



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Prineville District Office
P.O. Box 550 (185 E. 4th Street)
Prineville, Oregon 97754

3200
SN-050-96-23

NOV 06 1995

David W. McClain
Project Manager
CE Exploration Company
34 N.W. First Ave, Suite 302
Portland, OR 97209

Dear Dave:

Enclosed is the approved and signed Sundry Notice SN-050-96-23 for completion of temperature corehole 76-15 as a deep slimhole. Please note in particular that we have replaced the detailed procedure for testing and completion that your office supplied with the information supplied by Sandia National Labs. Their "Test Plan" appeared to be more up-to-date and reflected the information the BLM needs.

If you have questions concerning this letter and/or the permit please contact Dennis Davis at 503 447-8739.

Sincerely,

Donald L. Smith
Associate District Manager

Enclosures:
Sundry Notice

cc:

Alice Doremus
Rich Estabrook
✓ Dennis Olmstead
Dennis Simontacchi

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0132
Expires: September 30, 1990

GEOHERMAL SUNDRY NOTICE

The Bureau of Land Management (BLM) requests this form or other BLM-approved forms to be prepared and filed in **triplicate** with requisite attachments with the authorized officer. The authorized officer must approve this permit prior to any lease operations.

6. Lease Serial No.
OR 45505 (OR 47305)

7. Surface Manager: BLM FS
 Other

1a. Well Type: Production Injection Heat Exchange Observation Other

8. Unit Agreement Name
Deschutes

1b. Well Status:

9. Well No. **76-15 TCH** 10. Permit No. **SW-050-76-23**

2. Name of Lessee/Operator

11. Field or Area
Newberry KGRA

CE Exploration

3. Address of Lessee/Operator

12. Sec., T., R., B. & M.
Sec. 15, T21S, R12E

34 NW First St., Ste. 302, Portland Oregon 97209

4. Location of Well or Facility

13. County
Deschutes

approx 1200' W & 2600' S of NE Corner Sec. 15

14. State
Oregon

5. Type of Work

- Change Plans
- Site and Road Construction
- Construct New Production Facilities
- Alter Existing Production Facilities
- Convert to Injection
- Fracture Test
- Shoot or Acidize
- Repair Well
- Pull or Alter Casing
- Multiple Complete
- Abandon
- Other

15. Describe Proposed Operations (Use this space for well activities only. See instructions for current well conditions on reverse)

TCH 76-15 was originally permitted for drilling as a temperature corehole to 4500'± with the option of continuing to 8000' and completing hole as a slimhole. The casing program for this well has been modified as follows to allow C.E. Exploration to exercise this option and complete and test this well.

1. 9-1/2" hole will be drilled to 540'± and 7" casing set and cemented to surface.
2. 6-1/8" hole will be drilled to 2400'± and 4-1/2" casing set and cemented to surface.
3. 3-7/8" hole (HQ) drilled from 2300' to 7500'±
4. 3" hole (NQ) cored from 7500' to total depth.

In order to measure geophysical properties of the reservoir and collect reservoir fluid samples for chemical analysis, C.E. Exploration proposes to flow test the 76-15 slimhole in accordance with the attached procedure. Fluids produced during testing operations will be stored in the sump and 500 gallon Baker tanks. If necessary, excess fluids will be transported via pump trucks to other sumps until completion of the test. Upon completion of the test, the fluids will be injected at the wellhead to test the injectivity of the well.

16. Describe Proposed Operations (Use this space for all activities other than well work)

17. I hereby certify that the foregoing is true and correct

Dave McClain

Signed **Dave McClain** Title **Project Manager**

Date **07/31/95**

(This space for Federal use)

Approved by **Arnold G. Smith**

Title **Assoc. Dist. Mgr.**

Date **NOV 06 1995**

Conditions of Approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

TEST PLAN FOR TCH 76-15

NOV 06 1995

The following equipment will, or may, be required (* indicates that item is optional):

- Core rig
- Logging truck with temperature/spinner, temperature/pressure, or PTS tool
- Wireline lubricator
- 2 ea frac tanks containing a total of 500-1000 bbl water
- Either water truck or water line to empty sumps
- Empty 500 bbl tank*
- Drilling cross in BOP with 2" kill port and 3" flow port
- Water pump for injection tests; may be * if injection done with rig pump
- Straight run of 4" pipe with ports for pressure/temperature taps and James tube
- Flash tank
- Weir box
- Flow meter for 2" line
- Chemical sampling equipment*
- Geophysical logging unit*
- Air compressor*
- Coiled tubing unit with nitrogen*

Sequence of operations:

1. Condition hole and POOH with drill string.
2. Run temperature log.
3. Based on information to date from core logs, temperature logs, and drilling conditions, decide whether to run a suite of geophysical logs (gamma, dual induction, sonic, caliper).
4. Based on temperature log and hole configuration, run computer simulation to determine whether hole is likely to sustain flow in a production test.
5. If the decision is made to attempt a production test, go to step 6 or 16, if not, skip to step 19.
6. Connect the 4"-pipe meter run to the 3" valve at the mud cross, and position the James tube, flash tank, and weir box at its downstream end. An alternate configuration is to remove the large annular preventer from the BOP stack and replace it with a flow tee, a 4" valve, and a small annular preventer. This latter configuration allows a more direct flow path from the wellhead to the flash tank, and easier access to the instrumentation ports in the meter run.
7. Install all pressure and temperature transducers in the wellhead, meter run, James tube, and weir box piping. Connect transducers to recording computer.
8. Pressurize wellhead and leave overnight.
9. Rig up lubricator and logging tool.
10. Open wellhead and attempt to flow well. If well flows, go to step 11, if not, go to step 16.

11. If sump capacity permits, or if water can be transferred, allow flowing pressure and temperature at the wellhead to stabilize.
12. Run logging tool from surface to TD at 100 fpm, back to bottom of casing or liner at 100 fpm, then to TD and back to bottom of liner at 50 fpm. Hang tool just above point of major fluid entry.
13. If possible, take duplicate water and steam/gas samples from ports on meter run.
14. Shut in well and record pressure build-up with downhole logging tool. Also record wellhead pressure.
15. POOH with logging tool.
16. If well did not flow, RIH with "N" rods to below standing water level. Connect air compressor to rods and air-lift fluid from hole. Measure temperature of fluid lifted from hole. Continue lifting fluid until fluid temperature stabilizes or until flow begins. If flow begins, let it continue for approximately 1 hour to heat wellbore, then shut in well until wellhead pressure goes to zero and POOH with N-rods. Pressurize wellhead, let sit to heat fluid column, and release pressure.
17. If well flows, log well as in steps 11-15.
18. If fluid temperature stabilizes and well is not flowing, shut off air and POOH with rods.
19. Decide whether to call out coiled-tubing unit with nitrogen. If decision is to use CT, either continue with steps 19 and following or wait on CT unit.
19. Rig up pump through 2" kill line on mud cross. Install flow meter on line. Connect lines to inject either produced fluid (if well flowed) or stored water.
20. Run static pressure-temperature survey. Hang tool just above major entry zone.
21. Begin pumping into well at a rate high enough to maintain small positive wellhead pressure, if possible. Record flow rate, wellhead pressure, and downhole pressure/temperature continuously.
22. After downhole pressure and temperature stabilize, log to TD, back to surface, and back to entry depth.
23. Shut off injection and record pressure fall-off downhole and at surface.
24. POOH with logging tool and rig down wellhead test equipment.
25. After rigging down, and possible insertion of tubing into hole, run static temperature survey.