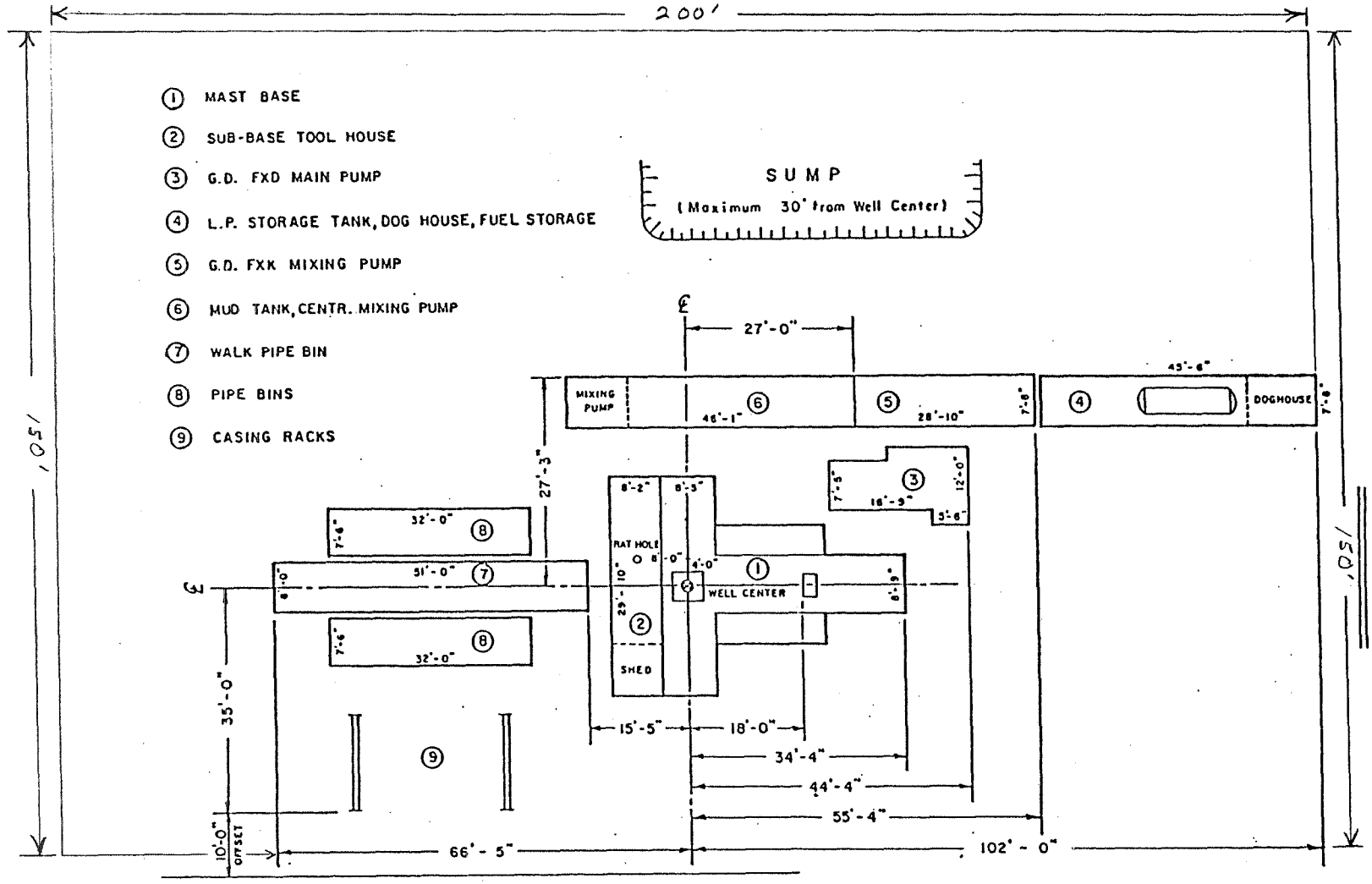
After drilling and testing operations are concluded, a detailed Abandonment Program, in accordance with CFR #270.45, will be initiated.



Occidental Geothermal, Inc.
Allen Springs Prospect
WELL LOCATIONS
Exhibit "A-1"



Occidental Geothermal, Inc.
ALLEN SPRINGS PROSPECT
Exhibit "A-2"



TYPICAL RIG LAYOUT
EXHIBIT "B"

KELLY BUSHING TO GROUND LEVEL 12.? FT.
16" RAT HOLE 34 FT. GROUND LEVEL

Exhibit "B"

TYPICAL RIG SPECIFICATIONS

EXHIBIT "C"

DRAWWORKS:	Unit 10 with automatic catheads powered by GMC 671 twin diesel.
PUMP #1:	Gardner Denver 7¼ x 16 FXQ powered by GMC 671 twin diesel.
PUMP #2:	Gardner Denver 7¼ x 14 FXK powered by GMC 671 twin diesel.
MAST:	Bender 96' 300,000# capacity.
SUBBASE:	Bender 9' 400,000# capacity. Reinforced for jacking casing.
FUEL:	Diesel. Storage 2,500 gals.
DRILLING RANGE:	7,000' with 4½" drill pipe. 7,500' with 3½" drill pipe.
ROTARY TABLE:	Oilwell 17½.
SWIVEL:	National #N-35.
TRAVELING BLOCK:	Emsco.
CROWN:	BENDER. 1" wire line.
WEIGHT INDICATOR:	Martin Decker-clipper.
GENERATOR:	Palmer 30kw powered by CAT D-315.
MUD SYSTEM:	Shaker tank with link belt shaker with Mission 6 x 8. Powered by GMC 471 diesel. Rigged to mix mud and use with 6 cone Pioneer desilter. 202 bbls. active system.
WATER OR MUD STORAGE:	200 bbls. hook up to rig system.

B.O.P.E. STACK
300' TO 700'

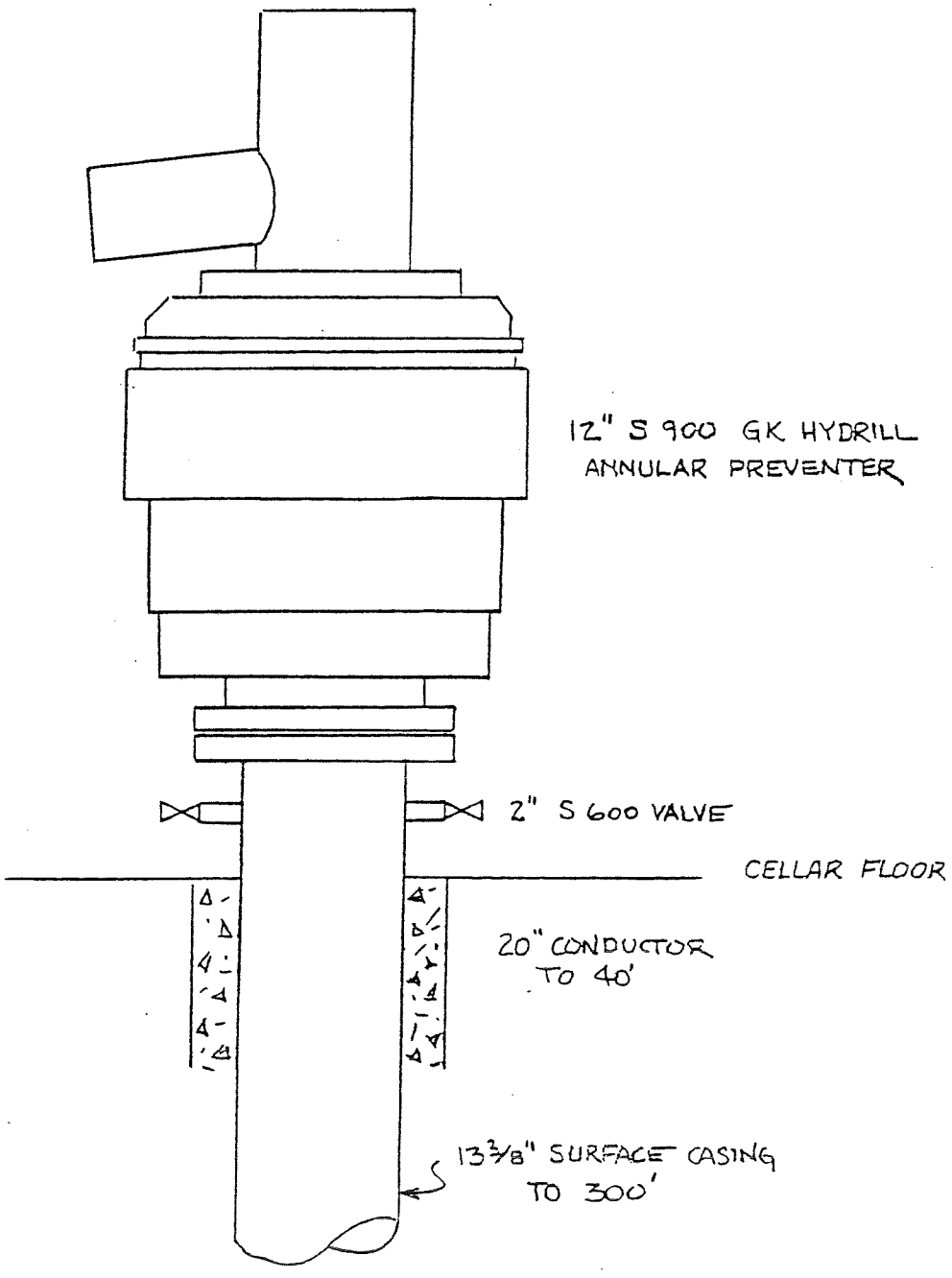


EXHIBIT "D"

B.O.P.E. STACK

MUD DRILLING
700' TO 3000'

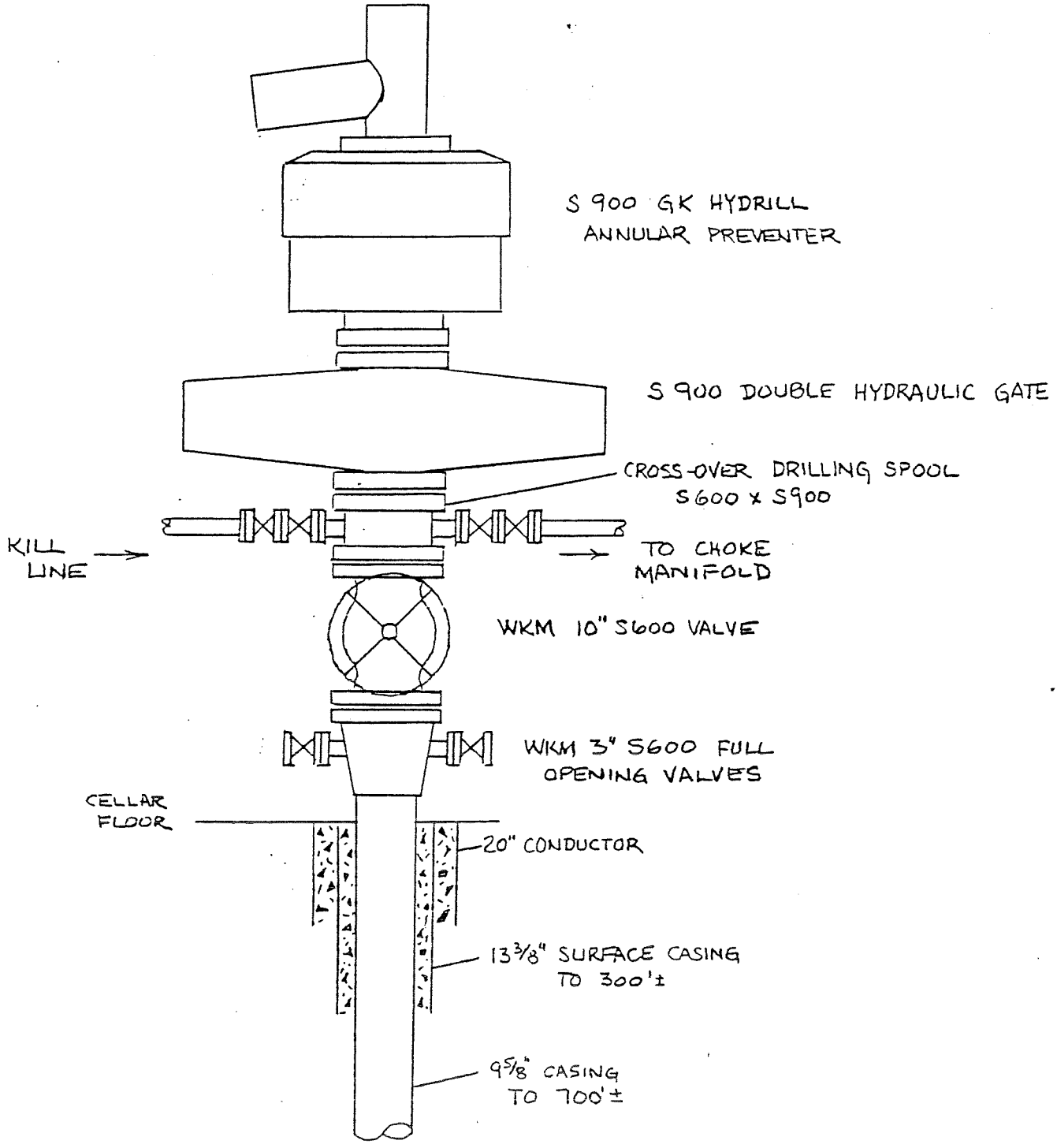


EXHIBIT "E"

B.O.P.E. STACK

FOR AIR DRLG.
BELOW 9 5/8" CSG.

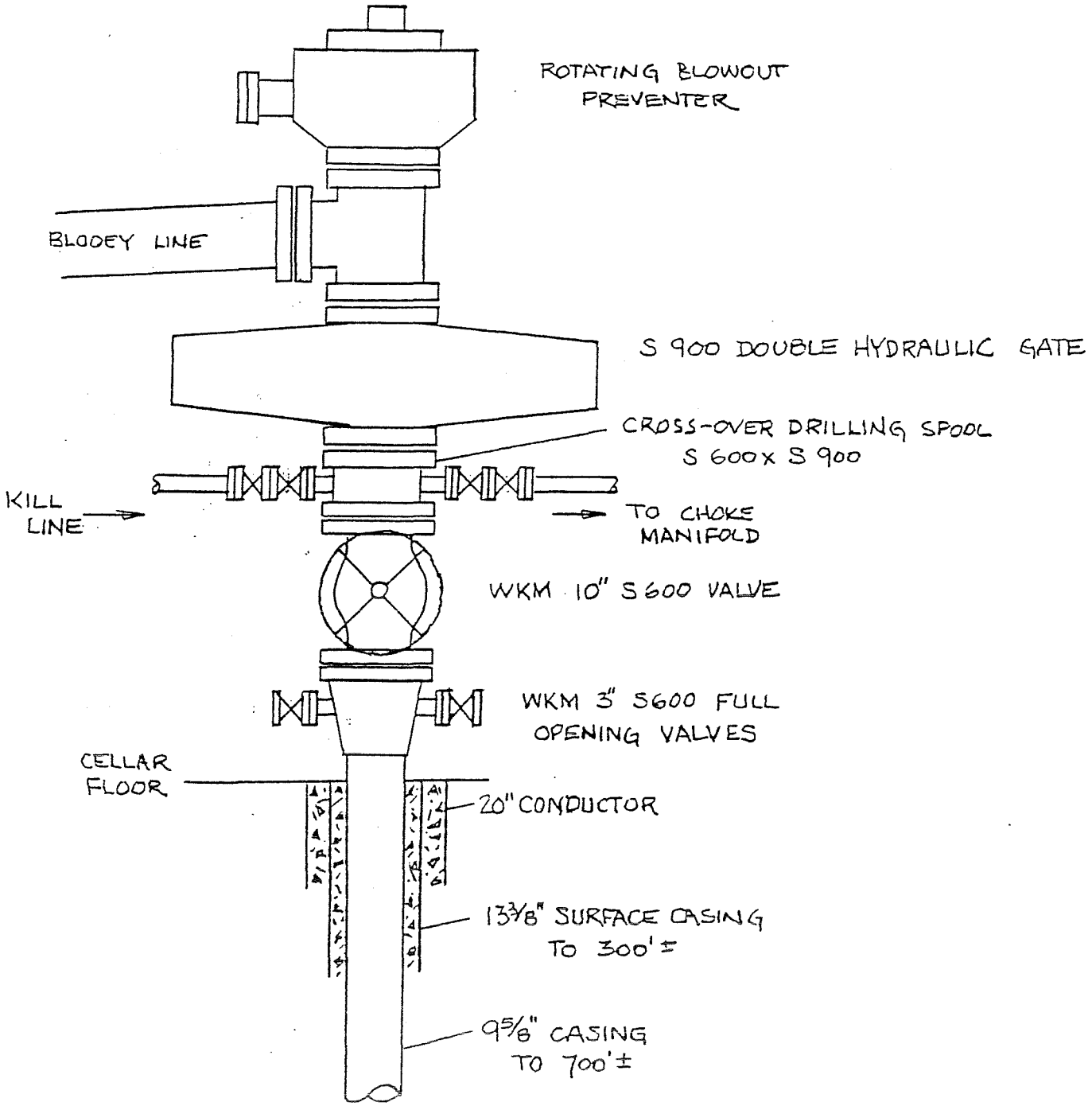


EXHIBIT "F"

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Occidental Geothermal, Inc.

3. ADDRESS OF OPERATOR
5000 Stockdale Hwy., Bakersfield, Cal. 93309

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
2560 ft. W. of NE Cor Sec 4 - T15N-R29E, MDPM
At proposed prod. zone
N.A.

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
19 miles south and east of Fallon, Nevada

5. LEASE DESIGNATION AND SERIAL NO.
N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
-

7. UNIT AGREEMENT NAME
-

8. FARM OR LEASE NAME
FEDERAL

9. WELL NO.
A

10. FIELD AND POOL, OR WILDCAT
Observation

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
S32-T16N-R29E MDM

12. COUNTY OR PARISH: Churchill
13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
50'	2560 ac	N.A.

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	19. PROPOSED DEPTH	20. ROTARY OR CABLE TOOLS
2800'	3000'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
4000'

22. APPROX. DATE WORK WILL START*
12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" conductor	whats avail.	40'	shoe to surface
17½"	13-3/8 surface	54.5# K55 Btrs.	300'	shoe to surface
12¼"	9-5/8" Protector	40#N80 Btrs.	700'	shoe to surface

Refer to plan of operations, proposed drilling program and casing details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED Malcolm A. Mossman TITLE Vice President DATE 10/14/77

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

7. UNIT AGREEMENT NAME: -

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME: Federal

2. NAME OF OPERATOR: Occidental Geothermal, Inc.

9. WELL NO.: B

3. ADDRESS OF OPERATOR: 5000 Stockdale Highway, Bakersfield, California 93309

10. FIELD AND POOL, OR WILDCAT: Observation

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 2220 ft. W. and 150 ft. N. of NE Cor Sec 4 - T15N-R29E MDPM
At proposed prod. zone: N.A.

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: S 32-T16N-R29E MDM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 19 miles south and east of Fallon, Nevada

12. COUNTY OR PARISH: Churchill 13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
150'	2560 ac	N.A.
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
2800'	3000'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 4000'

22. APPROX. DATE WORK WILL START*: 12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" conductor	whats avail.	40'	shoe to surface
17½"	13-3/8"surface	54.5#K55 Btrs.	300'	shoe to surface
12¼"	9-5/8" Protect.	40#N80 Btrs.	700'	shoe to surface

Refer to plan of operations, proposed drilling program and casing details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED Malcolm H. Mossman TITLE Vice President DATE 10/14/77

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CONDITIONS OF APPROVAL, IF ANY:

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Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Occidental Geothermal, Inc.

3. ADDRESS OF OPERATOR
5000 Stockdale Highway, Bakersfield, California 93309

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
3775 ft. north and 1085 ft. east of NE Cor Sec 4 T15N-R29E MDPM
At proposed prod. zone
N.A.

5. LEASE DESIGNATION AND SERIAL NO.
N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
-

7. UNIT AGREEMENT NAME
-

8. FARM OR LEASE NAME
Federal

9. WELL NO.
C

10. FIELD AND POOL, OR WILDCAT
Observation

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
S33-T16N-R29E MDM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
19 miles south and east of Fallon, Nevada

12. COUNTY OR PARISH: Churchill
13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1400'	2560 ac	N.A.
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
1000'	3000'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
3990'

22. APPROX. DATE WORK WILL START*
12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" conductor	whats avail.	40'	shoe to surface
17½"	13-3/8" surface	54.5#K55 Btrs.	300'	shoe to surface
12¼"	9-5/8" protector	40#N80 Btrs.	700'	shoe to surface

Refer to plan of operations, proposed drilling program and casing details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.
SIGNED Malcolm R. Mannon TITLE Vice President DATE 10/14/77

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CONDITIONS OF APPROVAL, IF ANY:

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(Other instructions on reverse side)

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DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Occidental Geothermal, Inc.

3. ADDRESS OF OPERATOR
5000 Stockdale Highway, Bakersfield, California 93309

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
3890' north and 414' southeast of NE Cor Sec 4
At proposed prod. zone
N.A. T15N-R29E, MDPM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
19 miles south and east of Fallon, Nevada

5. LEASE DESIGNATION AND SERIAL NO.
N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
-

7. UNIT AGREEMENT NAME
-

8. FARM OR LEASE NAME
Federal

9. WELL NO.
D

10. FIELD AND POOL, OR WILDCAT
Observation

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
S34-T16N-R29E MDM

12. COUNTY OR PARISH: Churchill 13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1500'	2560 ac	N.A.
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
100'	300'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
4040'

22. APPROX. DATE WORK WILL START*
12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"conductor	whats avail.	40'	shoe to surface
17½"	13-3/8"surface	54.5#K55 Btrs.	300'	shoe to surface
12-¼"	9-5/8"protector	40#N80 Btrs.	700'	shoe to surface

Refer to plan of operations, proposed drilling program and casing details.

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24.

SIGNED Malcolm H. Moore TITLE Vice President DATE 10/14/77

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(May 1963)

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Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [XX] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Occidental Geothermal, Inc.

3. ADDRESS OF OPERATOR
5000 Stockdale Highway, Bakersfield, California 93309

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
1985' north and 4190' east of NE Cor Sec 4
At proposed prod. zone
N.A.
T15N-R29E, MDPM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
19 miles south and east of Fallon, Nevada

5. LEASE DESIGNATION AND SERIAL NO.
N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
-

7. UNIT AGREEMENT NAME
-

8. FARM OR LEASE NAME
Federal

9. WELL NO.
E

10. FIELD AND POOL, OR WILDCAT
Observation

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
S34-T16N-R29E MDPM

12. COUNTY OR PARISH
Churchill

13. STATE
Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)
700'

16. NO. OF ACRES IN LEASE
2560 ac

17. NO. OF ACRES ASSIGNED TO THIS WELL
N.A.

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
800'

19. PROPOSED DEPTH
3000'

20. ROTARY OR CABLE TOOLS
Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
4100'

22. APPROX. DATE WORK WILL START*
12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" conductor	whats avail.	40'	shoe to surface
17½"	13-3/8" surface	54.5#K55Btrs.	300'	shoe to surface
12-¼"	9-5/8"protector	40#N80 Btrs.	700'	shoe to surface

Refer to plan of operations, proposed drilling program, and casing details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED Malcolm H. Moore TITLE Vice President DATE 10/14/77

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GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Occidental Geothermal, Inc.

3. ADDRESS OF OPERATOR
5000 Stockdale Highway, Bakersfield, California 93309

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
9380' north and 7890' east of NE Cor Sec 4 .
T15N-R29E, MDPM
At proposed prod. zone
N.A.

5. LEASE DESIGNATION AND SERIAL NO.
N-8496 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
-

7. UNIT AGREEMENT NAME
-

8. FARM OR LEASE NAME
Federal

9. WELL NO.
F

10. FIELD AND POOL, OR WILDCAT
Observation

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
S27-T16N-R29E MDPM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
19 miles south and east of Fallon, Nevada

12. COUNTY OR PARISH: Churchill
13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
2500'	2506 ac.	N.A.
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
1200'	3000'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
4030'

22. APPROX. DATE WORK WILL START*
12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"Conductor	Whats avail.	40'	shoe to surface
17½"	13-3/8"Surface	54.5#K55Btrs.	300'	shoe to surface
12¼"	9-5/8"Protector	40#N80 Btrs.	700'	shoe to surface

Refer to Plan of Operation, Proposed Drilling Program and Casing Details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED Malcolm K. Mosman TITLE Vice President DATE 10/14/77

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -

7. UNIT AGREEMENT NAME: -

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Geothermal SINGLE ZONE ☐ MULTIPLE ZONE ☐

8. FARM OR LEASE NAME: Federal

2. NAME OF OPERATOR: Occidental Geothermal, Inc.

9. WELL NO.: G

3. ADDRESS OF OPERATOR: 5000 Stockdale Highway, Bakersfield, California 93309

10. FIELD AND POOL, OR WILDCAT: Observation

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 3735' north and 4335' east of NE Cor Sec 4
At proposed prod. zone: N.A. T15N-R29E, MDPM

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: S34-T16N-R29E MDPM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 19 miles south and east of Fallon, Nevada

12. COUNTY OR PARISH: Churchill

13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1350'	2560 ac	N.A/
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
200'	3000'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 4040'

22. APPROX. DATE WORK WILL START*: 12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"Conductor	Whats Avail.	40'	shoe to surface
17½"	13-3/8"Surface	54.5#K55Btrs.	300'	shoe to surface
12¼"	9-5/8"Protector	40#N80 Btrs.	700'	shoe to surface

Refer to Plan of Operation, Proposed Drilling Program and Casing Details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED _____ TITLE Vice President DATE 10/14/77

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

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Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [XX] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Occidental Geothermal, Inc.

3. ADDRESS OF OPERATOR
5000 Stockdale, Bakersfield, Calfiornia 93309

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
4620'north and 5975'east of NE Cor Sec 4
At proposed prod. zone T15N-R29E, MDPM
N.A.

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
19 miles south and east of Fallon, Nevada

5. LEASE DESIGNATION AND SERIAL NO.
N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
-

7. UNIT AGREEMENT NAME
-

8. FARM OR LEASE NAME
Federal

9. WELL NO.
H

10. FIELD AND POOL, OR WILDCAT
Observation

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
S34-T16N-R29E MDPM

12. COUNTY OR PARISH: Churchill
13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1900'	2560 ac	N.A.
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
1000'	3000'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
4030'

22. APPROX. DATE WORK WILL START*
12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"Conductor	Whats avail.	40'	shoe to surface
17½"	13-3/8"Surface	54.5#K55Btrs.	300'	shoe to surface
12¼"	9-5/8"Protector	40#N80 Btrs.	700'	shoe to surface

Refer to Plan of Operations, Proposed Drilling Program and Casing Details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED [signature] TITLE Vice President DATE 10/14/77

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

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(May 1963)

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Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL [XX] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: Occidental Geothermal, Inc.

3. ADDRESS OF OPERATOR: 5000 Stockdale Highway, Bakersfield, California 93309

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 2025' north and 770' west of NE Cor Sec 4
At proposed prod. zone: N.A. T15N-R29E, MDPM

5. LEASE DESIGNATION AND SERIAL NO.: N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -

7. UNIT AGREEMENT NAME: -

8. FARM OR LEASE NAME: Federal

9. WELL NO.: I

10. FIELD AND POOL, OR WILDCAT: Observation

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: S33-T16N-R29E MDPM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 19 miles south and east of Fallon, Nevada

12. COUNTY OR PARISH: Churchill

13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 800'

16. NO. OF ACRES IN LEASE: 2560 ac.

17. NO. OF ACRES ASSIGNED TO THIS WELL: N.A.

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 1800'

19. PROPOSED DEPTH: 3000'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3960'

22. APPROX. DATE WORK WILL START*: 12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" Conductor	Whats Avail.	40'	shoe to surface
17½"	13-3/8"Surface	54.5#K55 Btrs.	300'	shoe to surface
12¼"	9-5/8" Protector	40#N80Btrs.	700'	shoe to surface

Refer to Plan of Operations, Proposed Drilling Program and Casing Details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED _____ TITLE Vice President DATE 10/14/77

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(May 1963)

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: N-8496 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -

1a. TYPE OF WORK: DRILL [XX] DEEPEN [ ] PLUG BACK [ ]

7. UNIT AGREEMENT NAME: -

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME: Federal

2. NAME OF OPERATOR: Occidental Geothermal, Inc.

9. WELL NO.: J

3. ADDRESS OF OPERATOR: 5000 Stockdale Highway, Bakersfield, California 93309

10. FIELD AND POOL, OR WILDCAT: Observations

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 7210'north and 840'east of NE Cor Sec 4
At proposed prod. zone: T15N-R29E, MDPM

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: S28-T16N-R29E MDPM

N.A.

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 19 miles south and east of Fallon, Nevada

12. COUNTY OR PARISH: Churchill

13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
2700'	2506 ac	N.A.
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
1300'	3000'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 4040'

22. APPROX. DATE WORK WILL START*: 12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" Conductor	Whats Avail.	40'	shoe to surface
17½"	13-3/8"Surface	54.5#K55 Btrs.	300'	shoe to surface
12¼"	9-5/8" Protector	40#N80 Btrs.	700'	shoe to surface

Refer to Plan of Operation, Proposed Drilling Program and Casing Detail.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

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SIGNED _____ TITLE Vice President DATE 10/14/77

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Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: N-8497 7/1/75

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

7. UNIT AGREEMENT NAME: -

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER Geothermal SINGLE ZONE [ ] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME: Federal

2. NAME OF OPERATOR: Occidental Geothermal, Inc.

9. WELL NO.: K

3. ADDRESS OF OPERATOR: 5000 Stockdale Highway, Bakersfield, California 93309

10. FIELD AND POOL, OR WILDCAT: Observation

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 3760' north and 1890' east of NE Cor Sec 4
At proposed prod. zone: N.A. T15N-R29E, MDPM

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: S33-T16N-R29E MDPM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 19 miles south and east of Fallon, Nevada

12. COUNTY OR PARISH: Churchill

13. STATE: Nev.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1400'

16. NO. OF ACRES IN LEASE: 2560 ac

17. NO. OF ACRES ASSIGNED TO THIS WELL: N.A.

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 350'

19. PROPOSED DEPTH: 3000'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 4020'

22. APPROX. DATE WORK WILL START*: 12/1/77

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" Conductor	Whats Avail.	40'	shoe to surface
17½"	13-3/8"Surface	54.5#K55 Btrs.	300'	shoe to surface
12¼"	9-5/8"Protector	40#N80 Btrs.	700'	shoe to surface

Refer to Plan of Operations, Proposed Drilling Program and Casing Details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED Malcolm N. Moore TITLE Vice President DATE 10/14/77

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

Instructions

General: This form is designed for submitting proposals to perform certain well operations, as indicated, on all types of lands and leases for appropriate action by either a Federal or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office.

Item 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable State or Federal regulations concerning subsequent work proposals or reports on the well.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on this reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal or State agency offices.

Items 15 and 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective production zone.

Item 22: Consult applicable Federal or State regulations, or appropriate officials, concerning approval of the proposal before operations are started.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1963—O-711-396