

# FINAL ENVIRONMENTAL ASSESSMENT

**Gradient Resources, Inc.**

**Patua Geothermal Project**

**Phase II**

**Geothermal Unit N-85168X**

## **Finding of No Significant Impact**

DOI-BLM-NV-C010-2011-0501-EA

U.S. Department of the Interior  
Bureau of Land Management  
Carson City District  
Stillwater Field Office  
5665 Morgan Mill Road  
Carson City, NV 89701  
775-885-6000

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DOI-BLM-NV-C010-2011-0501-EA

**FINDING OF NO SIGNIFICANT IMPACT  
PATUA GEOTHERMAL PROJECT PHASE II  
LYON AND CHURCHILL COUNTY, NEVADA**

**Final Environmental Assessment  
DOI-BLM-NV-C010-2011-0501-EA  
Gradient Resources, Inc.  
Patua Geothermal Project Phase II, Geothermal Unit N-85168X**

**INTRODUCTION**

The Bureau of Land Management (BLM) Carson City District Office (CCDO) Stillwater Field Office (SFO) has prepared this Environmental Assessment (EA) to analyze potential impacts to the human and natural environment resulting from constructing and operating a geothermal power plant, geothermal well pads and wells, geothermal fluid pipelines, and associated access roads on lands that are managed by the BLM and The US Bureau of Reclamation (Reclamation). This EA analyzes the proposed project pursuant to the National Reclamation/BLM Interagency Agreement, December 1982 and the analysis is jointly prepared between BLM and Reclamation pursuant to the National Environmental Policy Act (NEPA). Since Reclamation is the surface management agency for construction and project components located on Reclamation-managed lands, Reclamation also reviewed the analysis. The BLM oversees approval of the geothermal Utilization and Operating Plans in consultation with Reclamation. Each agency would determine the terms and conditions under which it would authorize the geothermal facilities based on this analysis. Elements of the project on private lands are included in this analysis as they are considered connected actions under NEPA. New geothermal fluid pipelines would either utilize previously approved geothermal pipeline corridors or they would be connected to previously approved geothermal fluid pipelines within the Unit in order to supplement the nominal 60 megawatt (MW) net geothermal power generation facility described in the Patua Geothermal Project, Geothermal Unit NVN-85168X, DOI-BLM-NV-C010-2010-0016-EA (October 2010) (Patua Phase I project) or to be located on one of two privately owned sections of land within the Unit. The power plant could be located adjacent to the existing Patua Phase I power plant, or in Section 29, T20N, R26E. Geothermal drilling on Reclamation lands would occur within T20N, R26E, Sections 28, 30, and 32, Mount Diablo Base and Meridian (MDBM). Drilling on BLM lands would occur in T19N, R26E, Section 6. The project is located approximately 7 miles east of Fernley, Nevada, in Lyon and Churchill Counties. The project site is accessible from Alternate 50 (Alt 50) to the north and south.

The Proposed Action lies within the boundaries of the Patua Geothermal Unit, NVN-85168X (Unit), with the exception of certain geothermal exploration and production proposed outside the Unit on geothermal leases NVN 076139 and NVN 077739. The details of the Proposed Action are described in the Patua Geothermal Project-Phase II Operations Plan (PO) and Utilization Plan (UP) submitted to BLM by Gradient Resources Inc. (GRI).

Specific elements of the proposed action include:

- Reclamation-managed lands
  - Drill 3 new temperature gradient holes (TGHs) (no vegetation removal required)
  - Construct 14 new well pads and drill multiple wells (57 acres disturbance)
  - Construct approximately 10.5 miles of geothermal fluid pipeline and access roads (159 acres of temporary disturbance and 159 acres of permanent disturbance)
  - Construction of 1.51 miles of new transmission line if a power plant is built south of Alt 50 (18.3 acres disturbance, assuming a 100-foot corridor)
  
- BLM-managed lands
  - Drill 1 new TGH (no vegetation removal required)
  - Construct five new well pads and drill multiple wells (22 acres disturbance)
  - Construct approximately 2.2 miles of geothermal fluid pipeline and new access road (40 acres of temporary disturbance and 40 acres of permanent disturbance)
  
- Private land
  - Construct approximately 1.1 miles of new access road and geothermal fluid pipeline (33 acres of temporary disturbance and 33 acres of permanent disturbance)
  - Construct nominal 60 MW net geothermal power generation facility and generation substation (29 acres permanent disturbance)
  - Construction of 0.8 miles of new transmission line if a power plant is built south of Alt 50 (9.7 acres permanent disturbance, assuming a 100-foot corridor plus 32 acres of temporary disturbance for staging)

The total estimated disturbance for the project would not exceed 620 acres. In most locations, the width of permanent disturbance of pipeline and roads would be an estimated 30 feet and temporary disturbance would be considerably less than 300 feet. The total project disturbance will likely be significantly less than 620 acres.

Geothermal exploration and production on federal land conducted through leases is subject to terms and stipulations to comply with all applicable federal, State, and local laws and regulations pertaining to sanitation, water quality, wildlife, safety, air quality, and reclamation. Lease stipulations are site specific and are derived from the environmental analysis process. The Patua Geothermal Project Phase II is in accordance with the BLM Programmatic Environmental Impact Statement (PEIS) for Geothermal Development (BLM 2008a) and the Churchill County

Master Plan (CCPD 2010). The expansion and development of geothermal resources is supported and promoted for federal lands in this region in support of the need “to ensure jobs for our future with secure, affordable, and reliable energy” as identified in the Energy Policy Act of 2005. Additionally, the need for the proposed action is to respond to EO 13212, which directs the BLM to process geothermal leases in a timely manner in order to support efforts to increase energy production from federal minerals, while preserving the health of public lands.

GRI would implement Environmental Protection Measures (EPMs) to minimize or eliminate impacts to the extent practicable as described in the EA section 2.3 Adopted Environmental Protection Measures, Appendix B, Confirmation of Protection Measures, drilling permit Conditions of Approval (COAs) and Lease Stipulations.

The EA evaluated the impacts on the natural and human environment that could result from implementation of this geothermal project on federal land. The impact analysis in the EA characterizes the potential for impacts, from the Purposed Action, for each resource in the project area. The determination of environmental risk is resource-specific and is based on a number of factors, including the presence and extent of resources within the federal geothermal leases associated with the Proposed Action, the extent of resources in the surrounding area, and the quality of existing data.

#### **PLAN CONFORMANCE AND CONSISTENCY**

The Proposed Action has been reviewed for conformance with the Carson City Field Office Consolidated Resource Management Plan (2001) and is found to be consistent with current BLM policies, plans and programs. Gradient Resources will make application for and obtain specific approvals and permits required for construction, operating, and maintaining the proposed geothermal project from the BLM, Reclamation, Federal Energy Regulatory Commission, US Fish and Wildlife Service (USFWS), Nevada Department of Wildlife (NDOW), Nevada Division of Water Resources (NDWR), Nevada Department of Transportation (NDOT), Nevada Department of Environmental Protection (NDEP), Nevada Division of Minerals (NDOM), Nevada Division of Industrial Relations; Occupational Health and Safety, Bureau of Health and Protective Services, Health Division, Nevada State Historic Preservation Office (NSHPO), Public Utilities commission of Nevada, State Fire Marshall, City of Fernley, and Churchill County as described in The EA Table 1.4-1. The proposed action is consistent with the City of Fernley, Lyon and Churchill County ordinances, policies and plans. The proposed action is consistent with federal laws, and regulations; other plans, programs and policies of other federal agencies; and State and local government, to the extent practical within federal law, regulation and policy.

#### **FINDING OF NO SIGNIFICANT IMPACT DETERMINATION**

Based on the analysis of the Gradient Resources, Inc. Patua Geothermal Project Phase II Geothermal Unit N-85168X, final environmental assessment DOI-BLM-NV-C010-2011-0501-EA, I have determined that the Proposed Action, will not have a significant effect on the human environment and an environmental impact statement (EIS) will not be prepared. This finding is based on the context and intensity of the project as described:

**Context:**

Gradient Resources, Inc. proposes to construct and operate a geothermal power plant, geothermal well pads and wells, geothermal fluid pipelines, and associated access roads on lands that are managed by the BLM and The US Bureau of Reclamation (Reclamation) on federal geothermal leases held by GRI.

Conditions of Approval are attached hereto as Exhibit B.

With implementation of the EPMs described as part of the Proposed Action – see the EA section 2.3 and Appendix B Written Confirmation of Protection Measures there is no effect.

**Intensity:**

The Council on Environmental Quality (CEQ) regulations includes the following ten considerations for evaluating intensity:

1) *Impacts that may be both beneficial and adverse.*

None of the environmental effects discussed in detail in the EA are considered significant, nor do the effects exceed any known threshold of significance, either beneficial or adverse. The Proposed Action is to design, construct, and operate geothermal well pads and wells, geothermal fluid pipelines, and their associated access roads. These facilities would be connected to the previously proposed geothermal power plant for the Patua Phase I project or to a new nominal 60MW net geothermal power generation facility, to be located on one of two privately owned sections of land within the Unit. The power plant could be located adjacent to the existing Patua Phase I power plant, or in Section 29, T20N R26E.

2) *The degree to which the selected alternative will affect public health or safety:*

The Proposed Action is to design, construct, and operate geothermal well pads and wells, geothermal fluid pipelines, and associated access roads. These facilities would be connected to the previously proposed geothermal power plant for the Patua Phase I project or to a new nominal 60MW net geothermal power generation facility, to be located on one of two privately owned sections of land within the Unit. The power plant could be located adjacent to the existing Patua Phase I power plant, or in Section 29, T20N R26E. It is reasonable to expect further resource exploration and development which could affect public health or safety but those types of activities would be subject to further environmental analysis when considered. These types of issues could be addressed through conditions of approval for further exploration and development actions as determined by federal and State agencies.

3) *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.*

The BLM has considered the Area of Potential Effects (APE) relative to cultural resources and historic properties, providing oversight for a full inventory of the areas that include construction of the proposed well pads and access roads and their associated activity. Based on the cultural inventory, BLM determined that historic properties are present in the APE and GRI shall avoid these sites.

Some construction may occur within 30 meters of one historic property. An archaeological monitor would be on-site during construction of well pads 37-32 and 16-32 in order to prevent inadvertent alterations and to avoid adverse effects to a historic property. All highway, railroad, Hazen Drain and Truckee Canal crossing would be underground to avoid possible impacts. There are no park lands, prime farm lands, wild and scenic rivers or ecologically critical areas in or near the sites proposed.

*4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

The effects of the Proposed Action on the human or natural environment were determined to be negligible. Designing, constructing, and operating geothermal well pads and wells, geothermal fluid pipelines, and associated access roads has been analyzed in this EA.

*5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

The Proposed Action is not unique or unusual. The action described in the EA is designing, constructing, and operating geothermal well pads and wells, geothermal fluid pipelines, and associated access roads. There are no predicted effects on the human environment that are considered highly uncertain or involve unique or unknown risks. Public comment has been minimal.

*6) The degree to which the action may establish a precedent for future actions with significant effects or presents a decision in principle about a future consideration.*

As exploration advances and additional development of energy generation facilities is proposed on a geothermal lease, an environmental analysis maybe warranted to assess impacts resulting from these types of projects. The progression of the project from leasing to exploration to development is customary and expected.

*7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

Resource values, as identified in this EA, were evaluated for cumulative impacts and determined that cumulative impacts would be negligible for the proposed geothermal project. Subsequent actions for geothermal resource exploration and/or development would be evaluated for cumulative impacts in associated environmental analysis that maybe warranted and would be addressed through mitigation of the proposed future action and conditions of approval.

*8) The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

As described in the EA, sections Cultural Resources 2.3 Adopted Environmental Protection Measures and Cultural Resources 4.9 the project will not adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor will it cause loss or destruction of significant scientific, cultural, or historical

resources because all historic properties will be avoided in accordance with the State Protocol Agreement between the BLM and the Nevada State Historic Preservation Office for Implementing the National Historic Preservation Act, 2009, Appendix H., Sections A and B. Some construction may occur within 30 meters of a historic property. An archeological monitor would be on-site during construction of well pads 37-32 and 16-32 in order to prevent inadvertent alterations and to avoid adverse effects to a historic property. All highway, railroad, Hazen Drain and Truckee Canal crossing would be underground to avoid possible impacts.

9) *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under ESA of 1973.*

As described in the EA, no known threatened or endangered species or critical habitat has been identified in the surface area considered in the EA.

10) *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

As described in the EA, the Proposed Action does not violate any known Federal, State, or local law or requirement imposed for protection of the environment. Resource specialists from the BLM Stillwater Field Office, Reclamation, the State of Nevada, Churchill County, City of Fernley, the Fallon Paiute-Shoshone Tribe and The Pyramid Lake Paiute Tribe were notified of the proposal.



Teresa J. Knutson  
Stillwater Field Manager  
Carson City District Office



5/22/2012  
Date