

# I. GEOTHERMAL PERMITTING – BLM EXPLORATION REGULATIONS

## Definition of “exploration operations” (43 CFR 3200.1)

Any activity that:

- requires physical presence on the land
  - may cause damage to those lands
  - beyond casual use (see 43 CFR 3250.10)
  - Must relat[e] to the search for [indirect] evidence of geothermal resources
- **No need for lease right:** Permits “NOI to conduct exploration” including TG well drilling can be granted to lessees or non-lessees
  - Anyone can propose and obtain an approved NOI for geothermal exploration operations on any public lands open to leasing
  - Even if lands are leased to another party



## Exploration Activities

### Exploration operations DO Include:

- Construction of Roads & Trails
- Cross-Country Transit
- Geophysical Operations
  - Gravity
  - Magnetics
  - Seismic exploration
- Geochemical Sampling
- Drilling
  - Temperature Gradient Holes
    - No depth limit but BLM may condition, deny, or require temp/pressure monitoring, downhole
  - Drilling of Shot-holes
  - Core-Drilling

### Exploration does NOT include:

- Any contact with the resource (as this requires lease rights)
- Direct testing of geothermal resource
- Drilling of production or injection wells

## But– Observation wells, aka slim holes, are not Exploration!

Lessees proposing to reach and test geothermal resources must use the 43 CFR subpart 3260 process

Apply for a GDP and submit all required info

For a Temperature Gradient well--Apply under 43 CFR subpart 3250 regs unless...

**Non-congruent uses of terminology have resulted in confusion and delays in permitting;  
Operators often describe any activity or drilling that does not result in production as "exploration"**

- 500-ft depth limit for TGH removed in 1998– But changed to “any depth that BLM may approve”
- BLM has discretion to attach COAs (Conditions of Approval), limit depth, or deny the NOI application
- BLM may require the applicant to follow 3260 regulations for drilling and apply for a GDP instead, to continue processing
- BLM cannot use its 3250 TGH procedures to permit any drilling intended to reach the resource.  
For every TGH or geothermal well drilled that could encounter the resource directly, regardless of depth, Operators must adhere to the safety procedures and operating standards required in BLM's Geothermal Drilling Permit (GDP) application regulations at 43 CFR Subpart 3260 and Geothermal Resource Order (GRO) #2 rather than the Exploration regulations in subpart 3250 and GRO #1 (GRO #1 guidance is limited to 500 ft-depth)

**BLM now uses a combination of temperature and pressure data (rather than drilling depth)  
on a case-by-case basis via COAs: Temperature, pressure data is required to be monitored during drilling, to determine when  
the drilling activity is deemed to be nearing direct contact with the geothermal resource**

Operators must follow the guidance and procedures in GRO #1 (1975):GRO #1 requires that exploration drilling be halted immediately whenever steam or water at temperatures over 150 degrees F are encountered, or anytime the return-line temperature readings taken at 30-ft intervals reach 125 degrees F.

BLM uses this threshold as an indicator that direct contact with the geothermal resource has occurred or is imminent. At this point the hole must be completed as an observation well or slim well rather than a TG hole, thus requiring steel tubing or casing that is cemented from the total depth to the surface, or it must be abandoned by plugging the entire depth with cement.

**Additional guidance (more recent) -- 1987 CA Notice to Lessees NTL-CA-86-01 : Guidance for Deep TH Wells**

California Notice to Lessees was intended to provide procedures for drilling TG wells deeper than 500 ft:

Established thresholds to halt drilling and complete as an observation well where contact with the geothermal resource is indicated

## Scope of Resource Assessment and Confirmation Activities, as compared to BLM-defined “Exploration”

Testing of the geothermal resource itself (i.e., direct testing)-Apply using 43 CFR 3260 process for these “industry-exploration” tests

Resource confirmation or assessment activities are: intended to prove a geothermal discovery (establish temperature, reservoir permeability, flow rates)

### Resource characterization and confirmation tests requiring direct contact with the g'th resource

- Only available to lessees/operators
- Intended to assess and confirm the resource—whether a well is “capable of production in commercial quantities”

### Examples of Direct Testing/Activities used to establish “Resource Confirmation”—i.e., not included in category of “exploration operations”

(cannot be permitted under a subpart 3250 NOI to Conduct Geothermal Exploration Operations) may include:

- resource delineation activities such as injection testing,
- interference testing,
- geophysical surveys (distinguishable from geophysical exploration operations?)
- well surveys (e.g. temperature and pressure surveys, fracture orientation surveys, spinner tests, mechanical and formation integrity testing etc.) and
- flow testing.

#### “TOMATO, TOMAHTO”...OK, SO I NEED TO USE 3260...IF I FOLLOW THAT, WHY DO WE CARE ABOUT TERMINOLOGY?

- Proposals that are described in vague or confusing terms, and difficult to categorize, may result in delays in processing by BLM.
- WE ALL NEED TO BE COMPARING APPLES TO APPLES...There are many good ideas being proposed to make federal permitting more efficient and to reduce risks. However, until terminology is used consistently and the scope of activities under discussion for improvement is understood by all stakeholders, these issues present obstacles to further progress by BLM in isolating and defining issues for analysis and consideration, such as the typical resource impacts potentially involved under “Resource Assessment and Confirmation drilling,” or the timeframes, scope and impacts contemplated for direct testing or reclamation activities.

### **Question: Should there be an intermediate category of drilling for slim hole observation wells?**

**[with potential for a commensurate “intermediate” level of NEPA review?]**

**Should “Resource Assessment” activities be approved under a more streamlined process than full-diameter production wells?**

**--if, e.g., limited in well diameter to slim holes, no production/injection, limits on surface disturbed, scheduled reclamation?**

- BLM intends to update existing policy guidance for operators to apply for Notice of Intent (NOI) to drill a Temperature Gradient Hole (TGH) deeper than 500 ft. while ensuring public safety.
- Such guidance may be in IM form as 1<sup>st</sup> step: intended to clarify existing guidance related to defining the boundaries of exploration activities:
  - ▶ Distinguishes resource assessment or confirmation activities such as: observation well drilling (i.e., slim holes) and direct testing
  - ▶ from exploration operations such as: TGH wells
- Such an IM would also be used to clarify the authority and jurisdiction of the Forest Service to approve TGHs on unleased FS lands surface, or on FS lands under federal geothermal leases where the applicant is not the lessee.
- Any future establishment of new policy or amended policy would require a rulemaking procedure; interpretations of policy may be in Notices to Lessee (NTL) form

## A WORK IN PROGRESS: BLM TEMPERATURE GRADIENT WELL POLICY UPDATE

**Working Title to date: Geothermal  
Drilling of Deep Temperature Gradient  
Hole Permitting and Operating  
Requirements; Scope of Exploration  
Operations**

**When? Not soon; still determining  
scope and content of text limited to an  
internal BLM Instructional Memorandum  
(IM) at this time**

# JURISDICTION OVER EXPLORATION PERMITTING? ON LEASED LANDS WHERE BLM IS NOT THE SMA (e.g., FS LANDS)

Based on the text of the current 43 CFR 3250.10:

## When do the [BLM] exploration regulations apply?

(a) The exploration operations regulations contained in this subpart and subparts 3251 through 3256 apply to geothermal exploration operations:

- (1) On BLM-administered public lands, whether or not they are leased for geothermal resources; and
- (2) On lands whose surface is managed by another Federal agency, *where BLM has leased the subsurface geothermal resources and the lease operator wishes to conduct exploration.*

In this case, we will consult with the surface managing agency regarding surface use and reclamation requirements before we approve the exploration operations.

(b) These regulations do not apply to:

- (1) Unleased land administered by another Federal agency;
- (2) Unleased geothermal resources whose surface land is managed by another Federal agency;
- (3) Privately owned land; or
- (4) Casual use activities.

It is not entirely clear which agency (BLM? MMS? USGS? SMA?) was originally intended to be the approving agency for exploration permits by non-lessees on leased lands managed by another agency (SMA);

If the issue can be answered, did policy shift over time?

See [43 CFR 3250.10](#), whose text was adopted in 1998, but referred to in comments as 3251.11 (3251.11 also relevant in 1998 and since has been moved to 3250.11);

This section was formerly located in the regulations at 43 CFR 3209 for non-lessees (BLM regs) and at 30 CFR 270.78 for leased lands (USGS regs), as amended in 1978:

Lease operator as NOI applicant on Forest Service (FS) surface vs.

Application for NOI to explore another Party's federal lease on FS surface

- ✓ Which agency do I submit my permit application to, when they can't agree among themselves?
- ✓ [Nothing is more fun than inter-agency turf battles!]
- ✓ Hint: both, if each will accept it
- ✓ Could avert delays caused by poor communication
- ✓ Does it matter?  
It could if one agency allows a more streamlined NEPA process such as a CX
- ✓ Also: agencies could change horses in mid-stream if processing can be done more efficiently (Yes, it happened in OR)

Researching historical policy re this recent turf battle between BLM and the FS:  
Does the SMA issue exploration permits when lands are leased (usually BLM approves)--  
but where the exploration applicant holds no interest in the lease/is not an operator?

Oldest mention of the issue (appeared oddly in a regulation for the agency governing post-leasing activities):

**1978 Final Rule by USGS** (who governed post-leasing activities on leased lands at that time):

Issue addressed in a comment response in preamble (" *Comment*: One commentor suggested that clarification be inserted to prevent ...misunderstanding that a non-lessee must obtain the approval of the Supervisor [USGS] before conducting exploration operations on lands leased to another party. *Rationale*: It is agreed...since non-lessees must obtain the approval of the concerned surface management agency and not the Supervisor...")

Resulted in a "clarified" version of **30 CFR 270.78(a) Notice of Intent and permit to conduct exploration operations ...or not?**

The "clarification" merely inserted "by the lessee" to the line ..."A permit to conduct exploration operations on the leased lands...must be obtained by the lessee from the Supervisor before the operation is begun."

**43 FR 13832 at 13833/1 & 13834/2 (3/31/78)** [...and Yes, we are STILL stuck with "by the lessee" as "clarified" text in 2014]

Ah, clarity: **BLM Geothermal Resource Order [GRO] #5, August 1980** at p 16:

(note: in the G'th "Exploration Permit" section, not the "G'th Plan of Exploration" section):

"For exploration activities on unleased lands, or lands leased to other than the applicant, the exploration permit is issued by the appropriate surface management agency (either BLM or FS)."

*But: GRO #5 is once and forever in DRAFT form– it was never finalized.*

*Therefore: Not official BLM policy [despite decades of use] so it cannot be cited as definitive*

**1988: Statewide MOU for the Geothermal Program In CA between the USFS, Region V and the BLM, CA: Pre-lease and Post-lease Responsibilities and Actions**, at pp 6-7 (11/10/88):

Under "FS will approve:" "Pre-lease exploration activities are those operations conducted on unleased lands or on leased lands where the applicant holds no interest in the lease or is not a designated operator of the lessee."

*Some BLM sages added support for locating this passage in the pre-leasing section: that TG drilling was seen as a surface activity, since a TG well under a "GEP" is not allowed to reach or physically test the resource (Id. at p 8). [but an MOU is a low level of guidance, and it only applied in CA]*

Finally: Genesis of current reg text: has been unchanged since 1998 Final Rule. So a 3-part compare:

1996 Proposed Rule: proposed text for 43 CFR 3250.10 would have made approval of NOIs for Exploration on any leased lands clearly a BLM responsibility --thus altering the policy as stated in GRO #5—

BUT the language of the 1998 Final Rule was changed from the proposed rule--

Adopts the current text that leaves this issue unanswered, and was not addressed in its preamble

**Proposed rule: §3250.10 What is the purpose, scope and authority of the subparts pertaining to exploration operations?**

**(a) The regulations in this subpart establish procedures for conducting geothermal exploration operations:**

**(1) On BLM administered public lands, whether leased or unleased...and covers lessees and nonlessees; and**

**(2) On any federally owned lands leased for geothermal resources.**

**The crux: Did the FS object by submitting an on-point comment?**

**Yes! See *Jan. 8, 1997* Dean Crandall Letter.**

FS comment letter signed by Dean Crandall: "Please include a statement [in section 3251.11] ...indicating that exploration activities on unleased land are permitted by the SMA and that the regulations which govern the occupation of lands administered by other SMAs may differ. . . . It should be clear to the reader that there is a difference between permitting exploration on leased vs. unleased federal land. This still leaves the question of permitting exploration activities on a lease by someone other than the lessee. We would prefer that the SMA permit these activities with the provision that the approved activity would be subject to the same stipulations and regulatory requirements as are required of the lessee."

▶ **1998 Final rule text: 3250.10 When do the exploration operations regulations apply?**

▶ **(a) The exploration operations regulations, contained in 43 CFR subparts 3250 through 3256, apply to geothermal exploration operations:**

▶ **(1) On BLM-administered public lands, whether or not they are leased for geothermal resources; and**

▶ **(2) On lands whose surface is managed by another federal agency, where BLM has leased the subsurface geothermal resources *and the lease operator will conduct the exploration.* In that case, we will consult with the surface management agency regarding surface use and reclamation requirements before we approve the exploration permit.**

**Conclusion: OK to infer that consideration of the FS comment letter resulted in changes to the Final text of 43 CFR 3250.10 (63 FR 52356, 52379/2 (9/30/98)) from the proposed rule (61 FR 52736, 52756/1 (10/8/96)). Thus the attempt to alter policy failed, leaving in place the policies in GRO #5 and the CA 1988 MOU: FS approves these NOIs.**

CONCLUSION: ISSUE OF GAP IN REGULATORY AUTHORITY  
(SEE 43 CFR 3250.10) RE:  
WHOSE AGENCY REGULATIONS APPLY (BLM VS. SMA)

WHICH AGENCY SHOULD APPROVE EXPLORATION  
ON LANDS UNDER FEDERAL LEASE, BUT WHERE  
THE NOI APPLICANT IS NOT THE LESSEE?

...and the answer is:

- ▶ **An applicant should apply to BLM when:**
  - On BLM lands, leased or not
  - On other Federal surface under BLM geothermal lease when the lessee is the NOI applicant

- ▶ **An applicant should apply to the FS or other Surface Management Agency (BLM regulations not applicable) when:**
  - Seeking an exploration permit on unleased lands managed by another federal agency such as the Forest Service
  - On lands leased to another party (not the exploration applicant) when the federal geothermal lease is on lands whose surface is managed by another agency
  - (i.e., you want to drill a TG well on someone else's lease)

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