

Subject: Report on the results of a Bureau of Land Management data call for information on NEPA records for issuing permits or licenses associated with a geothermal utilization plan

Date: 1/4/2006

Analyst: Mel Meier
US Department of the Interior
Bureau of Land Management
1620 L Street, NW
Washington, DC

Tom Hare
US Department of the Interior
Bureau of Land Management
1620 L Street, NW
Washington, DC

Introduction

The purpose of this document is to explain the basis for enabling the Bureau of Land Management (BLM) to establish a categorical exclusion (CX) for issuing permits and licenses pursuant to a geothermal utilization plan. The proposal covers the following activities:

Proposed 516 DM citation 11.9(B)(8):

Issuance of individual operational permits or licenses subsequent to or part of a geothermal utilization plan for which any environmental document prepared pursuant to NEPA analyzed the overall development of geothermal resources and siting of facilities as part of an approved utilization plan in accordance with 43 CFR 3272 or subsequent revisions. The application of this categorical exclusion is limited to Nevada.

To make an informed determination in regards to the proposed CX, key questions (listed below) were posed, and data relevant to answering these questions were collected through a census inquiry of permits and licenses that were authorized pursuant to a utilization plan by the BLM from 2000 to 2005. Responses to the following NEPA process questions were analyzed:

- What type of NEPA document preparation process was used to enable the drilling and subsequent operations of a geothermal well?
- What kind of authorization was issued?
- Were there significant individual or cumulative impacts in the NEPA analysis for the project? If yes, were the significant individual or cumulative impacts mitigated?
- Were there any unexpected impacts? If there were unanticipated impacts, what were they?
- How were the results validated?

This report describes the administrative process and methods used to construct and manage the data call, and to compile and analyze the data received. Relevant findings to the above questions are presented in tabular and textual format, subsequently discussed. The discussion concludes with a recommended action for the proposed CX.

Background

As a renewable energy, geothermal resources can help provide for our future energy needs by harnessing abundant, clean, naturally-occurring sources of energy. Renewable energy supplies not only help diversify our energy portfolio, they do so with few environmental impacts. Increased development of domestic renewable geothermal resources can also help alleviate the Nation's problems associated with an over-reliance on foreign energy supplies.

Geothermal energy is heat derived from the earth. It is the thermal energy contained in the rock and fluid that fills the fractures and pores within the rocks of the Earth's crust. Geothermal resources, in localized underground areas of steam or hot water called reservoirs, are available in several western states. The highest temperature resources are generally used for electric power generation. Low and moderate temperature geothermal resources can be used for greenhouses, aquaculture, industrial processes, and heating of buildings, including municipal buildings and schools.

Pursuant to the Geothermal Steam Act of 1970, BLM is responsible for leasing Federal lands for geothermal development and processing permit applications. This authority encompasses approximately 700 million acres of Federal minerals, including BLM lands, National Forest lands, other Federal lands, as well as split estate lands where the Federal Government has retained the mineral rights. Most of the geothermal activity on Federal lands takes place in California and Nevada. Other states with Federal geothermal leasing and/or development activity include Utah, New Mexico and Oregon.

Current NEPA Process

Prior to drilling a geothermal well, the entire geothermal development typically undergoes several stages of NEPA review. First, the BLM must make lands available for leasing and development through the land use planning process. A NEPA analysis will be completed prior to making these lands available and issuing leases. This NEPA document can either be an EA or EIS, depending on the level of environmental impacts. The NEPA analyses are conceptual in nature because specifics of development are not typically known until exploration defining the resource has been conducted.

When the lessee/operator is ready to drill and develop the lease, they are required to submit a geothermal plan of operation. This plan specifically describes well pad location, layout, design, procedures for environmental protection, and reclamation (43 C.F.R. 3261.12). The operations plan may cover one well or multiple wells. Based on the plan, a detailed and site-specific NEPA document is prepared that addresses impacts, describes required mitigation, and discloses unavoidable significant impacts. The geothermal plan of operation may or may not include a utilization plan. NEPA analysis is completed for the proposed plan of operation and utilization plan. The analysis is conducted in either an EA or EIS depending on the scope of the project and anticipated level of impacts.

If the utilization plan is not part of the plan of operation, the lessee/operator will drill a number of test wells to determine the type and nature of the resource. Once this has been done, a utilization plan (43 C.F.R. 3272) will be submitted, describing the proposed utilization facility in

enough detail that a third NEPA document can be prepared that analyzes the impacts of the proposal.

In addition to a NEPA review of the utilization plan, a legal and technical review of the site license and commercial use permit is also conducted. These reviews are conducted to ensure that the land described in the site license is available and reasonably coincides with the land actually needed for the facility. The commercial use permit is reviewed primarily to ensure that the metering is adequate for royalty determination and plant and reservoir monitoring.

The final step is to issue the site license and commercial use permit. These authorizations are management decisions currently authorized following additional NEPA review. The proposed CX would be applied for these authorizations if none of the 516 DM extraordinary circumstances apply.

Data Call Administrative Process

An interdisciplinary team of subject matter experts within the BLM and Department of the Interior (DOI) identified the information needed to determine whether the existing data supports the proposed CX. Instruction Memorandum (IM 2006-031), issued on November 8, 2005, requested information on the NEPA procedures used to support a census collection of geothermal drilling actions for five years. Source materials to complete the data call included land use plans and project plans with their associated NEPA documents, internal reports, and subject matter expert opinion.

Washington Office staff created data entry spreadsheets and instructions for entering appropriate data as a means of collecting information. Per direction of the IM, BLM state offices collected and compiled a 100% sample of the referenced activity from available records in applicable field offices. Lead energy contacts in each field office were responsible for reporting requested data on 22 items (fields) back to the state office. The census examined those actions authorizing geothermal drilling from October 1, 2000 through September 30, 2005.

Basis for Proposed Changes to 516 DM part 11

Scope of Representation

Table 1 contains the number of operational permits and licenses issued pursuant to a geothermal utilization plan by each BLM state office within the five-year period and the percent of permits and licenses by State in the nine records gathered from the census inquiry.

Table 1: Geographic Distribution of Issuance of Permits and Licenses Pursuant to a Geothermal Utilization Plan

State	Number of Permits & Licenses Issued from 10/1/00 through 09/30/05	Percent of Total Permits & Licenses (%)
Nevada	9	100
Totals	9	100

Data entry sheets created in Microsoft Excel contained a record for each state and fields for providing data based on the CX criteria. The first ten fields contained the following identifying information for each geothermal drilling permit: State, Field Office Name, BLM Organization Code, Contact’s Name, Phone Number, Project Name, Type of NEPA Document, NEPA Document Number, Associated Action Requiring Prior NEPA Analysis, and Name of NEPA Document for Associated Action. Each State was provided its own worksheet for recording the requested information. However, as Table 1 displays, only the state of Nevada reported applicable activities for the specified time period.

Every data cell contained precise information to avoid ambiguity. Instructions were provided to support the data entry process. Data entry choices were limited to explicit information about each geothermal utilization plan permit or license; a small choice of coded options, a single metric, or a “yes” “no”, or not applicable response. Only 1 of the 22 fields required a narrative response that could generate dissimilar data entries. Narratives were necessary to answer the following question:

- If actual impacts were not the same as predicted impacts, what were the unanticipated impacts?

Evaluation of the NEPA Process

The purpose of the geothermal utilization plan data call and subsequent analyses was to determine whether these activities are having either individual or cumulative adverse impacts on either the physical or human environment as determined through NEPA. Of the nine projects in the census population, 100% were conducted through the EA process (see table 2). None of the geothermal utilization plan permits or licenses issued resulted in significant impacts.

Table 2: Type of NEPA Actions Used for Issuing Permits or Licenses Pursuant to a Geothermal Utilization Plan

NEPA Type	Frequency from 10/1/00 through 09/30/05	Percent (%)	Number of Actions Resulting in Significant Impacts
EA	9	100	0
EIS	0	0	0
Total	0	100	

Analysis Process

Project data from each state were combined into an Excel workbook. Washington Office staff and National Science & Technology Center staff collaborated to develop a set of rules for determining inconsistent and impractical inputs. BLM staff then checked the rules against the data entries collected in the master data sheet. Key variables were checked and corrected for data-coding differences.

Quality Control Procedures

Data received were reviewed by an interdisciplinary team of BLM personnel. Three people independently examined the 22 data fields associated with each record for complete and appropriate information. Incomplete records were completed by interviewing the person responsible for the data entry. Responses not coded to the codes provided were corrected through interviews.

Two iterations of data editing were done to correct inconsistencies and screen out unusable records such as those with incomplete information or pending decisions. Data from each edit-iteration were kept for the record. The analysis was conducted on the 2nd iteration of data cleaning.

Two records were eliminated during the independent quality review period. One was eliminated since it was outside the time scope of the data call and the other was eliminated because the project was not completed. The net outcome was that nine geothermal utilization plan permits were analyzed to validate the use of the proposed CX. This analysis was used to answer the following question: “Is the issuance of permits and licenses associated with geothermal utilization plan found to have no individual or cumulative significant impacts?”. The answer to this question was “yes” for all ten records.

Findings

The findings and discussion below are based on the result of the geothermal drilling authorization reports generated in response to the IM 2006-031 Data Call.

Based on the records reviewed, the issuance of permits and licenses pursuant to a geothermal utilization plan were found to have no significant individual or cumulative impacts. Impacts anticipated during the NEPA review were the same as predicted. The impacts of issuing a geothermal utilization permit or license were validated by either personal observation by field staff associated with the project, field data collection through a monitoring program, systematic evaluation of information received, or a combination of methods. Two projects were validated by using an “Other” coded. This response is due to the fact that these projects are on-going and results were based on on-going assessment of impacts.

Policy Logic and Business Practices

For the construction and operation of a geothermal utilization facility, a thorough and detailed NEPA analysis is done at the time the utilization plan is submitted. The issuance of individual permits and site license pursuant to the utilization plan is an administrative action that does not involve any additional surface disturbance or other impacts that have not already been addressed

in that NEPA document. Eliminating the need for additional NEPA documentation for the issuance permits and site licenses will streamline the approval process and will not result in any diminished level of environmental analysis or protection.

Conclusion & Recommendation

In sum, none of the geothermal utilization plan permits or licenses reviewed for this analysis resulted in predicted or actual significant individual or cumulative effects. Based on review of the nine projects approved and implemented over the past five years, it is recommended that the proposed CX be limited to use in Nevada. In addition, the CX review process will ensure that in the absence of extraordinary circumstances, (516 DM 2, Appendix 2), there are no significant individual or cumulative effects on the environment, therefore establishing a CX for issuing permits and licenses pursuant to a utilization plan in the State of Nevada as identified in 516 DM 11.9(B)(7) is recommended.