APPLICATION FOR PERMIT TO DRILL A GEOTHERMAL WELL

(To be accompanied by a $100.00 permit fee for new wells only and a surety bond conditioned as provided by law.)

DATE 9/15/83

In compliance with rules and regulations pursuant to ORS 522 (Chapter 552 OL 1975) application is hereby made for permit to drill a geothermal well: Sandia National Laboratory

Well No. PDO-1 in SW 1/4 of sec. 31, T. 21 S., R. 13 E. W.B.M., Deschutes County.

Survey Coordinates 1000' N. 1000' E. of SW corner of Sec. 71.

Elevation of ground above sea level is 6470 feet. All depth measurements are taken from ground level, which is above ground.

Lease Sandia National Laboratory

Address Albuquerque NM 87105

Lease Drilling is under a special use permit granted by

Address Deschutes Nat. Forest, Fort Rock District

We propose to use the following strings of casing and to land or cement them as herein indicated:

| Size of hole | Size of casing | Weight in pounds per foot | Grade and type | New or second hand | Depth | Landed or cemented
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>15&quot;</td>
<td>10 3/4&quot;</td>
<td></td>
<td></td>
<td>new or used</td>
<td>72'</td>
<td>backfill</td>
</tr>
<tr>
<td>9 7/8&quot;</td>
<td>9 3/8&quot;</td>
<td>28</td>
<td>H-40 or better</td>
<td>new</td>
<td>500'</td>
<td>100 sacks</td>
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<tr>
<td>6&quot;</td>
<td>4 3/4&quot;</td>
<td>9.5</td>
<td>n</td>
<td>n</td>
<td>2000'</td>
<td>290 sacks</td>
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Proposed Depth: Final depth 5000 or less Objectives: Scientific Research.

Well

Approved September 15, 1983 except as follows: The January 1983 stipulations approved by the Governing Board of this Department are conditions of this permit.

DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES

By: Petroluke, Petroleum Engineer

Send communications regarding well to:

Name: Dr. R. E. Lyman

Address: Sandia - 6741

Phone: (505) 246-1328

Sandia Nat. Laboratory

By: R. E. Lyman, Research Drilling Officer

NOTE: This permit expires one year from date of issue. This permit is valid only if land use approval is obtained from the county or city in which the drilling takes place, and provided these authorities make a determination of compliance with statewide goals. Issuance of this permit is not a finding of compliance with the Statewide Planning Goals or the acknowledged comprehensive plan.