MINUTE ITEM
This Calendar Item No. 24
was approved as Minute Item
No. 24 by the State Lands
Commission by a vote of 3
to 0 at its 4-27-78
meeting.

CALENDAR ITEM

24. 4/78
"DX State 4596" 40, 41, 42
Priddy

APPROVAL OF PROPOSED DRILLING OF NEW WELLS
"DX STATE 4596", 40, 41 and 42
GEYSERS STEAM FIELD, SONOMA COUNTY

LEASE: PRC 4596.

LESSEE: Union Oil Company of California
Magma Power Company
Thermal Power Company
P. O. Box 6854
Santa Rosa, California 95406

COUNTY: Sonoma.

AREA: Geysers Geothermal Field.

PERTINENT INFORMATION:

State Geothermal Resources Lease PRC 4596 was issued to Union Oil Company on May 27, 1971. On April 27, 1972, an undivided 25% interest in the lease was assigned to Magma Power Company and an undivided 25% interest was assigned to Thermal Power Company. Pursuant to the terms of the lease, Union has requested approval of the State Lands Commission to drill wells "DX State 4596" 40, 41 and 42 at the Geysers in the Big Sulphur Creek drainage area.

The wells will be used as make-up wells for generating Units Nos. 7 and 8. The proposed drilling and completion programs have been reviewed by the staff and determined to be in accordance with good engineering practices and the rules and regulations of the Commission. The proposed wells are to be located on an existing drill pad which will be expanded to accommodate 4 wells. The major modification will consist of excavating one to 10 feet of rock and lowering much of the existing drillpad surface. The Commission's Staff will inspect the site during and upon completion of the work.

ENVIRONMENTAL IMPACT:

The Sonoma County Board of Zoning Adjustments, acting as lead agency, prepared and circulated

an EIR covering Union Oil Company's geothermal leasehold operations in the Big Sulphur Creek drainage area. By Notice of Determination issued on October 4, 1976, the Sonoma County Board of Zoning Adjustments certified that (1) the EIR was prepared pursuant to the provisions of the California Environmental Quality Act of 1970, as amended; (2) the project will not have a significant effect on the environment; and (3) the project has been approved by the Sonoma County Board of Zoning Adjustments. The Notice of Determination has been filed with the State Secretary for Resources, the State Lands Commission's Staff, and the County Clerk for Sonoma County, wherein the project is to be undertaken.

State agencies concerned with geothermal operations were notified that the staff intended to recommend approval of these wells. No comments were received.

APPROVALS OBTAINED:

1. Sonoma County Board of Zoning Adjustments
2. California Division of Oil and Gas.
3. Northern Sonoma County Air Pollution Control District.
4. California North Coast Regional Water Quality Control Board.

FURTHER APPROVALS REQUIRED:

None.

EXHIBITS: A. Location Map. B. EIR Summary.

IT IS RECOMMENDED THAT THE COMMISSION:

1. DETERMINE THAT AN EIR HAS BEEN PREPARED FOR THIS PROJECT AND CERTIFIED BY THE SONOMA COUNTY BOARD OF ZONING ADJUSTMENTS.

2. CERTIFY THAT THE INFORMATION CONTAINED IN THE EIR OF THE SONOMA COUNTY BOARD OF ZONING ADJUSTMENTS HAS BEEN REVIEWED AND CONSIDERED BY THE COMMISSION.

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3. DETERMINE THAT THE PROJECT WILL NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT.

4. AUTHORIZE THE APPROVAL OF DRILLING WELLS "DX STATE 4596" 40, 41 AND 42 IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF STATE GEOTHERMAL RESOURCE LEASE PRC 4596, AND THE RULES AND REGULATIONS OF THE COMMISSION, SUBJECT TO THE INSPECTION AND APPROVAL BY THE COMMISSION'S STAFF OF THE DRILLSITE CONSTRUCTION AND EXPANSION.

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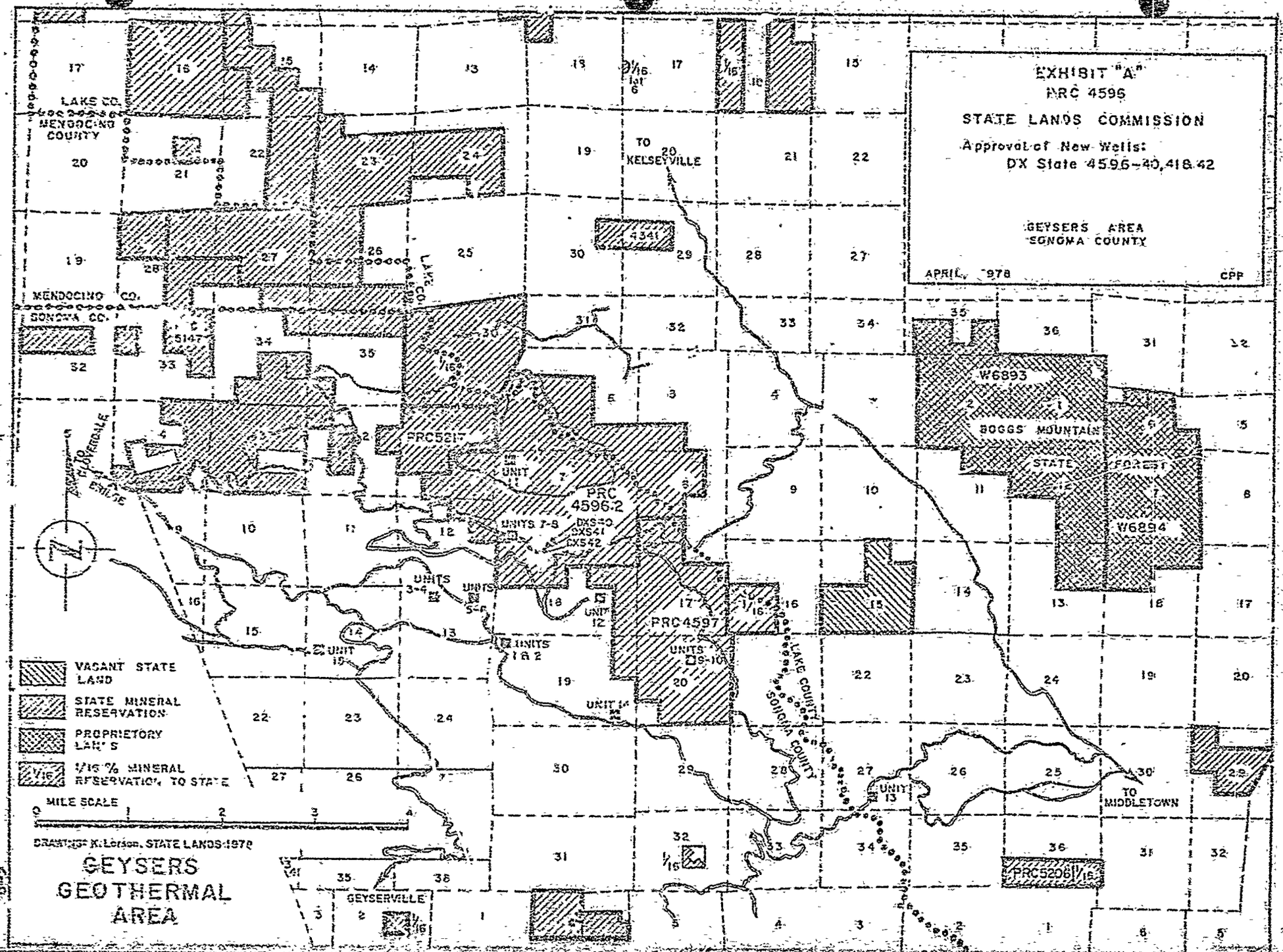
EXHIBIT "A"
PRC 4596
STATE LANDS COMMISSION
Approval of New Wells:
DX State 4596-40,418.42
GEYSERS AREA
SONOMA COUNTY
APRIL, 1978
CPP
LAKE CO.
MENDOCINO COUNTY
MENDOCINO CO.
SONOMA CO.
TO KELSEYVILLE
TO FLOVERDALE
TO MIDDLETOWN
GEYSERVILLE
LAKE COUNTY
SONOMA COUNTY
PRC5217
PRC 4596-2
PRC4597
PRC5206
W6893
W6894
BOGGS MOUNTAIN STATE FOREST
UNIT 11
UNITS 7-8
UNITS 3-4
UNITS 5-6
UNIT 12
UNITS 1 & 2
UNITS 9-10
UNIT 13
UNIT 14
UNIT 15
VACANT STATE LAND
STATE MINERAL RESERVATION
PROPRIETORY LANDS
1/16 % MINERAL RESERVATION TO STATE
MILE SCALE
DRAWING: K. Larson, STATE LANDS 1978
GEYSERS GEOTHERMAL AREA

EXHIBIT "B"

SUMMARY

ENVIRONMENTAL IMPACT REPORT
FOR UNION OIL COMPANY'S
LEASEHOLD AT THE GEYSERS
SONOMA COUNTY, CA

An Environmental Impact Report was prepared and certified by the County on October 4, 1976 covering geothermal development by Union Oil Company at its Geysers leasehold. The EIR is a staged regional type analysis covering the total project area. The EIR was submitted to the clearinghouse and state review of the project has been certified as complete.

I. Description of the Project:

The report covers the geothermal development of Union Oil Company's leasehold in The Geysers at the upper portion of the Big Sulphur Creek drainage. The report covers roads, drill pads, pipelines.

II. Project Location:

The upper portion of Big Sulphur Creek's drainage. The south edge extends about two miles north of Big Sulphur Creek's headwaters; the east boundary follows the Sonoma County line to Geysers Rock, continues along the northern watershed divide to a point opposite Eagle Rock, then on a property line back to Big Sulphur Creek to the section line east of Big Geysers Resort, and on various property lines, ranging from 1/4 to 2/3 the way up the canyon side to the range boundary below the headwaters. A small portion lies west of the ridge crest in the Pine Flat mining area. The leasehold includes portions or all of Sections 1,2 10,11,13, T. 11 N., R. 8 W. and Section 6,7,8,16,17, 18, 19, 20, 21, 28, 29, 30, 32, 33 T. 11 N., R. 9 W. and comprises approximately 15 square miles or about 9,000 acres.

III. Project Action:

The action involves the following specific steps:

1. Test boring to determine subsurface temperature profile.

2. Drilling one or more exploratory or step-out wells to prove the steam reservoir.

3. Field development planning including correlating 20 acre blocks of subsurface well target areas to potential well-head sites at the surface.

4. Drill pad, sump and access road preparation. Approximately 2 1/2 acres of flat area are required to accommodate a drill rig and sump together with tanks, compressors, supply and administration equipment.

5. Field development well drilling. Fifteen to nineteen wells are required to begin operations.

6. Well testing and standby maintenance requires periodic venting of full heads of steam for several hours to several days to clear debris and condensation from the well throat.

7. Siting and construction of the generator unit including generators, condenser, cooling towers, H_2S scrubbers, condensate reinjection system and transmission towers and lines.

8. Construction of steam transfer pipelines from wells to generator.

9. Drilling, testing and connecting replacement wells to the steam supply system.

IV. Present Environmental Setting:

a.	Climate:	☐ Cool	☒ Moderate	☐ Hot
b.	Air Quality:	☐ Poor	☐ Fair	☒ Good
c.	Water Quality:	☐ Poor	☐ Fair	☒ Good
d.	Noise Quality:	☐ Poor	☐ Fair	☒ Good
e.	Transportation Systems:	☒ Poor	☐ Fair	☐ Good
f.	Public Utilities:	☒ Poor	☐ Adequate	☐ Good
g.	Public Services:	☒ Poor	☐ Adequate	☐ Good

h. Other Values: The land is of importance as watershed and wildlife habitat.

i. Present Land Use: Hunting, grazing and geothermal energy development.

V. Environmental Impacts:

A. Adverse

a. Air Quality ☒ Low ☐ Moderate ☐ High ☐ Short-Term ☒ Long-Term

Comment: The amount of non-condensable gases released to the atmosphere will increase. Cumulative effect by the time full field development occurs may exceed acceptable tolerance levels even with scrubbing installations at power plants. There may be direct and indirect effects of materials carried in steam which may cause negative effects over a long period. Some increase in odoral effects of H_2S from wells and power plant emissions can be expected.

b. Water Quality: ☒ Low ☐ Moderate ☐ High ☐ Short-Term ☒ Long-Term

Comment: The direct effect of geothermal operations on water arises from erosion products, solutes derived from runoff that concentrates, fallout substances and accidential spillages. While land surface disturbance will cause some increase in runoff, but since no baseline data are available at this time, no accurate prediction can be made regarding the extent and probability of these effects.

Noise Quality: ☒ Low ☐ Moderate ☐ High ☐ Short-Term ☒ Long-Term

Comment: Audio effects can be reduced to tolerable limits, but some unnatural noise will always accompany geothermal operations.

d. Transportaion Systems: ☒ Low ☐ Moderate ☐ High ☒ Short-Term ☐ Long-Term

Comment: As development of this and other geothermal fields in the area proceeds, there will probably be pressure from the developers, workers or suppliers to widen and improve roads into the area. What roads and the extent of the impact such transportation improvements will have depends on the direction and speed with which the field is developed.

e. Public Utilities: ☒ Low ☐ Moderate ☐ High ☒ Short-Term ☐ Long-Term

Comment: The same growth induced impacts as described in item (d).

f. Public Services: ☒ Low ☐ Moderate ☐ High ☐ Short-Term ☒ Long-Term

Comment: The same growth induced impacts as described in item (d).

g. Energy Consumption:

☒ Low ☐ Moderate ☐ High ☒ Short-Term ☐ Long-Term

Comment: Drilling rigs are self-contained and provide their own energy. Consumption of fuels for compressors, lighting and rig operations is limited to the drilling period.

h. Growth Inducing:

☐ Low ☒ Moderate ☐ High ☐ Short-Term ☒ Long-Term

Comment: Whatever growth induced impacts there are in the fields of transportation, public utilities or public services, they will probably not occur within the project area, but mainly outside in nearby communities. There will be some slight increase in the number of permanent employees.

i. Other Values:

1. Vegetation

Direct vegetation loss arises from removal and corresponds with that of topograhical modification. Some loss or decline in vigor of stands in certain areas may be expected from increases in humidity from release of steam.

2. Fauna

As with vegetation, the immediate adverse effects are not clearly known; however, loss of habitat is obvious but the extent is hypothetical.

3. Cultural

Since there are no cultural installations in the area, no direct influence may be felt that cannot be mitigated.

4. Aesthetics

Alterations caused by construction of drill pads, roads, pipelines and eventually power plants, will alter the visual asthetics, but the area of the project is thinly populated.

B. Beneficial Effects:

a. Social: ☐ Low ☐ Moderate ☒ High ☐ Short-Term ☒ Long-Term

Comment: The project is to develop geothermal resources for the production of electrical energy. There will be little social impact in the project area, but the impact will be great where the energy is used as a substitute for energy created by scarce or expensive fossil fuels.

b. Economic: ☐ Low ☐ Moderate ☒ High ☐ Short-Term ☒ Long-Term

Comment: Completion of the project will have an economic impact on the entire county through generation of additional tax revenues.

VI. Adverse Environmental Effects Which Cannot be Avoided:

Since some roads and drill pads have already been constructed and some wells already drilled, the land, ground cover and wildlife habitat lost to this work has already taken place. Future loss and damage at future well sites can be minimized by adherence to good engineering practice and regulations of the County and Division.

VII. Mitigation Measures Proposed:

Construction of access roads in accordance with good engineering practices to reduce erosion, the chances of accidental spills and loss or damage to wildlife habitat. Techniques to reduce venting of steam and scrubbing of steam released from cooling towers to eliminate gasses, particularly H_2S.

VIII. Alternatives to the Proposed Action:

Extensive development has already taken place on the leasehold and many of the long-range impacts have been irrevocably sustained. Except for insisting on stringent mitigation measures for the one well being proposed now and for future wells, the null alternative would serve no useful purpose.

The alternative of stopping further geothermal development, for whatever reason, outside of its present limits, is possible. However, in the light of the state of fossil fuels, this alternative would be useful mostly to those persons directly affected by noise, odors and reduced or altered visual aesthetic values. A more moderate approach would be to designate areas where these problems are most acute, then prohibit drilling until equipment and procedures are available to satisfactorily mitigate them.

The consultant also suggests that certain of fumerole areas as well as the areas of early development might be set aside and maintained as a controlled access tourist attraction, but no suggestions are made as to who would purchase, maintain or control this kind of attraction.

IX. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity:

Development of geothermal resources is, with suitable safeguards and mitigation, compatible with the restoration and maintenance of the resources of the leasehold. The geothermal resource can, in part, provide revenue necessary to manage, develop and protect those renewable resources necessary for a solid multi-use, long-range economic base in this area. In view of trends toward world-wide increases in the value of and demand for primary commodities such as wood fiber, protein foods and energy, it would appear essential to increase and sustain the long-range production capacity of the land wherever possible. To do this will require a comprehensive, multiple-use land and resource management plan for the entire KGRA. Funding for such a plan could come in part from tax revenues generated from development in the area.

X. Irreversible Environmental Changes:

Some topographical Modifications and resulting increase for potential erosion will have an impact on water quality and fish and wildlife. There will also be an increase in the amount of gases vented to the air and the potential for plant damage from an increase in humidity from steam.