United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Tonopah Field Office
P.O. Box 911 (1553 South Main Street)
Tonopah, Nevada 89049
Phone: 775-482-7800 Fax: 775-482-7810
http://www.blm.gov/nv/st/en/fo/battle_mountain_field.html

APR 07 2011

In Reply Refer To:
N-88465
N-89376X
DOI-BLM-NV-B020-2011-0026-EA
3200 (NVB0200)

Dear Interested Parties,

Pursuant to the National Environmental Policy Act (NEPA), and the Council on Environmental Quality regulations for implementing NEPA, the Bureau of Land Management (BLM) Tonopah Field Office, has prepared an Environmental Assessment (EA), which analyzes the impacts of a proposed Geothermal Exploration Project, located near Silver Peak, Nevada.

The EA assesses the impacts of a proposal by Ram Power Inc., to explore for geothermal resources on their existing federal geothermal leases on BLM managed public lands. The Proposed Action would consist of exploration drilling and testing of up to 17 geothermal wells.

The EA will be available for a 30-day public comment period. Written comments on this EA will be accepted at the above address until 4:30 p.m., May 10, 2011. The EA can be viewed on the Battle Mountain District website at

http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/national_environmental.html

Copies of the EA may also be obtained by notifying the TFO at the letterhead address above.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

If you have any questions or comments regarding this proposed Geothermal Exploration Project, please contact Timothy Coward, Renewable Energy Project Manager at the above Tonopah Field Office address or at (775) 482-7800.

Sincerely,

Thomas J. Seley

Thomas J. Seley
Field Manager

U.S. Department of the Interior
Bureau of Land Management

Environmental Assessment DOI-BLM-NV-B020-2011-0026-EA
DATE: April 2011

Clayton Valley Geothermal Exploration Project
ENVIRONMENTAL ASSESSMENT

File Number: N-89376X

Tonopah Field Office
P.O. Box 911
1553 S. Main Street
Tonopah, NV 89049
Phone: 775-482-7800
Fax: 775-482-7810

BLM

Tonopah Field Office

NATIONAL SYSTEM OF PUBLIC LANDS

BLM Mission Statement

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 LOCATION AND SUMMARY OF PROPOSED ACTION

Ram Power, Inc. (Ram) is proposing to construct, operate, and maintain the Clayton Valley Geothermal Exploration Project (Project) within Esmeralda County, Nevada (see Figure 1 – Project Vicinity Map) to determine subsurface temperatures, confirm the existence of geothermal resources, and confirm the existence of a commercial geothermal reservoir at the proposed well sites within the Project area. The area to be explored (Project area) consists of federal geothermal leases shown in Table 1. The leases are included within Unit N-89376X, with the exception of Lease N-88465. Ram Power acquired Sierra Geothermal Power on September 1, 2010, which included lease N-85739. Lease N-85739 is included in the Unit by means of a joinder (see Figure 2 – Proposed Action Map). Appendix B contains the leases referenced in this document and the respective approvals, effective dates, terms, conditions, and stipulations.

Table 1. Federal Geothermal Leases

Lease No.	Township/Range	Section Number
N-85736	T1S, R40E	Sections 19–22
N-85737	T1S, R40E	Sections 23, 26, 35
N-85738	T1S, R40E	Sections 24, 25, 36
N-85739	T1S, R40E	Sections 27–30
N-88463	T1S, R39E	Sections 1, 2, 11, 12
N-88464	T1S, R39E	Sections 13, 14, 23, 24
N-88465	T1S, R39E T2S, R39E	Sections 25–27, 36 Sections 1, 12

An Operations Plan for the construction, operation, and maintenance of these exploration wells was submitted to the Bureau of Land Management (BLM) Tonopah Field Office (TFO) in July 2010 and finalized in February 2011. Geothermal drilling permits will be submitted for the drilling of the exploration wells.

Ram has requested to remove aggregate from two existing BLM minerals materials pits for the construction of well pads and access roads. The total aggregate required for the project is approximately 50,511 cubic yards. The Pearl Springs Road Pit (N-85738) is located in the eastern portion of the study area and the North Silver Peak Pit (N-84316) is located approximately 2.5 miles north of Silver Peak (see Figure 2 – Proposed Action Map). The total Project aggregate demand will be split evenly between the two pits.

The source of water for the Project is an existing well operated by the Town of Silver Peak, Nevada, 02S 39E 28, under Permit 76343. Ram was granted a waiver (OG-267) by the Nevada Division of Water Resources. A copy of the waiver is included in the Project Operations Plan.

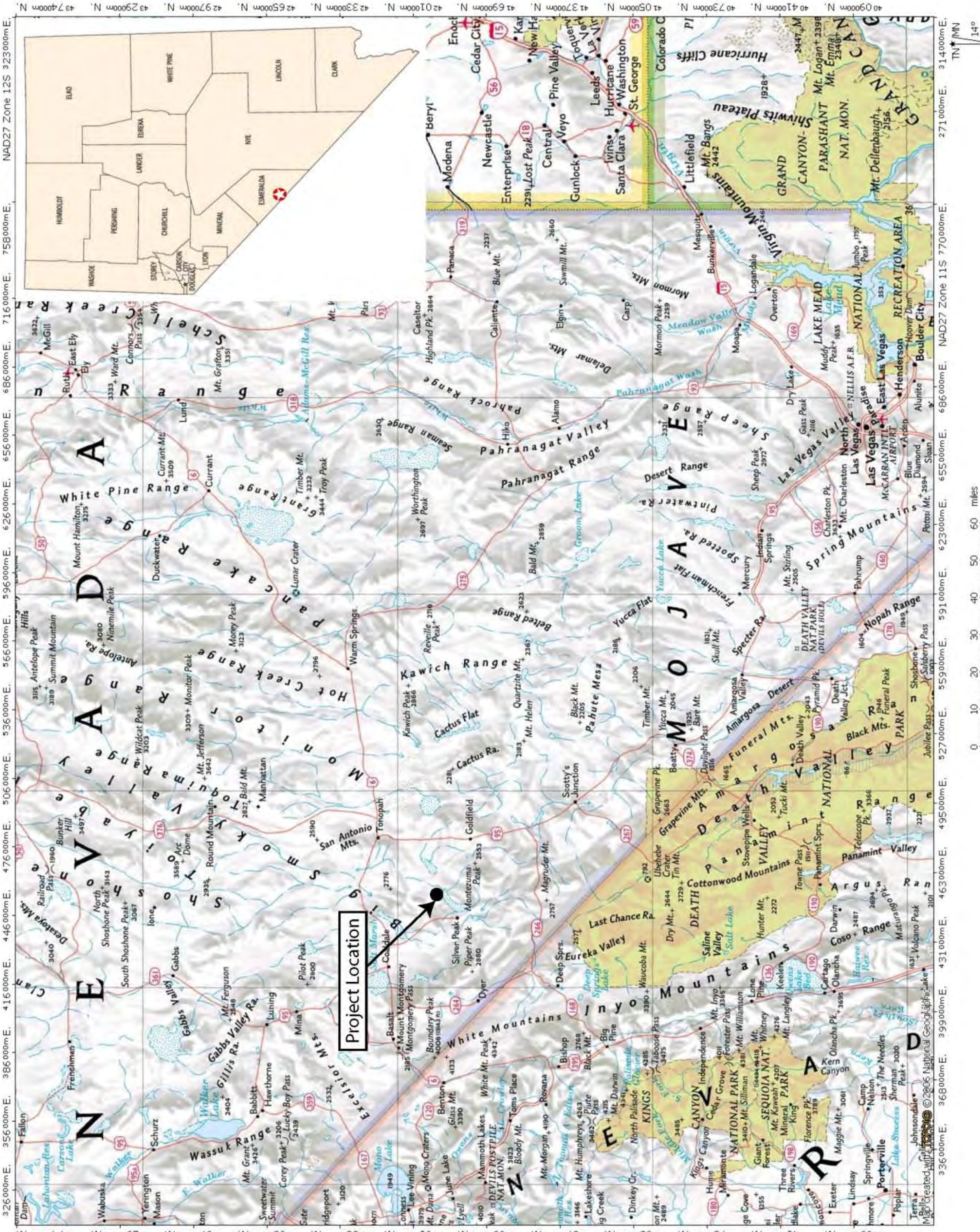
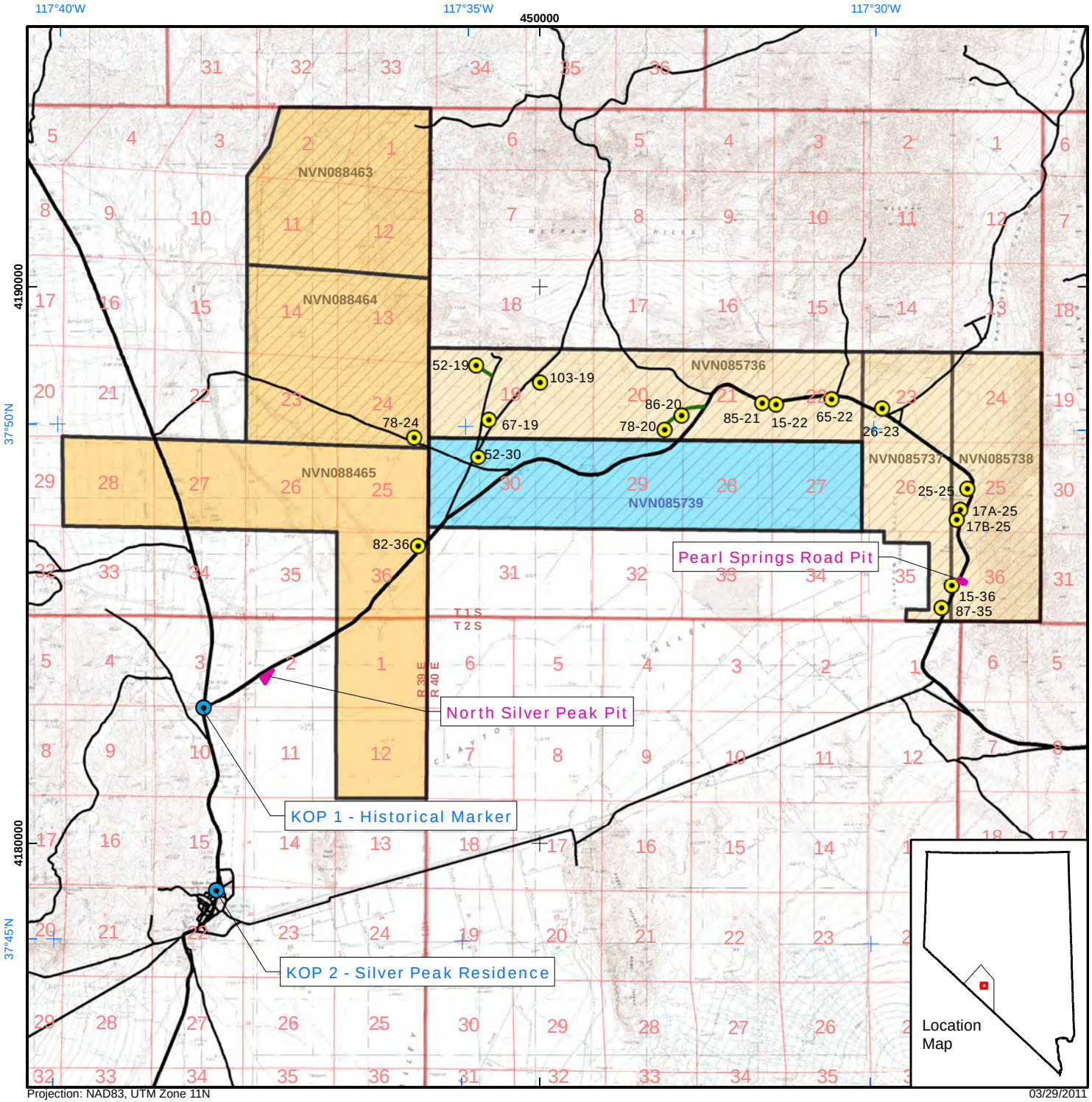


Figure 1. Project Vicinity Map

Figure 2
Proposed Action Map

Pearl Hot Springs Project Area
Esmeralda County, NV
T1S R39E,T1S R40E
T2S R39E MDB&M



- Pearl Hot Springs 1
- Pearl Hot Springs 2
- New Leases
- Proposed Unit
- Gravel Pit
- Proposed Geothermal Wells
- Key Observation Points

Roads

- Proposed Access Roads
- Major Roads
- Minor Roads

N W E S

0 0.5 1 2 Miles

USGS 7.5' Base Maps:
North of Silver Peak, Weepah, Paymaster Canyon, Silver Peak, Goat Island, Paymaster Ridge, Lida Wash NW, Alcatraz Island, Split Mountain

Projection: NAD83, UTM Zone 11N

03/29/2011

1.2 AGENCY PURPOSE AND NEED

In accordance with the Federal Land Policy and Management Act (FLPMA) (Section 103(c)), public lands are to be managed for multiple use that takes into account the long-term needs of future generations for renewable and non-renewable resources. Under the terms of the Geothermal Steam Act, its revisions of 2007, and its implementing regulations and the Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States and its Record of Decision of December 2008, BLM must respond to Ram's proposed Operation Plan, applications and programs submitted for the Clayton Valley Geothermal Exploration Project. BLM's need for the Proposed Action is to respond to the submitted Operations Plan submitted by Ram to conduct geothermal exploration and either approve, require modification, or deny the applications submitted. The purpose of the proposed action is to provide Ram with an approved Operations Plan for geothermal exploration on their federal geothermal leases in Clayton Valley, Nevada. The approved Operations Plan will meet BLM's responsibility to ensure that provisions of geothermal regulations in 43 Code of Federal Regulations (CFR) 3200 (et seq.) are fulfilled.

1.3 PLAN CONFORMANCE

The public land within the Project area is administered by the BLM, Tonopah Field Office. The Proposed Action is in conformance with the Tonopah Resource Management Plan (RMP) and Record of Decision approved on October 2, 1997.

- The Fluid Minerals Objective in the Tonopah RMP is "to provide opportunity for exploration and development of fluid minerals such as oil, gas, and geothermal resources, using appropriate stipulations to allow for the preservation and enhancement of fragile and unique resources". The proposed Project is within an area that is designated as "open to fluid minerals leasing subject to standard lease terms and conditions" (BLM 1997, page 22).

- The Mineral Materials Objective in the Tonopah RMP is "to provide for the extraction of mineral materials such as sand, gravel, building stone, cinders, etc., to meet public demand." The proposed Project is within an area that is designated as "open to mineral material disposal under standard terms and conditions" (BLM 1997, page 23). All mineral material disposals are discretionary. Appropriate terms and conditions are applied to ensure that the permittee will comply with all applicable laws and environmental safeguards.

This Proposed Action has been reviewed and determined to conform to the land use plan terms and conditions as required by 43 CFR 1610.5.

1.4 RELATIONSHIP TO LAWS, REGULATIONS, POLICIES, PLANS OR OTHER ENVIRONMENTAL ANALYSES

This EA has been prepared in accordance with the following statutes, implementing regulations, and guidance:

- The National Environmental Policy Act (NEPA) of 1969, as amended (Public Law [PL] 91 190, 42 USC (United States Code) 4321, et seq.)

  - 40 CFR 1500, et seq. Council of Environmental Quality Regulations for Implementing the Procedural Provisions of the NEPA.
- U.S. Department of the Interior requirements (Departmental Manual 516, Environmental Quality)
- The Federal Land Policy and Management Act (FLPMA) of 1976 (PL 94 579, 43 USC 1761 (et seq.)
- BLM NEPA Handbook (H-1790), as updated in 2008
- Considering Cumulative Effects under the NEPA
- Geothermal Steam Act of 1970 (30 USC 1001-1025), its revisions of 2007
  - 43 CFR 3200, Geothermal Resources Leasing and Operations; Final Rule, May 2, 2007
- The 2005 Energy Policy Act
- The National Energy Policy, Executive Order 13212
- Best Management Practices as defined in the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, the Gold Book, Fourth Edition – Revised 2007
- The Materials Act of July 31, 1947, as amended (61 Stat 681, 30 USC 601, et. seq.)
- The Multiple Use Mining Act of July 23, 1955, Public Law 167 (69 Stat 367, 30 USC 601, et seq)
- Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States (BLM 2008)
- The National Energy Policy, Executive Order 13212
- The Geothermal Energy Research, Development, Demonstration Act of 1974 (PL 93-140, 30 USC 1101, et seq.)
- DOI-BLM-NV-B020-2099-0016-EA, May 22, 2009- Alum Geothermal Exploration Project, Mineral Materials Contracts, Water Well and Pipeline Right-of-way and Access Road Right-of-way
- NV065-EA08-004 EA, February 25, 2008 Silver Peak Geothermal Exploration Project, Mineral Materials Contract

This page intentionally left blank.

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

2.1.1 Overview and Location of Proposed Project

Ram is proposing to construct, operate, and maintain the proposed Project within Esmeralda County, Nevada. The Project would include well and drill pad site preparation, geothermal well drilling and testing, access-road construction, and other necessary actions to support these activities.

The proposed wells would be located within federal geothermal leases on BLM-managed public lands. The leases are included within Unit N-89376X, with the exception of Lease N-88465. Ram Power acquired Sierra Geothermal Power on September 1, 2010, which included lease N-85739. Lease N-85739 is included in the Unit by means of a joinder (see Figure 2 and Table 1). The joinder was executed on March 1, 2011 and is included for reference as Appendix D.

The objective of unitization is to proceed with a program that will adequately and timely explore and develop all committed lands within the unit area without regard to internal ownership boundaries. Exploratory units normally embrace a prospective area that has been delineated on the basis of geological and/or geophysical inference. Geothermal exploratory unit agreements normally encompass all geothermal interests in all formations within the unit area and provide for the allocation of unitized production to the committed lands reasonably proven to be productive of unitized substances in paying quantities on the basis of the surface acreage included within the controlling participating area. By effectively eliminating internal property boundaries within the unit area, unitization permits the most efficient and cost-effective means of developing the underlying geothermal resources.

In cases where there are multiple owners with working interests within a unit area, a document known as a “joinder” is utilized to join the unit operator to those entities with working interests in the unit area. By way of a joinder, entities with a working interest in the unit area, who are not the unit operator, irrevocably commit to ratify, approve and adopt the respective unit agreement and, also, the respective unit operating agreement as fully as though they had executed the original instrument.

The Project would include:

- Construction activities and surface disturbance (see Section 2.1.3)
  - Well and drill pad preparation for drilling up to 17 geothermal exploration wells, with approximately 2.36 acres required for each well pad. The surface disturbance associated with new well pad construction would be approximately 40.12 acres for all 17 well pads.
  - Drill pad preparation activities including clearing, earthwork, drainage, containment basins (reserve pits), fencing reserve pits, and other site improvements
- Well drilling and testing (see Section 2.1.4)
  - Short-term well testing
  - Long-term well testing
- Site access and road construction (see Section 2.1.5)
  - The Project would utilize existing roads (US 6 W/US 95 N, State Route (SR) 265 (Blair Junction), and Paymaster Road) where possible

  - A total of approximately 2.00 acres of new access roads would be constructed to reach well pads
- Water requirements and source (see Section 2.1.6)
  - As much as 50,000 gallons of water per day would be required for drilling
  - As much as 10,000 gallons of water per day would be required for grading, construction, and dust control
  - Each well site would have a portable water tank(s) with at least 10,000 gallons
  - Water would be obtained from Silver Peak Water Company and trucked to the Project site
  - The total estimated water usage for 17 wells is approximately 149 acre-feet
- Aggregate requirements and source (see Section 2.1.7)
  - Drill pads would require approximately 2,900 cubic yards per pad (49,300 total cubic yards for 17 pads)
  - New roads would require approximately 1,211 cubic yards (4,360 feet of new roads with 6 inches of aggregate)
  - The total aggregate required for the well pad and access road construction is estimated to be 50,511 cubic yards
- Surface reclamation (see Section 2.1.8 and Appendix C)

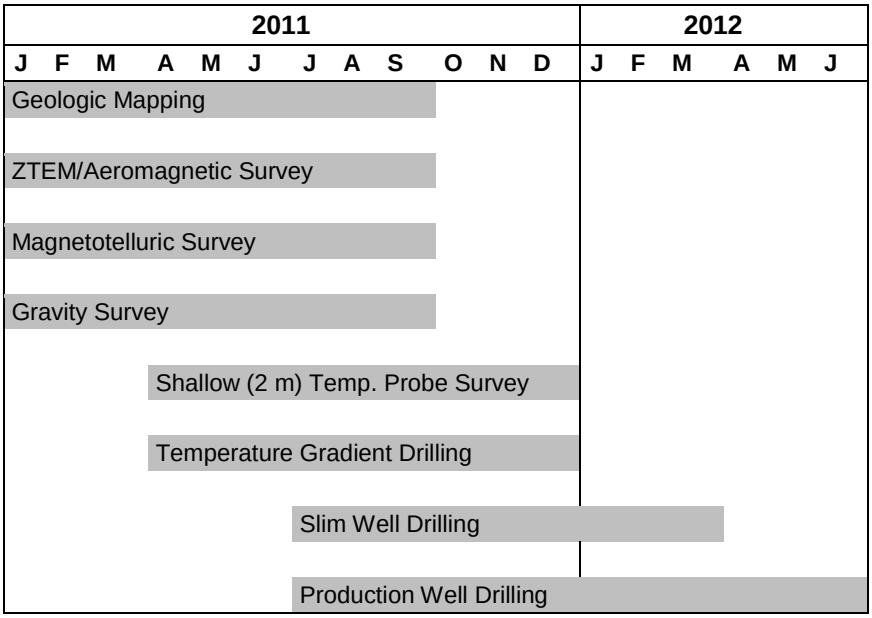
Ram expects that up to 17 geothermal exploration wells would be drilled and tested within the federal geothermal leases (see Figure 2 and Table 2).

Table 2. Proposed Geothermal Wells

Well Name (Kettleman No.)	Lease No.	Township/Range (MDB&M)	Legal Description (Section Number & Aliquot Part)	Approximate UTM Coordinates (NAD83)	
				Easting (m)	Northing (m)
85-21	N-85736	T1S, R40E	Section 21, NE¼, SE¼	453989.15	4187906.79
15-22	N-85736	T1S, R40E	Section 22, NW¼, SW¼	454238.11	4187881.34
65-22	N-85736	T1S, R40E	Section 22, NW¼, SE¼	455233.05	4187980.38
52-19	N-85736	T1S, R40E	Section 19, NE¼, NW¼	448851.05	4188582.33
103-19	N-85736	T1S, R40E	Section 19, SW¼, NE¼	450003.47	4188279.07
67-19	N-85736	T1S, R40E	Section 19, SE¼, SW¼	449081.53	4187611.88
78-20	N-85736	T1S, R40E	Section 20, SE¼, SE¼	452235.52	4187429.92
86-20	N-85736	T1S, R40E	Section 20, NE¼, SE¼	452538.79	4187684.66
26-23	N-85737	T1S, R40E	Section 23, NW¼, SW¼	456139.37	4187811.61
87-35	N-85737	T1S, R40E	Section 35, SE¼, SE¼	457209.32	4184222.90
15-36	N-85738	T1S, R40E	Section 36, NW¼, SW¼	457391.39	4184623.67
25-25	N-85738	T1S, R40E	Section 25, NW¼, SW¼	457672.41	4186365.23
17A-25	N-85738	T1S, R40E	Section 25, SW¼, SW¼	457546.60	4185993.49
17B-25	N-85738	T1S, R40E	Section 25, SW¼, SW¼	457482.62	4185815.04
52-30	N-85739	T1S, R40E	Section 36, NW¼, NE¼	448887.14	4186939.35
78-24	N-88464	T1S, R39E	Section 24, SE¼, SE¼	447740.56	4187295.32
82-36	N-88465	T1S, R39E	Section 36, SW¼, SW¼	447813.46	4185340.06

2.1.2 Schedule of Exploration Activities

Ram plans to commence exploration activities as soon as the required permits and approvals are obtained. It is expected that exploration will begin during the first half of 2011. The timing, order, and scale of each operation are contingent upon the success or failure of all other operations.



2.1.3 Construction Procedures and Surface Disturbance

Each well pad would be approximately 285 feet by 360 feet (approximately 2.36 acres per pad). A diagram of a typical well pad layout is provided as Figure 3 – Typical Well Pad Layout. Total surface disturbance associated with new well pad construction would be approximately 40.12 acres (17 pads at approximately 2.36 acres per pad).

Drill pad preparation activities would include clearing, earthwork, drainage, and other improvements necessary for efficient and safe operation and fire prevention. Only those drill pads scheduled to be drilled would be cleared. Clearing would include removal of organic material, stumps, brush and slash which would be removed and taken to the Goldfield Sanitary Landfill located in Goldfield, Nevada, which is operated by the Nevada Division of Environmental Protection (NDEP) Bureau of Waste Management. Topsoil would be stripped (typically to the rooting depth) and salvaged during the construction of all pads, as feasible. Salvaged topsoil would be stockpiled on the pads for use during subsequent reclamation of the disturbed areas, as described in the Reclamation Plan (Appendix C).

Each drill pad would be prepared to create a level pad for the drill rig and a graded surface for the support equipment. Stormwater runoff from undisturbed areas around the constructed drill pads would be directed into ditches surrounding the drill pad and back onto undisturbed ground, consistent with best management practices for stormwater. The well site would be graded to prevent the movement of stormwater from the pad off the constructed site and would be designed for a 100-year storm event.

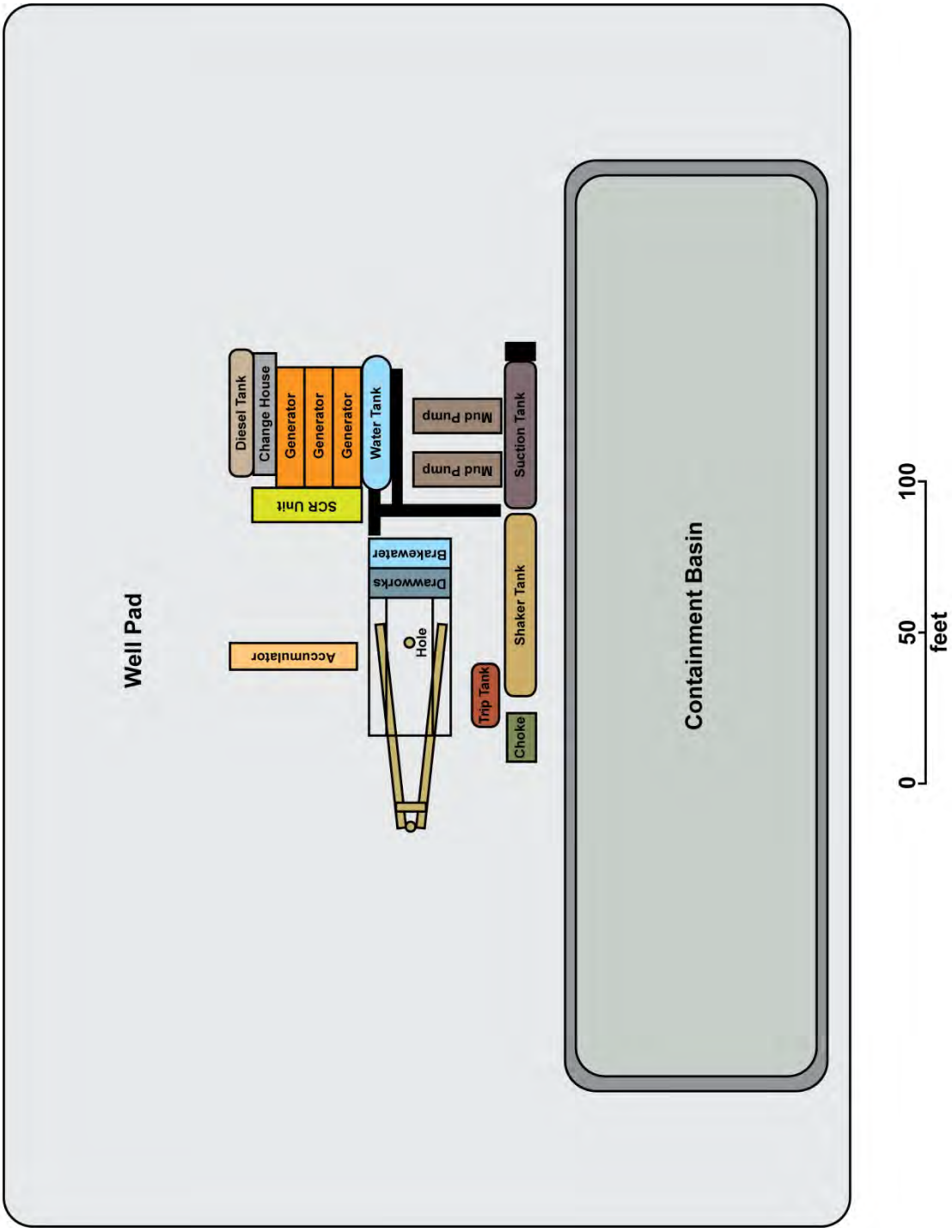


Figure 3. Typical Well Pad Layout – Well pads subject to minor changes to accommodate the selected drilling contractor's equipment.

Reserve pits would be constructed in accordance with best management practices identified in the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (The Gold Book) (U.S. Department of the Interior and U.S. Department of Agriculture 2007) on each pad for the containment and temporary storage of water, drill cuttings and waste drilling mud during drilling operations. Geothermal fluid produced from the well during flow testing would also drain to the reserve pit. The reserve pit waste would be sampled for hazardous contaminants. If test results indicate that these solids are hazardous, then solids shall be removed and relocated to an approved disposal site.

The reserve pits would be fenced with an exclosure fence on three sides and then fenced on the fourth side once drilling has been completed to prevent access by persons, wildlife, or livestock. The fence would remain in place until pit reclamation begins. Each reserve pit would measure approximately 80 feet by 330 feet by 9 feet deep (within this depth there would be a 2-foot freeboard). Ram will maintain a minimum of two feet of freeboard at all times in the reserve pits.

Once drilling is complete, the shoulders of the pad could be reclaimed, but the majority of the pad must be kept clear of restoration efforts for ongoing operations and the potential need to work on or redrill the well. See Section 2.1.8 and Appendix C for a description of reclamation procedures.

2.1.4 Well Drilling and Testing

Specific drilling information is provided in Table 3.

Table 3. Well Drilling Specifics, Per Well

Rig Type	Rig Height (feet)	Trucks Needed (on average)	Drilling Time (days)[1]	Workers on Site	Depth Drilled (feet)
Land-based 1,000–1,200 HP triple drilling rig	170 to 180	10	60[2]	up to 20	10,000

[1] Difficulties encountered during the drilling process, including the need to re-drill the well, could as much as double the time required to successfully complete each well.
[2] Drilling would be conducted 24 hours a day, 7 days a week.

Each well would be drilled with a land-based 1,000 to 2,000 horsepower triple drilling rig. The rig would be equipped with diesel engines, fuel and drilling mud storage tanks, mud pumps, and other typical auxiliary equipment. During drilling, the top of the drill rig derrick would be from 170 to 180 feet above the ground surface, depending on the rig used. An average of 10 trucks/service vehicles/worker's vehicles would be driven to the well site each day throughout the typical 60-day drilling process. Difficulties encountered during the drilling process could double the time required to complete each well successfully. Drilling would be conducted 24 hours per day, 7 days per week by a crew of up to 20 workers.

Any staging or laydown areas will occur on constructed well pads. The drilling supervisor and mud logger would typically sleep in a trailer on the active well site while the well is being drilled. The drilling crew may also live onsite during the drilling operations in a self-contained bunkhouse (sleeping quarters, galley, water tank and septic tank) or portable trailers that would be placed on one of the inactive well sites to accommodate the drill rig workers. Wastes from the septic tank will be trucked out and properly disposed of by a waste disposal service contractor.

Blowout prevention equipment would be utilized while drilling below the surface casing. During drilling operations, a minimum of 10,000 gallons of cool water and 12,000 pounds of inert, non-toxic, non-hazardous barite (barium sulfate) would be stored at each well site for use in preventing uncontrolled well flow ("killing the well"), as necessary.

The well bore would be drilled using non-toxic, temperature-stable drilling mud composed of a bentonite clay-water or polymer-water mix for all wells. Variable concentrations of additives would be added to the drilling mud as needed to prevent corrosion, increase mud weight, and prevent mud loss. Additional drilling mud would be mixed and added to the mud system as needed to maintain the required quantities.

Each well may need to be worked over or redrilled. Depending on the circumstances encountered, working over a well may consist of lifting the fluid in the well column with air or gas or stimulation of the formation using dilute acid or rock fracturing techniques.

Well redrilling may consist of: (1) re-entering and redrilling the existing well bore; (2) re-entering the existing well bore and drilling and casing a new well bore; or (3) sliding the rig over a few feet on the same well pad and drilling a new well bore through a new conductor casing. While the drill rig is still over the well, the residual drilling mud and cuttings would be flowed from the well bore and discharged to the reserve pit.

2.1.4.1 Short-term Well Testing

The Project area is accessed by following US 6 W/US 95 N from Tonopah, Nevada approximately 34 miles to Blair Junction/SR 265, then traveling south for approximately 18 miles to Paymaster Road/ESS 198, and continuing east on Paymaster Road for approximately 10 miles.

Most well pads are located along Paymaster Road/ESS 198 and Weepah Road/ESS 194. The road to well pad 78-24 crosses Weepah Road at UTM coordinates 11S 448758 mE 4186816 mN (NAD83) with a heading of 292 degrees. The road to proposed well pad 52-19 begins at a point on Weepah Road (ESS 194) at UTM coordinates 11S449025 mE 4187336 mN (NAD83) with an initial heading of 329 degrees.

Each test, lasting approximately eight hours on average, would consist of flowing the well into the reserve pits on the well site while monitoring geothermal fluid temperatures, pressures, flow rates, chemistry, and other parameters. An injectivity test may also be conducted by injecting the produced geothermal fluid from the reserve pit back into the well and the geothermal reservoir. The drill rig would likely be moved from the well site following completion of these short-term test(s). The amount of fluid from each short-term well test is expected to be approximately 150 tons per hour. Flows which encroach into the 2-foot freeboard section of the reserve pit will be diverted to neighboring reserve pits, injected into neighboring wells or captured in Baker tanks, depending upon specific well location and site conditions. Ram will maintain a minimum of two feet of freeboard in the reserve pits.

Because Well 82-36 is not part of the Unit, all flow testing will be contained within the boundary of lease N-88465.

2.1.4.2 Long-term Well Testing

The Project area is accessed by following US 6 W/US 95 N from Tonopah, Nevada approximately 34 miles to Blair Junction/SR 265, then traveling south for approximately 18 miles to Paymaster Road/ESS 198, and continuing east on Paymaster Road for approximately 10 miles.

Most well pads are located along Paymaster Road/ESS 198 and Weepah Road/ESS 194. The road to well pad 78-24 crosses Weepah Road at UTM coordinates 11S 448758 mE 4186816 mN (NAD83) with a heading of 292 degrees. The road to proposed well pad 52-19 begins at a point on Weepah Road (ESS 194) at UTM coordinates 11S449025 mE 4187336 mN (NAD83) with an initial heading of 329 degrees.

One or more long-term flow test(s) of each well drilled would likely be conducted following the short-term flow test(s) to determine long-term well and geothermal reservoir productivity accurately. The long-term flow test(s), each lasting up to 30 days, would be conducted by pumping the geothermal fluids from the well through on-site test equipment closed to the atmosphere (using a line shaft turbine pump or electric submersible pump) to the reserve pit. The amount of fluid is expected to be approximately 150 tons per hour. Flows which encroach into the 2-foot freeboard section of the reserve pit will be diverted to neighboring reserve pits, injected into neighboring wells or captured in Baker tanks, depending upon specific well location and site conditions. Ram will maintain a minimum of two feet of freeboard in the reserve pits.

Because Well 82-36 is not part of the Unit, all flow testing will be contained within the boundary of lease N-88465.

A surface booster pump would then pump the residual produced geothermal water/fluid through a temporary 8-inch to 10-inch diameter pipeline to inject the fluid into one of the other geothermal wells drilled within the Project area, or into a reserve pit drilled at another well site. The temporary pipeline would be laid on the surface of the disturbed shoulders on the access roads connecting the geothermal full-size wells (as required, roads would be crossed by trenching and burying the temporary pipe in the trench). The on-site test equipment would include standard flow metering, recording, and sampling apparatus.

Once the well is drilled and wellhead completed, an industrial grate would be placed over the hole and locked to prevent humans and wildlife from falling into the cellar.

2.1.5 Site Access and Road Construction

The Project area is accessed by following US 6 W/US 95 N from Tonopah, Nevada approximately 34 miles to Blair Junction/SR 265, then traveling south for approximately 18 miles to Paymaster Road/ESS 198, and continuing east on Paymaster Road for approximately 10 miles.

Most well pads are located along Paymaster Road/ESS 198 and Weepah Road/ESS 194. The road to well pad 78-24 crosses Weepah Road at UTM coordinates 11S 448758 mE 4186816 mN (NAD83) with a heading of 292 degrees. The road to proposed well pad 52-19 begins at a point on Weepah Road (ESS 194) at UTM coordinates 11S449025 mE 4187336 mN (NAD83) with an initial heading of 329 degrees.

Well pads were located as close to existing access roads as possible to minimize the construction of new access roads. Where necessary, new access roads would be constructed per Gold Book Standards to include a 15-foot-wide roadbed and 5-foot total shoulders. The total roadway width would be twenty feet. Roads would be constructed using a dozer and/or road grader. The following new access roads would be required (see Figure 2):

- Approximately 1,160 feet of new access road would be constructed to well site 52-19 for access from the south;
- Approximately 2,920 feet of new access road would be constructed to well sites 86-20 and 78-20; and
- Approximately 280 feet of new access road (20 feet to each well pad) would be constructed to 87-35, 15-36, 17B-25, 17A-25, 25-25, 26-23, 65-22, 15-22, 85-21, 52-30, 67-19, 103-19, 78-24 and 82-36.

The total estimated area of surface disturbance required for new access road construction is approximately 2.00 acres.

No culverts will be necessary for construction of new access roads and no new access roads are proposed on soils identified as playa soils. Ram Power will use only existing county roads for access to the Project area. Access to well sites will include existing and new access. While Ram does not anticipate that upgrades will be necessary to existing access roads, should upgrades be necessary at the time of construction, Ram will provide a sundry notice to BLM fully describing any changes to the Proposed Action.

2.1.6 Water Requirements and Source

Water required for well drilling could range up to as much as 50,000 gallons per day for an estimated 45 days of drilling activities per well. Water requirements for grading, construction, and dust control (approximately 10,000 gallons per day for an estimated 60 days per well) would also be required. One or more portable water tank(s) holding a combined total of at least 10,000 gallons would be maintained on the well sites during drilling operations.

The total estimated water usage for 17 wells is approximately 149 acre-feet.

Water required for construction activities would be obtained from the State of Nevada Division of Water Resources, under a Temporary Use of Water Waiver #OG-267/Permit 76343. Silver Peak Water Company will truck the water to the Project site. A copy of the waiver is included in Ram's Operations Plan.

2.1.7 Aggregate Requirements and Source

Drill pad and road building material (gravel) would be obtained from the nearest available source at either of the two existing aggregate pit locations:

- The Pearl Springs Road Pit, N-85738, (N1/2 NW1/4 SW ¼, Sec. 36, T1S, R. 40E.) or
- The North Silver Peak Pit, N-84316, (SE¼ SW¼ SW¼, S½ NE¼ SW¼ SW¼, Sec. 22, T. 2 S., R. 39 E.).

The material would be pit run alluvium and will require an aggregate purchase agreement with BLM.

Drill pads are site specific and selected to minimize the need for aggregate application. At most, each drill pad (exclusive of the reserve pit) would be covered with up to 12 inches of gravel (approximately 2,900 cubic yards/pad * 17 pads = 49,300 cubic yards).

Up to 6 inches of gravel would be applied to the new access roads, as necessary, to create an all weather surface (up to 4,360 feet (0.83 miles) of new roads * 15 foot wide drivable roadbed * 6 inches of aggregate = approximately 1,211 cubic yards).

Total aggregate required for the well pad and access road construction is estimated at 50,511 cubic yards (49,300 cubic yards for well pad construction + 1,211 cubic yards for road construction).

Mining Plan Form Mineral Material Sales Contracts will be required for use of aggregate in the Pearl Springs Road Pit and the North Silver Peak Road Pit. Ram Power will stage submittals of the contracts in accordance with Project progress and the respective incremental aggregate demand. The total Project aggregate demand will be split evenly between the two pits.

2.1.8 Surface Reclamation

After the well-drilling and testing operations are complete, liquid from the reserve pits would either naturally evaporate or be removed as necessary to reclaim the reserve pits. The solid contents remaining in each of the reserve pits, typically consisting of non-hazardous, non-toxic drilling mud and rock cuttings would be tested to confirm that they are not hazardous. Typical tests may include the toxicity Characteristic Leaching Procedure (Environmental Protection Agency [EPA] Method 1311); test for heavy metals; pH test (EPA method 9045D); Total Petroleum Hydrocarbons/Diesel test (EPA Method 8015B); and Oil and Grease tests (EPA Method 413.1). If the test results indicate that these solids are non-hazardous, the solids will then be mixed with the excavated rock and soil and buried by backfilling the reserve pit. If test results indicate that these solids are hazardous, then solids shall be removed and relocated to an approved disposal site.

If a well is determined by Ram to have no commercial potential, it may continue to be monitored, but would eventually be plugged and abandoned in conformance with the well abandonment requirements of the BLM and the Nevada Division of Minerals (see Appendix C of the Operations Plan). Abandonment typically involves filling the well bore with clean, heavy abandonment mud and cement until the top of the cement is at ground level. This ensures that fluids would not move across these barriers into different aquifers. The well head (and any other equipment) would then be removed, the casing cut off well below ground surface and the hole backfilled to the surface. Sundry Notices will be submitted to the BLM for plugging and abandonment.

The portions of the cleared well sites not needed for operational and safety purposes (i.e., the shoulders of the pad) would be recontoured to a final or intermediate contour that would blend with the surrounding topography as much as possible.

Reclamation of the roads would include recontouring the road back to the original contour, seeding, controlling noxious weeds and may include other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, pitting, and mulching. Revegetation will

follow the Reclamation Plan (Appendix C) and includes site appropriate seed mixtures. Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious, invasive, and non-native seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded. Seed mixtures will be subject to the approval of the BLM.

2.1.9 Adopted Environmental Protection Measures

Ram would comply with all special lease stipulations attached to leases N-85736, N-85737, N-85738, N-85739, N-88463, N-88464 and N-88465, which are applicable to Project operations. In addition to measures described below, Ram will also institute the following:

- Water would be applied to the disturbed ground during the construction and utilization of the drill pads and access roads as necessary to control dust.

- Portable chemical sanitary facilities would be available and used by all personnel during periods of well drilling and/or flow testing. These facilities would be maintained by a local contractor.

- Solid wastes (paper trash and garbage) generated by the operations would be transported offsite to the Goldfield Sanitary Landfill located in Goldfield, Nevada which is operated by the NDEP Bureau of Waste Management.

2.1.9.1 Fire Prevention and Control

All construction and operating equipment would be equipped with applicable exhaust spark arresters. Fire extinguishers would be available on the Project site. One or more portable water tank(s) holding a combined total of at least 10,000 gallons would be maintained on the well sites during drilling operations and would be available for firefighting. Personnel would be allowed to smoke only in designated areas and they would be required to follow applicable BLM regulations regarding smoking. A fire prevention and control plan is provided as part of the Operations Plan.

2.1.9.2 Surface and Groundwater Protection

Under normal operating conditions, geothermal fluids would be discharged to the reserve pits and not the ground. Further, geothermal wells are cased to prevent co-mingling of the geothermal fluids with underground aquifers. A spill containment and notification plan is provided as Appendix A of the Operations Plan.

2.1.9.3 Soils

Erosion control measures during construction would include limiting the area of disturbance and installing silt fencing around stockpiled soil. Erosion control measures after construction would include revegetation and periodic maintenance. Disturbed areas that would not be used after construction would be revegetated with the proper seed mixture and planting procedures prescribed by the BLM. Any topsoil enriched in organic material may be stockpiled on previously disturbed areas and applied to enhance areas to be reclaimed by revegetation. Revegetation will follow the Reclamation Plan (Appendix C) and includes site appropriate seed mixtures.

Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious, invasive, and non-native seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded. Seed mixtures will be subject to the approval of the BLM.

2.1.9.4 Wildlife Protection

To prevent undue degradation and removal of habitat, cover, and food, existing roads would be used whenever possible and cross-country travel would be restricted to designated disturbance areas. Speed limits of 25 mph would be observed on all unpaved roads in the Project area and will be strictly enforced in order to avoid collision and incidental death of local wildlife.

2.1.9.5 Cultural Resource Protection

Cultural resource surveys would be conducted prior to construction activities. Ram employees, contractors, and suppliers would be reminded that all cultural resources are protected and if uncovered shall be left in place and reported to the Ram representative and/or their supervisor. Cultural issues shall be addressed during daily safety briefings. If cultural resource (historic or prehistoric site or object) are discovered by Ram Power, or any person working on their behalf, on public or Federal land it shall be immediately reported to the Tonopah Field Office at (775) 482-7800. Ram Power will suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values.

2.1.9.6 Minimization of Air Pollution

Ram would comply with any air quality requirements prescribed by the NDEP, Bureau of Air Pollution Control (BAPC). Water would be applied to the ground during the construction of the drill pads and access roads as necessary to control fugitive dust. Speed limits of 25 mile per hour (mph) would be observed on all unpaved roads in the Project area and will be strictly enforced in order to minimize dust. Ram would continue to maintain its Surface Area Disturbance (SAD) permit with the NDEP-BAPC, and continue to implement the required actions to minimize fugitive dust emissions, during the well drilling and construction phases of the Project.

2.1.9.7 Minimization of Noise Pollution

To abate noise pollution, mufflers would be used on all drilling rig engines. Each well pad may have one rock muffler. Rock mufflers are approximately 30 feet tall with a diameter of about 10 feet and are used to attenuate steam-venting noise during well testing. Construction and drilling noise would be minimized through operational practices, which would avoid or minimize practices that typically generate high noise levels or distinctive noise impacts.

2.1.9.8 Minimization of Hazards to Public Health and Safety

Construction and operation activities would be conducted in a manner to avoid creating any hazards to public health and safety. The Project is located in a remote area and would not likely cause hazards to public health and safety. An Emergency Escape/Evacuation and Sheltering in

Place Plan, Rescue and Medical Response Plan, and Hydrogen Sulfide Contingency Plan is provided as part of the Operations Plan.

2.1.9.9 Standard Operating Procedures for Geothermal Well Drilling

In addition to the adopted environmental protection measures listed above, the following Standard Operating Procedures (SOPs) will be implemented as part of the Project:

- The operator shall obtain and maintain all necessary State of Nevada and local permits applicable to drilling exploration drill holes.
- The reserve pit shall be fenced in conformance with the *Gold Book*.
- Trash shall be contained onsite and hauled to an approved landfill. Burial of trash onsite is not permitted.
- Portable chemical toilets shall be used for human waste. Human waste may not be buried on site.
- Upon abandonment, the operator shall:
  - Remove all trash and debris from the site and disposed of it properly.
  - Recontour the reserve pit to as near original grade as possible, and spread topsoil saved from digging the pit over the covered pit and pad.
  - All reclamation of the disturbed areas shall be completed within 1 year from the date of the proper plugging and abandonment of the well. The Authorized Officer of the BLM shall be notified in writing when reclamation operations commence and when reclamation is complete and shall accept the reclamation in writing once a site inspection has been completed and verification that all reclamation has been successful.

2.2 ALTERNATIVES TO THE PROPOSED ACTION

NEPA requires that a reasonable range of alternatives to the Proposed Action be considered that could feasibly meet the objectives of the Proposed Action as defined in the purpose and need for the Project (40 CFR 1502.14[a]). The range of alternatives required is governed by a rule of reason (i.e., only those feasible alternatives necessary to permit a reasoned choice need be considered). Reasonable alternatives are those that are practical or feasible based on technical and economic considerations (46 *Federal Register* 18026 [March 23, 1981], as amended; 51 *Federal Register* 15618 [April 25, 1986]).

Alternatives to the Proposed Action must be considered and assessed whenever there are unresolved conflicts involving alternative uses of available resources (BLM NEPA Handbook H-1790-1, page 79 (BLM 2008)). No unresolved conflicts regarding the Proposed Action have been identified to drive the creation of any alternatives that would still meet Ram's purpose for the proposed Project: to determine subsurface temperatures, confirm the existence of geothermal resources, and confirm the existence of a commercial geothermal reservoir at the proposed drill sites within the federal geothermal leases. Therefore, no alternatives (other than the No Action Alternative) will be analyzed in this EA.

2.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, the BLM would deny Ram's proposal to conduct the proposed Project on public lands. The environmental effects from implementation of the proposed Project would not occur. Current uses and conditions would continue in the area. Implementation of the No Action Alternative would not meet Ram's purpose and need for the proposed Project.

This page intentionally left blank.

3. AFFECTED ENVIRONMENT

3.1 SUPPLEMENTAL AUTHORITIES

To comply with the NEPA, the BLM is required to address specific elements of the environment that are subject to requirements specified in statute or regulation or by executive order (BLM 1997; BLM 2008). The following table outlines the elements that must be addressed in all environmental analyses, as well as other resources deemed appropriate for evaluation by the BLM, and denotes if the Proposed Action affects those elements (see Table 4). For the purposes of the analysis, the Project area includes Ram's lease boundaries shown in Figure 2 – Proposed Action Map.

Table 4. Critical Elements Affected by the Proposed Action

Element	Present Yes/No	Affected Yes/No	Rationale
Air Quality	Yes	Yes	See discussions in Sections 3.3.1, 4.1.1, and 5.4.1.
Area of Critical Environmental Concern (ACEC)	No	No	The proposed Project is not located in or near any ACECs.
Cultural Resources	Yes	No	See discussion in Sections 3.3.2 and 4.1.2.
Environmental Justice	No	No	The proposed Project is not expected to have disproportionately high adverse impacts to minority or low-income populations.
Fish Habitat	No	No	There is no fish habitat in the Project area.
Floodplains	No	No	There are no floodplains in the Project area.
Forest and Rangelands	No	No	There are no forested areas in the Project area.
Human Health and Safety	No	No	The proposed Project would not contribute to human health and safety concerns per Executive Order 13045.
Noxious Weeds	No	No	Lease stipulations and SOPs would prevent the introduction of non-native, noxious, and invasive species.
Lands with Wilderness Characteristics (LWC)	No	No	The proposed Project does not contain LWC as per Secretarial Order No. 3310. Analysis was conducted by reviewing past Wilderness Inventories, GIS analysis, and a project site visit.
Migratory Birds	Yes	Yes	See discussion in Sections 3.3.9, 4.1.9, and 5.4.9.
Native American Religious Concerns	Yes	No	See discussion in Sections 3.3.3, 4.1.3, and 5.4.3.
Prime or Unique Farmlands	No	No	The proposed Project is not located in or near any prime or unique farmlands.
Threatened, and/or Endangered, Species (plants and animals)	No	No	See discussion in Section 3.3.10
Wastes, Hazardous or Solids	Yes	Yes	See discussion in Sections 3.3.4, 4.1.4, and 5.4.4.
Water Quality (Surface and Ground)	Yes	Yes	See discussion in Sections 3.3.5, 4.1.5, and 5.4.5.
Wetlands and Riparian Zones	No	No	The proposed Project is not located near any wetlands and riparian zones.
Wild and Scenic Rivers	No	No	The proposed Project is not located in or near any wild and scenic rivers.
Wilderness	No	No	The proposed Project is not located in or near any Wilderness areas or Wilderness Study Areas.

As outlined above, the following supplemental authorities of the human and natural environment will not be brought forward for further analysis in this EA: ACECs; Environmental Justice; Fish Habitat; Floodplains; Forests and Rangelands; Noxious Weeds; Prime or Unique Farmlands; Threatened, and/or Endangered, Species (plants and animals); Wetlands and Riparian Zones; Wild and Scenic Rivers; and Wilderness.

3.2 OTHER RESOURCES

Other resources of the human and natural environment that have been considered for this EA and elements that may be affected are further described in the EA. Rationale for those elements that would not be affected by the Proposed Action and Alternatives is listed in Table 5 below.

Table 5. Other Resources Affected by the Proposed Action

Other Resources	Present Yes/No	Affected Yes/No	Comments
Geology and Minerals	Yes	Yes	See discussion in Sections 3.3.6, 4.1.6, and 5.4.6
Soils	Yes	Yes	See discussion in Sections 3.3.7, 4.1.7, and 5.4.7
Vegetation	Yes	Yes	See discussion in Sections 3.3.8, 4.1.8, and 5.4.8
Special Status Species	No	No	There are no known occurrences of special status species within the Project area. See section 3.3.11 for survey results.
Wildlife Resources	Yes	Yes	See discussion in Sections 3.3.12, 4.1.12, and 5.4.12
Rangeland Management	Yes	Yes	See discussion in Sections 3.3.13, 4.1.13, and 5.4.13
Paleontological Resources	No	No	No outcrops of fossil-bearing strata have been identified in the area of potential effect.
Recreation	Yes	Yes	See discussion in Sections 3.3.14, 4.1.14, and 5.4.14
Visual Resources	Yes	Yes	See discussion in Sections 3.3.15, 4.1.15, and 5.4.15
Socio-Economic Values	Yes	Yes	See discussion in Sections 3.3.16, 4.1.16, and 5.4.16
Land Use Authorization	Yes	Yes	See discussion in Sections 3.3.17, 4.1.17, and 5.4.17
Forestry	No	No	The Project area is not located within forested areas.
Wild Horse and Burro	Yes	Yes	See discussion in Sections 3.3.18, 4.1.18, and 5.4.18
Fire Management	No	No	The Project is not located within town boundaries.

3.3 RESOURCES REQUIRING FURTHER ANALYSIS

3.3.1 Air Quality

Air quality in the Project area has been designated as attainment/unclassified, which means it either meets or is assumed to meet the applicable federal ambient air quality standards, for all standard (criteria) air pollutants (EPA 2010). The Nevada Department of Conservation and Natural Resources (NDCNR) and the NDEP-BAPC have been delegated responsibility by both the federal EPA and the state of Nevada to regulate air pollution concentrations and the emissions of air pollutants in the Project area. The Project area is not located in or adjacent to any mandatory Class I (most restrictive) federal air quality areas, U.S. Fish and Wildlife Service (USFWS) Class I air quality units, or American Indian Class I air quality lands.

3.3.2 Cultural Resources

The area of potential effect (APE) for cultural resources includes 17, approximately 285 feet by 360 feet well pads and associated 20-foot-wide access roads. The historic road going to the mining complex northeast of well pad 52-19 must be surveyed for cultural resources before any road improvements are initiated. Should significant cultural resources be identified during the survey, mitigation must be completed before any road improvements are initiated. If a decision is made to not do the cultural survey, well pad 52-19 shall be removed from the exploration plan. The survey area for each well pad was 600 feet by 600 feet and the survey area for proposed access roads was 100 feet along the road centerline. The survey area documented approximately 154.87 acres, including well pads and access roads. Cultural resource surveys for the proposed well sites and access roads were conducted by EPG on June 21 and 22, 2010 and October 1, 2010 (Mandelko et al. 2011).

A total of three historic sites were recorded during the inventory for this Project. Two sites were segments of historic roads. Both sites have been recommended to be non-contributing elements of eligible historic roads and not eligible to the National Register of Historic Places (NRHP). BLM has recommended to the State Historic Preservation Office that the third site be determined to be eligible to the NRHP under criteria b and d. The proposed well location near this site was withdrawn and the historic site will be avoided by the proposed Project. To protect this site from construction activities at nearby well locations, a one hundred foot buffer shall be established around the site by a professional archaeologist permitted by the BLM. The site and buffer zone shall be fenced or monitored during all construction activities.

3.3.3 Native American Religious Concerns

Information sharing is on-going with the Timbisha, Yomba and Duckwater Shoshone Tribes and will continue throughout the life of the Project. A letter describing the Project and offering the opportunity for consultation was sent to all of the Tribes on November 17, 2010. A general discussion about geothermal projects in Clayton Valley was held at a meeting with Timbisha Shoshone Tribal representatives on July 29, 2009. The Timbisha Shoshone Tribal representatives asked to be kept updated on all projects in the Clayton Valley area. Due to internal events within the Timbisha Shoshone Tribe, the Bureau of Indian Affairs (BIA) refused to recognize the tribal council in 2010. Information about the Project continues to be shared with the Tribal Historic Preservation Officer, but the administrative offices are closed and there have been no council members available to respond to offers of consultation. BIA made a decision in March to recognize a council in Bishop, California beginning on March 1, 2011 for 120 days. Information sharing with the new council about the Project has been initiated by BLM.

3.3.4 Wastes, Hazardous or Solid

There are no hazardous material storage facilities in the Project area and no hazardous materials are known to be routinely used in the Project area. There are no farms or ranches in the Project area that could use bulk quantities of fuel, fertilizers or pesticides. The transport and handling of hazardous materials in Nevada are subject to numerous federal and state laws and regulations.

3.3.5 Water Quality (Surface and Ground) and Water Quantity

The proposed Project is located within the Clayton Valley Hydrographic Area, designated as area 143 of the Central Region, Hydrographic Basin 10. The Clayton Valley Hydrographic Area covers 555 square miles. Clayton Valley is a topographically closed basin bounded by low to medium altitude mountain ranges. Clayton Valley is a graben structure. Seismic and gravity surveys reveal numerous horst and graben features with the basin deepening to the east-southeast. Extensive faulting has created hydrologic barriers resulting in the accumulation of lithium brines below the playa surface. Jennings (2010) states that satellite imagery and recent geological mapping indentify several parallel north-south trending faults that are semi-permeable barriers separating the fresh water aquifer on the west from the brines beneath the playa. Stratigraphic barriers occur around much of the playa, isolating it from significant freshwater inflows originating in the mountains.

Recharge occurs as underflow into the basin from Big Smoky Valley in the north and Alkali Spring Valley in the West. Recharge derived from precipitation in the basin is low due to high evapotranspiration rates.

Ram's water requirements for drilling 17 geothermal wells and for dust control totals approximately 149 acre-feet. The drilling of 17 wells is expected to take nearly three years. The source of water for the project is an existing well operated by the Town of Silver Peak, Nevada, 02S 39E 28, under Permit 76343. Ram was granted a waiver (OG-267) by the Nevada Division of Water Resources for 66.3 acre-feet, the waiver expires on February 9, 2012. Ram will seek additional waivers as needed.

3.3.6 Geology and Minerals

Clayton Valley is located within a transitional zone between the western margin of the Basin and Range Geographic Province and the eastern margin of the Sierra Nevada Block. Basin and Range geomorphology is characterized by north to northeast trending range-front block faults that create uplifted mountain ranges adjacent to down-dropped, sediment-filled valleys. The Sierra Nevada Block is dominated by north-west trending faults of the Walker Lane structural zone with inferred lateral as well as vertical slip on major structures. The prominent fault trends of the Clayton Valley area are mapped as north to northeast, northwest, and easterly (Albers and Stewart 1972). Mountain ranges near the Project area lease holdings include Mineral Ridge to the west, the Weepah Hills to the north and Paymaster Ridge to the east. The ranges and intervening basins are generally irregular in shape largely due to the complexity and variety of the major structural trends. The Walker Lane Belt is composed of the Central Walker Lane (CWL) north and east of Clayton Valley and the Southern Walker Lane (SWL) and Eastern California Shear Zone (ECSZ) to the west and south.

The domain of elevated geothermal gradient in the Clayton Valley region is located within a broad zone of active deformation approximating the boundary between dominantly east-west extension in the Basin and Range province and dominantly NW directed transform motion along the Pacific-North American plate boundary to the west. The interaction between extension and transcurrent shear has resulted in a complex array of NW-striking dextral and normal faults, NE-striking normal faults, and ENE-striking sinistral faults that accommodate intraplate strain east of the Sierra Nevada and into western Nevada. This high strain accommodation zone is referred to as the Walker Lane Belt.

Clayton Valley is part of a unique structural domain which during the Miocene and early Pliocene kinematically linked dextral strike slip displacement from the CWL to the SWL/ECSZ. This domain extends from the west side of Fish Lake Valley to the east side of Clayton Valley and north to Big Smokey Valley and contains the Fish Lake-Emigrant geothermal properties as well as the Clayton Valley properties. This zone, characterized by a high degree of Miocene to Pliocene extension, is referred to as the Silver Peak-Lone Mountain core complex. Kinematic linkage of the CWL and SWL is currently accomplished by a series of active left-lateral faults which collectively comprise the Mina Deflection.

Tertiary extension initiated in the Silver Peak – Lone Mountain core complex as a low angle NW dipping detachment system which began around 10 million years ago (mya) and continued until around 5 mya. Sometime after ~5 mya and the end of detachment faulting, strain began to be accommodated by steeper NE striking normal faults and NW trending strike-slip faults that control the upwelling of geothermal fluids from depth in the region. The inactive detachment fault also appears to locally act as a fluid flow pathway.

There are no known geologic hazards that could affect the Proposed Action within the Project area.

Gold and silver have been produced historically within the Silver Peak District located along Mineral Ridge, which lies west and south of the Project area. Currently, Clayton Valley is known for its lithium production. Chemetall produces lithium from salt-rich, valley-fill aquifers beneath the valley surface. Salt brines are pumped from the aquifers and concentrated by evaporation in surface ponds. Lithium carbonate is extracted from the enriched brines and sodium and potassium are common by-products (Chemetall 2010).

There are over 350 active mining claims on public lands within the Ram leasehold (BLM 2010a). Two Notices of Intent to conduct surface disturbance under five acres have been approved within the leasehold area. The total area of disturbance authorized under these notices is 1.34 acres. Chemetall has both patented land with BLM approval of 10,711 acres of disturbance and a Mine Plan of Operations with authorized disturbance of 620 acres, which overlaps the Ram leasehold. The portion of Chemetall's approved surface operations, which could potentially coincide with Ram's proposed well sites, is within Section 35, T1S, R40E (BLM 2010b).

Two proposed gravel pits are located in alluvial deposits outside of the Ram leasehold area in Sections 2 and 22 of T2S, R39E and Section 8 of T2S, R40½E.

3.3.7 Soils

Soil types in the Project area were identified using the Soil Survey of Esmeralda County, Nevada by the Natural Resources Conservation Service (Soil Conservation Service 1983).

The North Silver Peak Pit, well site 52-19 (and its associated access roads), well sites 78-24, 82-36, 52-30, 67-19, 103-19, 78-20 and 86-20 (and their associated access roads), and well sites 85-21, 15-22, 25-25 and 87-35 are located in the Gynelle-Oricto Association, warm. Soil properties for this association are found below:

Table 6. Soil Properties for Gynelle-Oricto Association				
Soil	Permeability	Runoff Potential	Erosion Hazard	
			By Water	By Wind
Gynelle Soil	Rapid	Slow	Slight	Slight
Oricto Soil	Moderate	Slow	Slight	Slight

Well site 26-23 is located in the playa. Runoff potential and erosion hazard for this association were not identified in the soil survey, but the permeability is described as "Barren".

Well site 65-22 is located in the Wardenot-Gynelle-Stonelle Association. Soil properties for this association are found below:

Table 7. Soil Properties for Wardenot-Gynelle-Stonelle Association				
Soil	Permeability	Runoff Potential	Erosion Hazard	
			By Water	By Wind
Wardenot Soil	Rapid	Slow	Slight	Moderate
Gynelle Soil	Rapid	Slow	Slight	Moderate
Stonelle Soil	Rapid	Slow	Slight	Moderate

The Pearl Springs Road Pit and well sites 17A-25, 17B-25 and 15-36 are located in the Gynelle-Luning Association. Soil properties for this association are found below:

Table 8. Soil Properties for Gynelle-Luning Association				
Soil	Permeability	Runoff Potential	Erosion Hazard	
			By Water	By Wind
Gynelle Soil	Rapid	Slow	Slight	Moderate
Luning Soil	Rapid	Slow	Slight	Moderate

3.3.8 Vegetation

Based on a review of data provided by the Southwestern Regional Gap Analysis Program (SWReGAP) and a botanical survey conducted on June 5 and 6, 2010, the Project area consists of two vegetative communities. The western portion, which covers the North Silver Peak Pit and proposed well sites 52-19, 103-19, 67-19, 78-20, 78-24, 52-30, 82-36, and 86-20, consists of inter-mountain basins mixed salt desert scrub (U.S. Geologic Survey [USGS] 2004). This vegetation type is dominated by boxthorn species (*Lycium pallidum* and *L. andersonii*) and saltbush species (*Atriplex confertifolia*, *A. canescens*, and *Sarcobatus vermiculatus*). These well sites were rocky with areas of desert pavement interspersed with small sandy or gravelly drainages.

The eastern portion of the Project area, encompassing the Pearl Springs Road Pit and the remainder of the wells, consists of a mix of inter-mountain basin playas, active and stabilized dunes, and invasive annual and biennial forbland (USGS 2004). These plots are sandy with very sparse vegetation. Surveys of the Project area found six native species including

cheesebush (*Hymenoclea salsola*), iodinebush (*Allenrolfea occidentalis*), bush seepweed (*Sueada moquinii*), shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), and Nevada dalea (*Psorothamnus polydenius*) and two non-native species: saltlover (*Halogeton glomeratus*) and Russian thistle (*Salsola* spp.). While the other species also occurred on the western sites, iodinebush was only found on these barren sandy sites on small dune hummocks.

3.3.9 Migratory Birds

A migratory bird, as defined by the Migratory Bird Treaty Act (16 USC 701-718h), is any species of bird listed in 50 CFR 10.13. This is generally considered any species of bird except upland game species, feral pigeons, European starlings, and English house sparrows. Migratory birds may be found in the Project area either as seasonal residents or as migrants. Provisions of the Migratory Bird Treaty Act prohibit the killing of any migratory birds, including the taking of any nest or egg, without a permit. Executive Order 13186, titled *Responsibilities of Federal Agencies to Protect Migratory Birds*, was signed on October 1, 2001 to further enhance and ensure the protection of migratory birds. Two species of birds were observed in the Project area during field surveys: the Common Raven (*Corvus corax*) and the Western Kingbird (*Tyrannus verticalis*).

3.3.10 Threatened or Endangered Species

Section 7(c) of the Endangered Species Act of 1973, as amended, requires federal agencies to consult with the USFWS concerning species listed under the Act. Consistent with this requirement and the applicable general stipulations appended to the leases (see Section 2.1.9), on May 21, 2010 a letter requesting information regarding threatened and endangered species which may occur in the sections comprising the Project area was sent to the USFWS. The USFWS responded in a letter dated June 7, 2010 that, to the best of their knowledge, no listed, proposed or candidate species existed in the Project area (USFWS 2010). No threatened or endangered species were observed during field surveys.

3.3.11 Special Status Species

A Sensitive Taxa Record Search compiled by the Nevada Natural Heritage Program in July 2010, at the request of EPG, found no records of sensitive species occurrences within the Project area. The search report stated that occurrences of Eastwood milkweed (*Asclepias eastwoodiana*), a Nevada BLM Sensitive Species, was found 3.5 miles north of the Project area.

Eastwood milkweed plants live in open areas on a wide variety of basic (pH usually 8 or higher) soils, including calcareous clay knolls, sand carbonate or basaltic gravels, or shale outcrops, generally barren and lacking competition, frequently in small washes or other moisture-accumulating microsites, in the shadscale, mixed-shrub, sagebrush, and lower piñon-juniper zones. Areas proposed for surface disturbance were surveyed in June 2010 for the presence of Eastwood milkweed. No Eastwood milkweed was found during these surveys.

There are no known locations for BLM special status wildlife species within the Project area. Roost locations for two BLM special status bat species, the Townsend's Big-eared Bat (*Corynorhinus townsendii*) and the Western Pipistrelle (*Parastrellus hesperus*), are located approximately 6 miles southwest of the Project area, west of Blair, Nevada. Although no known

roost locations occur within the Project area, individuals from the Blair area roosts could potentially use suitable habitat within the Project area for foraging or roosting.

3.3.12 Wildlife Resources

A baseline survey for wildlife species was conducted on June 2, 2010. A variety of wildlife species may occur within the Project area. Common wildlife known to inhabit the area include coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), badger (*Taxidea taxus*), chukar (*Alectoris chukar*), and several different lizard, snake, raptor, and migratory bird species. No suitable habitat exists within the Project area for desert bighorn sheep, mule deer, elk, or sage-grouse. Wildlife species observed in the Project area during field surveys include the White-tailed Antelope Ground Squirrel (*Ammospermophilus leucurus*), Zebra-tailed Lizard (*Callisaurus draconoides*), Great Basin Collared Lizard (*Crotaphytus bicinctores*), Great Basin Whiptail (*Cnedmidophorus tigris tigris*), and the Darkling Beetle (*Eleodes armata*).

3.3.13 Rangeland Management

Eight of the 17 proposed geothermal exploration wells are located within the Yellow Hills grazing allotment, which includes well sites 82-36, 78-24, 52-30, 67-19, 52-19, 103-19, 15-36, 87-35. The Yellow Hills allotment categorization is to manage custodially, while protecting existing resource values (BLM 1997). The other 9 proposed wells are located within an unallocated area. The Yellow Hills allotment includes 62,203 acres with 180 animal unit months (AUM) permitted (Stephens 2010). An AUM is the amount of forage needed to sustain 1 cow, 5 sheep, or 5 goats for a month.

Approximately 24.89 acres (acreage for 8 well pads and proposed access roads in Yellow Hills allotment) of the 42.12 acres of total disturbance associated with the proposed Project occur within the Yellow Hills allotment, while the remaining 17.23 acres of disturbance are located within an unallocated area where livestock use is not permitted. The amount of disturbance on the Yellow Hills allotment represents a loss of less than 0.1 percent of 1 AUM.

3.3.14 Recreation

There are no designated trails or developed recreational facilities in the Project area. The nearest undeveloped recreation site is Clayton Valley Sand Dunes, located approximately 9.5 miles to the south of the nearest well (82-36). The Blair historical marker is located along SR 265 (SR 265 will be used to access the proposed well pads) approximately 3 miles from the western-most proposed well pads. Views of the proposed Project from the marker are discussed below in section 3.3.15. Competitive off-highway vehicle races are periodically authorized within the Project area. Specific race routes change annually, but are primarily located along maintained gravel or dirt roads. Dispersed recreation activities occur in the area and primarily include ATV use.

3.3.15 Visual Resources

This section of the EA addresses visual resources, including visual resource management objectives, scenic quality, key observation points (KOP); and visibility related to the construction, operation, and maintenance of the proposed Project. The visual resource study is

based upon the BLM Visual Resource Management (VRM) System (BLM 1986) and addresses the potential visual effects of the proposed Project on landscape scenic quality, KOPs, and compliance with VRM classifications.

3.3.15.1 Project Setting

The Project area is within the Great Basin section of the Basin and Range Province (Fenneman 1931) and characterized by linear desert mountains, separated by large desert plains, and dominant stands of low-growing vegetation such as sagebrush and yucca. In the specific Project area of Clayton Valley, the 17 proposed well sites are scattered along the base of the Weepah Hills, along the alluvial fans or near the edges of the Clayton Valley playa. The site-specific vegetation is sparse in the eastern half of Project area, while the western half of the Project area is more typical of the Basin and Range vegetation.

Cultural modifications that affect the natural landscape setting include a sprawling lithium mining operation (aboveground operations), electrical transmission and distribution lines associated with the nearby community of Silver Peak, and the mining operations.

Tonopah is recognized as a premier stargazing destination (Brown 2010). Dark sky conditions are a valuable asset to the town, and efforts to encourage the proper use of lighting and light shielding is included in the mitigation section of this assessment.

3.3.15.2 Scenic Quality

Scenic quality is defined by the BLM as the measure of the visual appeal of a tract of land with rankings based on characteristics of: landform, vegetation, water, color, influence of adjacent scenery, scarcity, and cultural modifications. These rankings range from Class A (high ranking of characteristics) to Class C (low ranking of characteristics).

The Project study area for visual resources, as requested by the Tonopah BLM, is defined as a 5-mile radius around the well sites. All lands within the Project area are designated as Class C, with a Class B landscape located approximately 1.5 miles to the west of the western-most well sites (78-24 and 82-36). The Class C landscape comprises alluvial fans associated with the Weepah hills to the north and the playa south of the Project site. The Class B landscape is a 2-mile corridor centered along SR 265 (Nivloc Road). The Class B landscape is comprised of rolling hills, with rock outcroppings rising from the alluvial fans of the Weepah Hills.

3.3.15.3 Sensitive Viewers

The inventory of sensitive viewers and KOPs included three components: (1) the identification of sensitive-viewer locations and visual sensitivity (low, moderate, or high), (2) distance zones (foreground-middleground, background, and seldom seen), and (3) viewing conditions (Level, Superior, Inferior, Screened, Unobstructed, etc.). The sensitive viewers were organized into three categories that include: (1) residential, (2) recreation (including historical markers), and (3) travel route views. These are described below.

3.3.15.4 Key Observation Points

Residential Views

High-sensitivity residential viewers within the study area would be from a grouping of houses within the community of Silver Peak. Only the eastern-most residences (KOP 1) would have potential views to the nearest well site (82-36). At approximately 4.3 miles to the northeast, these views are considered to be in the foreground/middleground. Views would be slightly superior and range from unobstructed for the nearest residence to well site 82-36 to completely screened for a majority of residences to the well sites. KOP 1 is shown on Figure 2 – Proposed Action Map.

Recreation Views

There are no designated trails or recreational facilities in the study area, and any recreation use would be widely dispersed. There is a historical marker for the Blair ghost town along SR 265 (KOP 2) approximately 3 miles from the western-most well site (82-36) with the town site to the west of SR 265 (the viewer would be looking west to the historical site; the Project would be to the east of the viewer). Dispersed recreation and historical markers are typically moderate sensitivity. Views of the well sites would be in the foreground/middleground, would be level and unobstructed from the historical marker, and would range from screened to unobstructed for the recreational users. KOP 2 is shown on Figure 2 – Proposed Action Map.

Travel Route Views

SR 265 is approximately 1.5 miles from the Project (well site 82-36). Travelers along SR 265 are primarily local commuters between the community of Silver Peak and US 95, with a moderate level sensitivity traveling at a moderate rate of speed. Views for southbound travelers with views in the foreground/middleground would be level and partially to fully screened, while northbound travelers with views in the foreground/middleground would have level, unobstructed views of the Project sites. Views would be similar to those of KOP 2.

3.3.15.5 Visual Resource Management Objectives

The BLM uses the visual resource management (VRM) system to establish management objectives for scenic values and to evaluate proposed activities to determine whether they conform with the management objectives. VRM management classes are divided into four levels (Classes I, II, III, and IV). These classes identify various levels of permissible levels of landscape alteration, where Class I is the most restrictive and Class IV is the least restrictive.

BLM land within the Project study area is designated as Class IV (associated with providing management activities that allow major modifications to the existing character of the landscape). Class III landscapes (associated with partial retention of existing character of the landscape) are centered along SR 265 and generally comprise a 2-mile corridor. There were no areas within the Project study area designated as Class I or Class II (Tonopah RMP 1997). There are no designated Wilderness areas within the Project study area.

3.3.16 Socio-Economic Values

The Project area is located in Esmeralda County. As of the year 2000 census (2006-2008 data is not available for this area), Esmeralda County had a total population of 971 (U.S. Census Bureau 2010a). The closest Census Designated Place (CDP) to the Project area is the city of Tonopah, in adjacent Nye County, having a year 2000 population of 2,627 (U.S. Census Bureau 2010b).

As of the year 2000 census, Esmeralda County had 833 housing units. Approximately 54.6 percent of these units were occupied. The median value of owner occupied units was $75,600 (U.S. Census Bureau 2010a). The Tonopah CDP had 1,561 housing units. Approximately 71 percent of these units were occupied. The median value of owner occupied units was $78,200 (U.S. Census Bureau 2010b).

The labor force for Esmeralda County was estimated in the year 2000 to be 458 persons. Esmeralda County's leading employers included the management, professional, and related industries (24.2 percent); the construction, extraction, and maintenance occupations (23 percent); and service occupations (19.2 percent) (U.S. Census Bureau 2010a). The labor force for the Tonopah CDP was estimated in the year 2000 to be 1,351 persons. The Tonopah CDP leading employers included the construction, extraction, and maintenance occupations (26.9 percent); the service occupations (25.5 percent); and the sales and office occupations (17.5 percent) (U.S. Census Bureau 2010b).

3.3.17 Land Use Authorization

This section of the EA discusses land use and identifies the BLM's existing and pending land use authorizations within the Project area. The 17 proposed geothermal exploration wells lie on federal land under the jurisdiction of the BLM, and the majority of the Project area is undeveloped and vacant. Land use within vicinity of the proposed geothermal exploration wells includes existing access roads, power lines, industrial/extraction operations, and additional geothermal exploration activities.

Five BLM authorizations have been granted in the Project lease areas, these authorizations include:

- N-42582, a 10,710.94-acre site to Foote Mineral Company for lithium brine extraction
- N-72542, a 620-acre site to Chemetall Foote Corporation for lithium extraction
- N-87908, a 1.28-acre site to Geoxplor Corporation for lithium brine extraction
- N-85739, a 3,097.23-acre site to Sierra Geothermal Power Inc. for geothermal exploration
- N-88057, a 0.06-acre site to Blue Lithium Energy Inc. for lithium extraction.

3.3.18 Wild Horse and Burros

Herd Management Areas (HMAs) are areas identified in BLM Land Use Planning for long-term management of wild horses or burros and are designated Special Management Areas. Wild horse and burro distribution throughout HMAs varies greatly throughout the year and is influenced by forage and water availability, precipitation, temperature, climatic factors, population size and resulting animal density (competition), and human disturbance caused from off-highway vehicle use, roads, mining, recreation and other uses occurring on public lands.

The majority of Project area is located within the Paymaster HMA. Only well sites 52-19, 67-19, and 103-19 are located outside of the HMA. The estimated equine population in 2009 of the Paymaster HMA was 52 horses and no burros. Note that this population estimate is simply a count of the number of animals observed and may be lower than the true population (Stephens 2010). Two additional HMAs are located within 6 miles of the Project area: Silver Peak and Montezuma Peak. In 2009, the estimated equine population of Silver Peak HMA was 2 horses and 2 burros. The estimated 2009 equine population of Montezuma Peak HMA was 50 horses and 28 burros (Stephens 2010). There are few fences precluding wild horses and burros from moving between neighboring HMAs. Animals from any of these HMAs could wander into the Project area.

4. ENVIRONMENTAL CONSEQUENCES

4.1 PROPOSED ACTION

4.1.1 Air Quality

Fugitive dust would be generated from earth-moving activities and travel on unpaved roads during construction and drilling activities. Based on implementation of environmental protection measures specified by Ram, water would be applied to the ground during the construction and utilization of the drill pads and access roads as necessary to control dust (see Section 2.1.9). Speed limits of 25 mph would be observed on all unpaved roads in the Project area in order to minimize dust. The dust that could be generated when drilling with air would be controlled by a separator/muffler, and only the air and water vapor would be discharged to the air. The NDEP Bureau of Air Pollution Control requires that a SAD Permit, which documents the areas of proposed disturbance, be submitted if the actual amount of surface disturbed by the Project would be greater than 5 acres.

The proposed Project is not expected to contribute to any violation of federal or Nevada ambient air quality standards and no residual air quality impacts are expected because there would be no further fugitive dust or combustion emissions once activities ceased.

4.1.2 Cultural Resources

A total of three historic sites were recorded during the inventory for this Project. One of the sites has been recommended as eligible to the NRHP. Construction of the project will have no adverse affect to the site. Due to the site's proximity to ground disturbing activities, a hundred foot buffer shall be established around the site by a professional archaeologist permitted by BLM. The site and buffer zone shall be fenced or monitored during all ground disturbing activities.

4.1.3 Native American Religious Concerns

To date, none of the Tribes contacted have expressed any concerns about this Project.

Vehicles, equipment, and personnel used for exploration purposes can have negative impacts to areas utilized by native peoples and those associated artifacts. Long- and short-term noise and visual impacts can have a detrimental impact to existing cultural/traditional/spiritual activities that may occur in certain areas. Sacred sites such as prayer, sweat lodge, and vision quest sites, along with edible/medicinal plant gathering sites and activities, must remain quiet and undisturbed.

The physical remains of past cultural and subsistence practices and activities (antelope traps, points, flakes, stone tools, grinding stones, etc.) are also considered to be extremely important and sacred due to such artifacts having been made by the ancestors and considered the evidence of thousands of years of native inhabitance. Drilling, drill pad and access route construction, and personnel working in close proximity to cultural sites can destroy artifacts, thus eliminating not only the physical evidence of native occupation, but also archaeological data, which can produce a better understanding of past and present cultures. Archaeological

data along with native oral history can reveal information pertaining to past cultural activities and associated social practices, trade routes, subsistence activities, environmental changes, etc.

Exploration roads leading to drilling locations, although intended to be temporary and reclaimed, often experience further use by members of the public to access formerly inaccessible locations. If members of the general public increasingly utilize former drill roads, the cultural/ traditional/spiritual integrity of any adjacent Native use may be compromised.

Also, the act of drilling exploration holes (regardless of the data being sought) is often viewed by traditional practitioners and believers as being harmful to "mother earth" due to impacts to underground and surface waters, which are considered the "lifeblood of the Earth and all who dwell upon it." Other than consumption by people, wildlife, and plant species, certain hot and cold spring locations are also used for healing and spiritual purposes.

During the project activities, if any cultural properties, items, or artifacts (stone tools, projectile points, etc.) are encountered, it must be stressed to those involved in the proposed project activities that such items are not to be collected. Cultural and Archaeological resources are protected under the Archaeological Resources Protection Act (16 USC 470ii) and FLPMA (43 USC 1701). The above language is applicable to previously identified artifacts and site locations, surface artifacts possibly missed during the original survey, and any subsurface artifacts (below ground).

Though the possibility of disturbing Native American grave sites within most project areas is extremely low, inadvertent discovery procedures must be noted. Under the Native American Graves Protection and Repatriation Act, Section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation.

If any traditional cultural properties or artifacts are identified before orduring exploration activities, a protective "buffer zone" may be acceptable, where physical avoidance is an issue, and if doing so satisfies the needs of the BLM, the proponent, and affected Tribe. The size of any "buffer zone" would be determined through coordination and communication between all participating entities. Those significant cultural sites that were identified during the cultural resources inventory (pre-historic and historic) would be avoided.

If, as a result of the Project, additional drilling is proposed or a development plan is submitted to the Tonopah Field Office, BLM would again initiate communication and coordination with the Timbisha Shoshone Tribe and any other Tribe(s) or who demonstrate an interest in any geothermal development/production within this specific area.

4.1.4 Wastes, Hazardous or Solid

Diesel fuel, lubricants, hydraulic fluids and drilling chemicals (drilling mud, caustic soda, barite, etc.) needed for the Project, would be transported to the drill site on trucks; removed; stored on pallets or in tanks, drums, or buckets, as appropriate (see Table 9). The proposed Project must conform to both federal and state requirements for handling these hazardous materials.

The storage and use of these materials may result in minor, incidental spills of diesel fuel or oil to the ground during fueling of equipment, filling of fuel storage tanks, and handling lubricants. The proposed Project includes a hazardous material spill and disposal contingency plan that

describes the methods for cleanup and abatement of any petroleum hydrocarbon or other hazardous material spill.

Many of these materials are also flammable. A fire contingency plan will be prepared that describes the procedures Ram would undertake should a fire occur.

Table 9. Materials and Chemicals Commonly Used During Well Drilling, Per Well

Product	Quantity Used (Avg. Daily)	Quantity Stored	Hazardous Material [1]
Drilling Mud Gel (Bentonite Clay)	50,000 lbs	100-lb sacks on pallets	No
Sodium Bicarbonate	1,250 lbs	50-lb sacks on pallets	No
Sodium Carbonate	1,500 lbs	50-lb sacks on pallets	No
Aluminum Distearate	200 lbs	50-lb sacks on pallets	No
Barite ($BaSO_4$)	4,000 lbs	100-lb sacks on pallets	No
Lime (Calcium Hydroxide)	1,500 lbs	50-lb sacks on pallets	Yes[2]
Caustic Soda (Sodium Hydroxide)	1,000 lbs	50-lb sacks on pallets	Yes[2]
Diesel Fuel	6,000 gals	12,000-gal tank	Yes[3]
Lubricants (Motor Oil, Chain Oil, Gear Oil, Hydraulic Oil)	475 gals	55-gal drums and 5-gal buckets	Yes[3]
Anti-Freeze (Ethylene Glycol)	110 gals	55-gal drums	No[4]
Liquid Polymer Emulsion (partially hydrolyzed polyacrylamide/polyacrylate (PHPA) copolymer)	125 gals	5-gal buckets	No
Sodium Polyacrylate	200 gals	5-gal buckets	No

[1] Hazardous materials are defined and regulated in the United States primarily by laws and regulations administered by the EPA, the U.S. Occupational Safety and Health Administration (OSHA), the U.S. Department of Transportation (DOT), and the U.S. Nuclear Regulatory Commission (NRC). Each has its own definition of hazardous material
[2] The material is characteristically hazardous due to its corrosivity
[3] The material is characteristically hazardous due to its flammability
[4] This material is considered orally toxic following ingestion

Well work-over operations may involve placing a dilute mixture of hydrochloric (muriatic) and hydrofluoric acids down the well. The proposed Project must comply with BLM requirements to ensure that any geothermal fluid encountered during the drilling does not flow uncontrolled to the surface. These include the use of blow-out prevention equipment during drilling and the installation of well casing cemented into the ground.

After drilling operations are completed, the liquids from the reserve pits would either naturally evaporate, or be removed as may be necessary to reclaim the reserve pits. The non-hazardous, non-toxic residual solid contents of the pits would be mixed with the excavated rock and soil and buried by backfilling the reserve pit. The small quantities of solid wastes (paper trash and garbage) generated by the proposed Project would be transported offsite to an appropriate landfill facility. Portable chemical toilet wastes would be removed by a local contractor. Given Ram's commitment to provide sanitary chemical facilities and properly dispose of solid wastes and incidentally spilled hazardous materials, no effects would result from solid or hazardous wastes generated by the proposed Project. The disposal of these wastes would be a residual impact of the proposed Project.

4.1.5 Water Quality (Surface and Ground) and Water Quantity

Records of water surface elevations of wells in the fresh water aquifer demonstrate a decline over time. This indicates withdrawals are exceeding recharge. There has been concern over the rate of decline of the fresh water aquifer. A 1998 study by Cyprus Foote Mineral Co. conducted two analyses of the fresh water aquifer; 1) a static/pumping water level decline analysis over time, and 2) a volumetric analysis. The study assumed that brine water exist at the 4200 foot elevation. Potable water was found as deep as 3980 feet (Jennings 2010). The study determined that at the then current rate of decline, 1.25 feet/year, the fresh water aquifer had a life of 27 years. The volumetric analysis predicted a life of 14 years. It should be noted that the volumetric analysis did not account for recharge to the fresh aquifer. The volumetric analysis was updated to include recharge. The assumed life of the fresh water aquifer was then calculated to be approximately 27 years.

A study of the fresh water aquifer conducted by Jennings (2010) based on data from 1998-2010 determined the rates of decline for the Chemetall Foote Corp. (CFC) wells at 0.5 feet/year, Silver Peak Well 1 at 0.17 feet/year and the CFC monitoring well (2002-2010) at 0.27 feet/year. The report states that pumping rates are directly related to production of lithium and in recent years lithium production rates have declined.

Analysis of pumping and water surface elevation data for the Silver Peak wells and CFC supply and monitoring wells indicate that the additional water required by Ram, 67 acre feet per year (42 gallons per minute), will increase the rate of decline of the fresh water aquifer. This analysis is based on CFC pumping and water surface elevation data for 2000-2010, the period for which data was available. A second analysis involved using a modified version of the volumetric analysis in the 1998 report. The volumetric analysis requires assumption regarding the lateral extent and specific yield of the aquifer. The aquifer is conceptualized as a homogeneous block. The analysis included recharge based on PRISM precipitation data and methods described in Eakin et al (1951). The estimated decrease in water surface elevations in the fresh water aquifer was calculated as approximately 0.2 ft/year for pumping 67 acre-feet/year in excess of aquifer recharge.

The following measures would reduce the potential for impacts to water resources:

- Each exploration well would be cased with steel casing cemented into the ground, which is designed to prevent contamination of any groundwater by the geothermal fluid and prevent the loss of any geothermal resource into other aquifers.

- Each exploration well would be drilled using non-toxic drilling mud to prevent loss of substantial drilling fluids into the rock.

- Reserve pits would be constructed at each site for the containment and temporary storage of drilling mud, drill cuttings and stormwater runoff from the constructed well pad. Ram will maintain a minimum of two feet of freeboard at all times in the reserve pits.

- Any injection test conducted on the exploration wells would only inject produced geothermal fluid through the cased well back into the geothermal reservoir from which it was produced, ensuring that there would be no affect on the quality of groundwater. Chemical analyses of the produced geothermal fluid would be conducted to characterize the geothermal fluids.

- Stormwater runoff from undisturbed areas around the constructed well pads would be directed into ditches surrounding the well pad and back onto undisturbed ground consistent with best management practices for stormwater.

4.1.6 Geology and Minerals

Under the proposed Project, 42.12 acres of land is proposed to be disturbed. As such, there is little potential for any conflict between the Proposed Action and any current locatable mineral claim activities or locatable mineral claim activities that may be proposed on these same lands during the same time period. Ram is aware of mining claimant activity and will make a good faith effort to work cooperatively with claimants. Neither party (the geothermal lessee nor the mineral claimants) may proceed with operations on leased nor claimed public lands without notice to the BLM. Should operations be proposed which would result in potential conflict between the two parties, the BLM would attempt to assist the two parties to reduce or eliminate the conflict.

There would be no residual impacts from the construction or operation of the proposed Project.

4.1.7 Soils

The proposed Project would disturb 42.12 acres. The potential for water and wind erosion on the disturbed soils in the Project area is slight to moderate. However, as part of the proposed Project, disturbed areas would be recontoured as necessary and reclaimed in accordance with applicable BLM requirements when no longer needed. At the conclusion of exploration activities, project generated gravel would be removed. All reclamation activities will be conducted in accordance with the Reclamation Plan (Appendix C).

Soil productivity would be reduced in the 42.12 acres to be disturbed and covered in aggregate, but due to the temporary nature of this disturbance and the commitment to reclaim the disturbed lands, impacts from the proposed Project on soil productivity are low. There would be no residual impacts to soils.

4.1.8 Vegetation

Surface-disturbing activities from the proposed Project would result in the loss of up to 42.12 acres of the common plant communities located within the Project area. These communities include inter-mountain basins mixed salt desert scrub, inter-mountain basin playas, active and stabilized dunes, and invasive annual and biennial forbland (USGS 2004).

As part of the proposed Project, disturbed areas would be reclaimed in accordance with applicable BLM requirements and the Reclamation Plan (Appendix C). Reclamation will help to minimize the potential for introduction of noxious and invasive weeds. In addition, prior to arrival at the work site, all construction vehicles and equipment will be cleaned of all soil and plant material using high-pressure equipment (compressed air or water).

4.1.9 Migratory Birds

Construction activities would result in the direct loss of up to 42.12 acres of potential migratory bird habitat. This proposed Project is temporary and short-term, and migratory birds would most likely adapt and relocate to abundant similar habitat in the Project area and beyond.

Noise generated during construction and drilling (estimated at an average 83 decibels at a distance of 50 feet) could also keep some migratory birds away from areas containing these activities. Other indirect effects could result from general human activity, which could displace individuals or reduce breeding success of species that are sensitive to human activity. The indirect effects would be temporary and short-term, given the temporary nature of the proposed Project. In addition, migratory birds would be able to re-occupy the disturbed areas upon completion of these short-term operations, which would prevent residual impacts.

4.1.10 Threatened or Endangered Species

There would be no impacts to threatened or endangered species, as they are not known to exist within the Project area.

4.1.11 Special Status Species

Eastwood milkweed (*Asclepias eastwoodiana*), a Nevada BLM Sensitive Species, was not found within the Project area. As such, no impact to this species as a result of Project activities is anticipated.

One or more bat species may forage in the area; however, the proposed Project is unlikely to affect existing local populations due to the short-term, temporary nature of the Project, the absence of any drilling materials or produced waters on site that could harm the bats, and the distance from the areas of surface disturbance to roosting habitat. Lights used for drilling at night may attract and concentrate moths and other insects on which the bats may feed. This may cause a short-term distraction, but no negative effects are expected.

4.1.12 Wildlife Resources

The proposed Project would result in the loss of up to up to 42.12 acres of wildlife habitat. The direct displacement of wildlife could result from the surface disturbance required for construction of the drilling pads and access roads. A slight reduction in wildlife carrying capacity would be expected to occur for some species, but most wildlife would be expected to adjust and relocate to similar habitat that is abundant in the proposed Project vicinity. Over time and subsequent to site reclamation, habitat would be restored. This proposed Project is short-term and temporary and there is an abundance of comparable habitat in the area.

Noise generated during construction and drilling could also keep some animals away from areas directly affected by surface disturbance during these activities. Other indirect effects could result from general human activity, which could displace individuals or reduce breeding success of species that are sensitive to human activity. The indirect effects would be temporary and short-term given the approximate 3-year life of the proposed Project. In addition, wildlife would be able to re-occupy the disturbed areas upon completion of these short-term operations. No residual impacts to wildlife resources are anticipated from the proposed Project.

4.1.13 Rangeland Management

The proposed Project would disturb up to up to 24.89 acres for drill pads and new access, a small portion of the 62,203 total acres within the Yellow Hills allotment. Less than 0.1 percent of 1 AUM would be reduced as a result of this proposed Project. Proposed Project activities would not prevent livestock access to the limited sources of water in the area. Activities associated with geothermal exploration may initially impact grazing patterns, but the activities are not expected to have long-term implications to grazing management. No residual impacts to range resources are anticipated from the proposed Project.

4.1.14 Recreation

The Project does not include any activity that would prevent continued access by recreational users to the public lands within the Project area. Visual impacts to recreation users are discussed below in Section 4.1.15.2.

Air quality impacts to recreation users could include dust from vehicle traffic on unpaved roads and exhaust from construction vehicles. As discussed in Section 4.1.1, these would be short-term and temporary. Water would be applied to the disturbed ground during the construction and utilization of the drill pads and access roads as necessary to control dust.

Construction related noise and traffic could cause some recreational users of the Project area to stay away during the proposed Project construction and drilling activities. These indirect effects would be temporary and short-term. No residual impacts to recreation are anticipated from the proposed Project.

4.1.15 Visual Resources

Visual contrast from the proposed Project would occur from (1) the landform modifications that are necessary to construct new access roads and drill-pad sites; (2) the removal of vegetation to construct roads and maintain right-of-way and clearance zones associated with the test sites; and (3) the introduction of new structures to the landscape.

The 17 proposed exploration wells would have approximately 40.12 total acres cleared and grubbed (2.36 acres per exploration well pad), as well as 2.36 total acres for the clearing of the associated access roads for the duration of the exploratory testing. Impacts for the duration of drilling would be moderate due to the size of the drilling rigs. The structure remaining onsite is a pipe stub near ground level and potentially an above ground tank measuring approximately 1 foot in diameter by 5 feet tall. Any views of the test sites would predominately be of the clearing and associated grading for the test sites and access roads. Due to the small scale of the above ground structures, the impacts associated with the structures themselves would be low to negligible. Overall impacts for the life of the Project are anticipated to be low.

4.1.15.1 Scenic Quality

Low impacts to scenic quality are anticipated, as the Project would be located within the vicinity of existing modifications for Class C landscapes. The well sites would be seen in the context of the existing mining operations and existing disturbances from KOPs and other sensitive viewers.

4.1.15.2 Sensitive Viewers

Residential Views

The Project would result in weak contrast for residential viewers (KOP 1). Views are partially to completely screened by topography for residences in Silver Peak and any views would be in the middleground to background. Additionally, any views of the Project from residential areas would be seen in the context of the existing mining operation. Overall impacts to residential viewers are anticipated to be low for the proposed Project.

Recreation Views

Weak contrast is anticipated for moderate sensitivity views of dispersed recreation users. Low impacts to dispersed recreation viewers and views from the Blair historical marker (KOP 2) are anticipated also, as it would be partially to fully screened by topography.

Travel Route Views

Weak contrast is anticipated for moderate sensitivity travel route viewers (as represented by KOP 2). Impacts to viewers traveling southbound on SR 265 are low to none, due to screening by topography. Impacts are anticipated to be low for northbound travelers as views would be unobstructed, but in the middleground to background distance zone.

4.1.15.3 VRM Compliance

Compliance with VRM objectives for Class IV designated land is anticipated, because the proposed Project would be located in a Class IV landscape on BLM land with the following management objective: *provide for management activities that require major modification of the existing character of the landscape*. *The level of change to the characteristic landscape can be high* (BLM 1986). The contrast and resulting impacts identified through the visual assessment are low for sensitive viewers as all views would be from a level viewing position in the middle distance zone. These impacts and associated levels of change to the landscape character are consistent with Class IV objectives.

Although the level of change would be low, every attempt should be made to minimize the impact of construction and monitoring activities through mitigation measures, such as minimal disturbance for access roads and site pad and revegetation of disturbed areas and reclamation of site after the life of the Project.

4.1.16 Socio-Economic Values

The construction and drilling workforce is expected to include up to 20 workers for the geothermal exploration well drilling. Drilling of each geothermal exploration well is anticipated to require approximately 60 days, respectively. Some of these workers may be recruited locally, though most would be specialized workers from outside of the local area. Typically, non-local skilled workers do not bring families with them on short-term projects. It is anticipated that in addition to the drilling supervisor and mud logger living in a trailer on site of the active drill, the

drilling crew may also live on site during the drilling operations in a self-contained bunkhouse or portable trailers, thus reducing potential need for localized accommodations.

The proposed Project is short-term and temporary and would not cause population growth in the area. The proposed Project would neither create nor provide any infrastructure that would indirectly cause substantial population growth.

Non-local construction and drilling workers typically are paid a *per diem* rate for daily housing and meal costs. Workers normally spend the *per diem* on motel accommodations or recreational vehicle campground space rent, restaurants, groceries, gasoline, and entertainment. In addition, Ram likely would purchase or rent some portion of the equipment and supplies required to drill and complete the wells (such as grading equipment, fuel and tools) from local suppliers. This spending activity associated with the proposed Project construction and drilling would have a small but positive effect on local businesses in Esmeralda and Nye Counties.

4.1.17 Land Use Authorization

Because the proposed Project occurs on vacant undeveloped land, impacts to land use are not anticipated. However, holders of the existing rights-of-way within the vicinity of the proposed Project would be notified of the proposed activities. Ram would coordinate their activities with the existing holders as necessary and would obtain all applicable required authorizations or permits.

4.1.18 Wild Horse and Burros

The current (2009) population of the Paymaster HMA is 52 horses and 0 burros. The proposed Project is not expected to affect these wild equids within the HMA.

The proposed Project would disturb up to up to 42.12 acres, a small portion of the 100,591 total acres of the Paymaster HMA. Proposed Project activities would not prevent any wild horses or burros access to the limited sources of water in the area. Activities associated with geothermal exploration are not expected to have long-term implications to behavioral or foraging patterns of any equids in the area. No residual impacts to range resources are anticipated from the proposed Project.

4.2 THE NO ACTION ALTERNATIVE

No activities would be undertaken if the No Action Alternative is selected. There would be no effect to any of the identified resources from implementation of the No Action Alternative.

This page intentionally left blank.

5. CUMULATIVE IMPACTS ANALYSIS

The CEQ regulations for implementing NEPA (40 CFR 1508.7) define cumulative impacts as:

> "...the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The following analysis identifies other past, present, or reasonably foreseeable future actions that, together with the proposed Project, may incrementally impact the environment, and addresses the potential cumulative impacts of these actions and the proposed Project.

5.1 CUMULATIVE EFFECTS STUDY AREA

The Cumulative Effects Study Area (CESA) for all resources analyzed in this EA is the Clayton Valley Hydrographic Area (Number 143) of the Central Hydrographic Region (Number 10), as designated by the Division of Water Resources of the Nevada Department of Conservation and Natural Resources (NDCNR-DWR). This hydrographic area totals 380,800 acres (Figure 4).

5.2 PAST AND PRESENT ACTIONS

Past and present activities consist principally of mineral exploration and production activities; geothermal exploration drilling; livestock grazing; and disbursed recreation.

The CESA contains the community of Silver Peak, which is approximately 4.5 miles south/southwest of the Project area. The 2006 population of Silver Peak was approximately 117 persons (Esmeralda County 2010).

At various times for more than 100 years, the Silver Peak area has been investigated for precious metals, lithium, potash, water resources, and geothermal resources. This has led to the drilling of a number of wells and small-diameter holes within Ram's leasehold.

Blair, now a ghost town, is located 3 miles north of Silver Peak. The site of Blair was established in 1906 when the Pittsburg Silver Peak Gold Mining Company constructed the Blair mill, a 100-stamp mill, in operation from 1907 through 1916.

Chemetall (N-72542) currently operates a lithium brine mining and processing facility in the area, and has been extracting lithium from the playa brines since 1965. Chemetall has drilled a number of wells within the Clayton Valley basin where the Project is proposed.

Western Geothermal Partners and Chemetall partnered to drill two additional temperature gradient holes on the Silver Peak leases. The CMF/WGP-1 and CMF-2 holes were drilled between late December 2005 and early January 2006. Both temperature gradient holes showed elevated temperatures or temperature gradients.

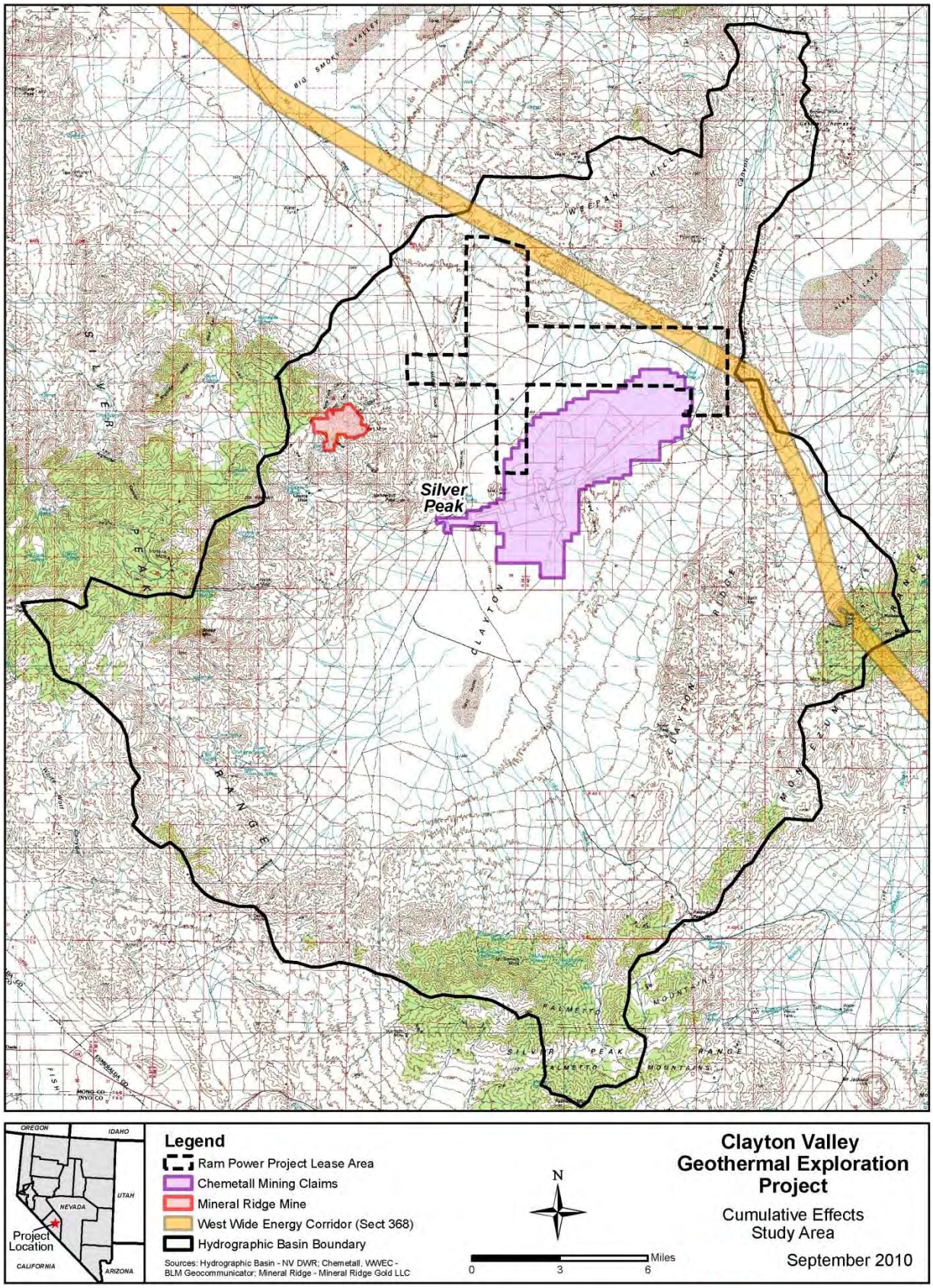


Figure 4. Cumulative Effects Study Area

Six miles northwest of Silver Peak, Golden Phoenix Minerals (N-73109) operates the Mineral Ridge Gold Mine within the CESA. The mine is currently working on a heap leach pad, crushing ore, and preparing to begin leaching. The mine has submitted a Mine Plan of Operations amendment to include exploration drilling. The Sunshine Mining Company previously produced ore from the Mineral Ridge Mine, and from Sixteen-to-One Mine in the CESA, 13 miles west southwest of Silver Peak.

Sand, gravel, and stone are produced within the CESA. The Goat Island quarry produces ballast to line Chemetall's pond boundaries and sand and gravel are produced from both south and north of Silver Peak along SR 265.

5.3 REASONABLY FORESEEABLE FUTURE ACTIONS

For this analysis, it is assumed that the foreseeable future is the approximate 3-year period for implementation of the Proposed Action plus a subsequent 3-year period for the completion of reclamation. It is assumed that recreational activities, livestock grazing, and mineral exploration activities associated with the CESA would continue into the reasonably foreseeable future in the same manner and to the same degree as they have been conducted in the present and recent past.

It is also assumed that geothermal development may occur within the geothermal leases in the CESA within the seven-year foreseeable future period. Should the lessee determine that the geothermal exploration and drilling phases were "successful," the next phase would be to obtain the required approvals for, and then develop and construct, the geothermal well field and a geothermal resource utilization facility. This could include the development of a geothermal electric generating plant; direct use facilities (such as green houses, dehydration plants, or other beneficial steam/heat use); or any combination thereof. The producing limits of the geothermal field(s) would be determined by developmental drilling. Surface disturbance to construct additional roads and drill pads would occur. Drilling of production wells would be initiated. Other facilities that could be constructed during development include a power plant, greenhouses, dehydration plant, or other steam/heat facilities; an electric transmission line; geothermal fluid pipelines; geothermal fluid ponds; and warehouse and maintenance facilities. Subsequent actions for exploration and (potentially) generation projects would require additional NEPA analysis.

Ram may also conduct seismic exploration in the CESA within the 7-year foreseeable future period. Typical seismic exploration activities would include laying a grid of seismic lines having a length of 2 or more miles. A seismic source company would typically use either a vibroseis truck or drill and load shallow shot holes to create a seismic source. If shot holes are used, they would be drilled by a small, mobile track drill. Geophones attached to the seismic line penetrate the ground to record the seismic vibration. A recording truck would be placed at a staging area and once recording is complete, all geophones, cables and the truck would be removed from the site.

Section 368 of the Energy Policy Act of 2005 directs the Secretaries of Agriculture, Commerce, Defense, Energy and the Interior (the agencies) to, under their respective authorities, designate corridors on federal land in the 11 Western States for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities (energy corridors). On November 16, 2007, the Agencies released for public review and comment a Draft Programmatic Environmental Impact Statement (Draft PEIS) addressing the environmental impacts from the Proposed Action and a range of alternatives. Detailed maps show that an energy corridor is proposed within the CESA.

The Mineral Ridge Mine, located 5 miles northwest of Silver Peak has filed a Mine Plan of Operations amendment to include exploration drilling and is currently undergoing NEPA evaluation.

Though no firm or preliminary plans have been distributed to the public, the Chemetall lithium brine mining and processing facility could, at some future point in time, expand for lithium exploration and development. Chemetall Foote has been approved to drill temperature gradient holes and intends to build geothermal power facilities for internal consumption.

Rodinia Lithium Company has submitted a Plan of Operations to the Tonopah Field Office for lithium exploration wells north and south of Chemetall Foote. Some of these wells are currently located in Ram's geothermal leases. There are also numerous potassium and sodium lease applications within the area, most of which are held by Clayton Valley Minerals, LLC.

Geoxplor currently has a pending notice N-89179 to drill for lithium within Ram's geothermal leases.

There are no other known or anticipated actions with the potential for creating additional cumulative impacts in the reasonably foreseeable future. All future projects proposed within the CESA would be analyzed in a separate site-specific environmental analysis.

5.4 CUMULATIVE IMPACTS FOR THE PROPOSED ACTION

5.4.1 Air Quality

Fugitive dust would be generated from any surface-disturbing activities and travel on unpaved roads during exploration activities. Mineral exploration activities typically minimize fugitive dust by watering the disturbed ground, as necessary. The operation of diesel engines associated with these same activities would also emit small quantities of criteria air pollutants (NO_2, SO_2, CO, and PM_{10}), criteria air pollutant precursors (VOCs), and air toxics (small quantities of diesel PM, acetaldehyde, benzene, and formaldehyde). These emissions are temporary and the air quality standards for this area are not expected to be exceeded.

5.4.2 Cultural Resources

Three historic sites were identified during the cultural resource survey. Two were recommended to be not eligible to the NRHP. One historic site was recommended as eligible to the NRHP. This site will be avoided by all ground disturbing activities. The evaluation of impacts to cultural resources takes into consideration both direct and indirect effects to cultural sites. Indirect effects can include numerous things such as changes in the landscape, powerlines, roads, brush or forest clearing, and new construction. The physical footprint of this project is small, but the combination of impacts caused by this Project, previous projects, and anticipated future projects must be considered when evaluating the cumulative effects of projects on cultural resources in Clayton Valley. There is a paucity of known cultural sites on the playa and at the north end of the playa resulting in a low impact to known cultural resources. However, the location and design of future projects should be evaluated to determine their effect upon cultural resources.

5.4.3 Native American Religious Concerns

The BLM Battle Mountain Field Office administrative boundary (including the Tonopah Planning Area) is located within the traditional territory of the Paiute and Western Shoshone Tribes and contains spiritual/traditional/cultural resources, sites, and social practices that aid in maintaining and strengthening social, cultural, and spiritual integrity. Recognized tribes with known interests within the BLM Battle Mountain Field Office administrative boundary are the Te-Moak Tribe of Western Shoshone (Elko, South Fork, Wells, and Battle Mountain Bands), Duck Valley Sho-Pai Tribes of Idaho and Nevada, Duckwater Shoshone Tribe, Ely Shoshone Tribe, Yomba Shoshone, the Timbisha Shoshone Tribe, and various other Tribal groups, community members, and individuals.

Though archaeological data and theory states that the Western Shoshone (Newe) began to inhabit the Great Basin area around 600 years ago, contemporary Western Shoshone contend they were here since "time immemorial." Social activities that define the culture took place across the Great Basin. Pine nut gathering, edible and medical plant gathering, hunting and fishing, spiritual/ceremonial practices, and trade occurred as the Great Basin peoples practiced a mobile hunting and gathering lifestyle. As with the delicate and sensitive nature of the fragile resources of the Great Basin, the native cultures appeared to be heavily impacted by social, cultural, and environmental change, which rapidly accompanied the nonnative migration from east to west. Confined to reservations and "encouraged" to participate in a more sedentary lifestyle (farming and cattle ranching), the Western Shoshone and other Great Basin Tribes continued to practice certain cultural/spiritual/traditional activities, visited their sacred sites, and hunted and gathered the available game and medicinal/edible plants. Through oral history (the practice of handing down knowledge from the elders to the younger generations), many Western Shoshone and Paiute continue to maintain a world view not unlike that of their ancestors.

Such sites of importance include, but are not limited to: Existing antelope traps; certain mountaintops used for vision questing and prayer; medicinal and edible plant gathering locations; prehistoric and historic village sites and grave sites; sites associated with creation stories; hot and cold springs; material used for basketry and cradle board making; locations of stone tools such as points and grinding stones (mono and metate); chert and obsidian quarries; hunting sites; sweat lodge locations; locations of consistent pine nut harvesting and ceremonies, traditional gathering, and camping; boulders used for offerings and medicine gathering; tribally identified Traditional Cultural Properties (TCPs); TCPs found eligible to the NRHP; rock shelters; "rock art" locations; lands that are near, within, or bordering current reservation boundaries; lands that conflict with tribal land acquisition efforts that involve the Nevada Congressional Delegation, water sources in general, which are considered the "life blood of the Earth and all who dwell upon it."

5.4.4 Wastes, Hazardous or Solid

The transportation, use, storage, and disposal of hazardous materials and wastes are subject to numerous federal, state, and local laws and regulations. These requirements are intended to protect the public and the environment and are applicable to each and all of these past, present and reasonably foreseeable future actions. Hazardous materials similar to those used by the proposed Project are expected to be used by the projects anticipated within the CESA, including petroleum hydrocarbon fuels (principally diesel fuel), hydraulic fluid, lubricants and drilling chemicals and materials.

Impacts from the development phase of geothermal activity would be the same as from the exploration phase, but the quantities of hazardous materials, hazardous wastes, or solid wastes used and generated could be greater. Additional non-hazardous solid waste and liquids could also be generated by the other reasonably foreseeable future actions, increasing the potential for contamination of water and soil, and possible impacts to wildlife. The contribution of the proposed Project to these cumulative effects of hazardous or solid wastes would be restricted by the limits placed on the generation of these wastes by the proposed Project.

5.4.5 Water Quality (Surface and Ground) and Water Quantity

Currently, Chemetall Foote Inc., and the Town of Silver Peak are pumping from the fresh water aquifer. Chemetall Foote has submitted an EA for pumping an additional 160 acre-feet per year. Ram has secured a waiver for 67 acre-feet per year for a period of one year and will apply for additional waivers. The total amount of water required by Ram is approximately 149 acre-feet over the course of 2-2.5 years. The source of the water is the Town of Silver Peak well. A proposed lithium exploration project has expressed interest in obtaining a waiver for water, the source of which would be the Town of Silver Peak well. The amount of water required for drilling is expected to be approximately 10,000 gallons per day. The total amount of water to be used for the project is not known. Assuming 10,000 gallons per day, the amount of water required for one year would be 11 acre-feet. The potential increase in water extraction from the fresh water aquifer is 238 acre-feet/ year above current historic levels.

Any rate of pumping that exceeds the rate of recharge of the fresh water aquifer will decrease the amount of fresh water stored in the aquifer. Increasing the rate of withdrawal will shorten the life of the aquifer as a potable water supply.

Table 10. Effects of Water Pumping to Aquifer

	Acre-feet/year	Approximate Decrease Water Level (feet/year)
Jennings (2010) 1998-2010	Not Reported	0.4
Ram Power	67	0.2
Chemetall Foote	160	0.5
Geothermal Exploration	11	0.04
Proposed Increases	238	0.7
Cumulative	663	1.1

Ram's withdrawal of water will lower the water surface elevation of the aquifer approximately 0.4 feet over the life of the Project. The 67 acre-feet/year would represent approximately 9%-14% of the total water pumped based on data for the period 1999-2008. This will not have a significant impact on the operation of CFC or Silver Peak wells. The reduction in water surface elevations will not result in an increase in the cost of pumping or resetting the pump intakes. Water surface elevations will remain well above the bottoms of the well screens.

Water quality will not be significantly impacted. A series of pumping test were conducted on the Silver Peak Well 3 starting September 31, 2009 and ending October 4, 2009. The drawdown in the well reached 8-11 feet. Laboratory analysis of a water sampled collected from Silver Peak Well 1had total dissolved solids (TDS) of 719,000 µg/l. A water sample collected on September

7, 2009 from Silver Peak Well 3 measured TDS of 690,000 µg/l. The maximum containment level (MCL) for TDS is 100,000 µg/l. While a short term increase in pumping rates and drawdown may have resulted in an increase in TDS levels, those levels did not meet the MCL for TDS.

5.4.6 Geology and Minerals

Under the proposed Project, only 42.12 acres of land is proposed to be disturbed. As such, there is little potential for any conflict between the Proposed Action and any current locatable mineral claim activities or locatable mineral claim activities that may be proposed on these same lands during the same period. Ram is aware of mining claimant activity and will make a good faith effort to work cooperatively with claimants. Neither party (the geothermal lessee nor the mineral claimants) may proceed with operations on leased nor claimed public lands without notice to the BLM. Should proposed operations cause conflict between the two parties, the BLM would attempt to assist the two parties to reduce or eliminate the conflict.

5.4.7 Soils

Potential impacts from soil erosion and soil productivity could occur from the mineral exploration and other proposed activities within the CESA. Exploration activities from the proposed Project would disturb the soils in the affected areas, which would be lost until reclaimed following completion of the Project. Mitigation measure(s) included in the Reclamation Plan (Appendix C) would help reduce the potential effects of the Project when considered with other actions.

5.4.8 Vegetation

Each of the cumulative activities would disturb and/or remove vegetation in the CESA. Mitigation measure(s) requiring timely reclamation and re-seeding of disturbed areas, as proposed by the Project, would reduce impacts to vegetation. These measures would also help to mitigate the introduction and/or spread of noxious weeds. The contribution of the proposed Project to these cumulative effects on vegetation would be temporary, given the approximate 3-year life of the proposed Project and for the completion of reclamation.

5.4.9 Migratory Birds

Impacts to migratory birds could occur from surface disturbing activities due to the direct loss of habitat and the potential for disruption to migratory birds from mineral exploration activities.

Impacts could also result from the cumulative activities as these activities could displace migratory birds or reduce breeding success of species that are sensitive to additional activity. Mitigation measure(s) requiring inventories for migratory bird nests and limiting ground disturbing activities, if conducted during the migratory bird nesting season, would help reduce the potential effects if also implemented for the other actions, as appropriate. The contribution of the proposed Project to these cumulative effects on migratory birds would be temporary, given the approximate 3-year life of the proposed Project and for the completion of reclamation.

5.4.10 Threatened or Endangered Species

As the Project would have no effect on threatened and endangered species, the Project would not contribute to any cumulative impacts to threatened and endangered species.

5.4.11 Special Status Species

Eastwood milkweed (*Asclepias eastwoodiana*), a Nevada BLM Sensitive Species, occurs within the CESA and at 17 other known locations in central Nevada. The loss of a small local population could potentially affect the statewide population. However, since Eastwood milkweed typically grows in dry washes, limiting surface disturbing activities in the washes and conducting vegetation surveys in the washes where disturbance is unavoidable or preferable to other alternatives would eliminate any plant mortality. No construction activities from the Project are proposed in dry washes within the Project area so minimal impact is expected to Eastwood milkweed.

5.4.12 Wildlife Resources

Impacts to wildlife could occur from surface disturbing activities due to the direct loss of habitat. The mineral exploration activities would have the potential to cause surface disturbance within the CESA. Wildlife habitat directly disturbed by these activities would be lost until reclaimed. General human activity and generated noise could also keep some animals away from habitat not directly affected by surface disturbance. The amount of this direct and indirect surface disturbance expected from the cumulative projects is likely a very small portion of the CESA. There is abundant comparable wildlife habitat in the vicinity and region, and the wildlife is normally able to move away from small areas of direct disturbance and into adjacent suitable habitat. Reclamation of directly disturbed areas would re-establish habitat for wildlife once geothermal exploration activities in the CESA cease. The contribution of the proposed Project to these cumulative effects on wildlife would be temporary, given the approximate 3-year life of the proposed Project and the 3-year period for completion of reclamation.

5.4.13 Rangeland Management

Primary impacts that could occur from the mineral exploration activities would be cumulative increases in vegetation and soil disturbances, which could result in incremental losses in the availability of grazing used for livestock. Some of this reduction in forage would be temporary, until reclaimed. No cumulative activities are expected to prevent livestock access to available sources of water in the area.

The amount of surface disturbance that could affect livestock habitat constitutes a small percentage of the grazing allotments. Future geothermal production and development activities would be analyzed on a site-specific basis. Effects of potential proposed actions on livestock populations would be analyzed and mitigation measures developed to reduce impacts, or restrictions developed to protect livestock. The contribution of the proposed Project to these cumulative effects on range resources would be temporary, given the approximate 3-year life of the proposed Project and the 3-year period for completion of reclamation.

In order to minimize the potential for the spread of noxious and invasive weeds in the Project area, all construction vehicles and equipment will be cleaned of all soil and plant material using

high-pressure equipment (compressed air or water) prior to arrival at the work site. Reclamation of the disturbed areas, as identified in the Reclamation Plan (Appendix C), will reduce the potential for introduction of noxious weeds. Weed management plans will likely be required mitigation for all projects occurring within the CESA. These project-specific plans will minimize the likelihood of the introduction or spread of noxious weeds.

5.4.14 Recreation

Fugitive dust from vehicle traffic on unpaved roads, as well as noise and traffic from cumulative activities, could cause some recreational users to avoid those active portions of the area during the mineral exploration activities. The contribution of the proposed Project to these indirect cumulative effects on recreation would be temporary, given the approximate 3-year life of the proposed Project and the 3-year period for completion of reclamation.

5.4.15 Visual Resources

Potential cumulative visual impacts would result from the construction and maintenance of the proposed Project in the context of current and proposed projects within Clayton Valley. The majority of existing projects in the CESA have similar visual effects as compared to the proposed Project. Although the existing town of Silver Peak is within the study area and the existing lithium brine mining comprises a significant footprint of the valley, the overall character of the valley is generally perceived to be natural. The introduction of drill pads and new or improved access roads would result in an incremental modification of the naturalistic setting to a slightly more industrialized setting.

The proposed Project is considered temporary and reclamation and mitigation of the individual well sites are proposed. Despite these measures, the short-term modifications to the CESA by the proposed Project, along with the past, present, and reasonably foreseeable future projects would change the visual character of the valley by introducing modifications to form, line, color, and texture that could provide contrast in the landscape during the life of the Project. When considering the proposed mitigation measures, the existing visual setting, and the VRM Class IV designation and compliance, the proposed Project would not substantially add to the cumulative effects.

5.4.16 Socio-Economic Values

Economic impacts would be expected from the exploration activities.. Most of the exploration work force would be specialized workers from outside the area, although some of the mineral exploration construction materials could be purchased from local merchants. Some impacts may be realized from the purchase of meals and entertainment by construction workers; however, minimal impact associated with rented hotel rooms would occur because crews would likely live on site in trailers and/or portable bunkhouses. The contribution of the proposed Project to these cumulative effects on economic values would be temporary, given the approximate 3-year life of the proposed Project and the 3-year period for completion of reclamation.

5.4.17 Land Use Authorizations

The valid, existing rights of the federal geothermal leases noted in Section 1.1 would be addressed when granting new approvals within the Project area. Cumulative impacts to land use or realty are not expected.

5.4.18 Wild Horse and Burros

Four HMAs partially lie within the CESA: Paymaster, Silver Peak, Montezuma Peak, and Palmetto. The estimated equid populations of these HMAs are 52 horses, 4 horses/burros, 78 horses/burros, and 0 horses/burros, respectively. Given the temporary nature of the Project and the large areas of the HMAs and relatively small equid populations, the Project is not expected to contribute substantially to cumulative impacts to wild horses and burros.

5.5 NO ACTION ALTERNATIVE

None of the proposed geothermal drilling Project activities would be undertaken if the No Action Alternative is selected. There would be no cumulative effects from the proposed Project on any of the identified resources or activities from implementation of the No Action Alternative.

5.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

No irreversible and irretrievable commitment of resources is expected.

6. RECOMMENDED MITIGATION AND MONITORING

The BLM requires that decisions be implemented in accordance with the appropriate decision document. Monitoring is needed to ensure that actions taken comply with the terms, conditions, and mitigation measures identified in the decision. The BLM would fulfill this responsibility by monitoring the implementation of mitigation measures adopted as conditions of approval to the submitted Operations Plan, Geothermal Drilling Permits, and Right-of-Way application, as well as the stipulations attached to each of the geothermal leases.

The following recommended mitigation and monitoring measures were developed through the analysis conducted in this EA.

- The reserve pit shall maintain a minimum two feet of freeboard at all times.

- Initial ground-disturbing activities would not be conducted during the migratory bird nesting season (March 30 through August 15), unless necessary, and only after a qualified biologist first inventories for migratory birds and nests. This survey would be conducted to identify either breeding adult birds or nesting sites within the specific areas to be disturbed. If active nests are present within these areas to be disturbed, Ram would coordinate with the BLM or appropriate state officials, as applicable, to develop appropriate protection measures, which may include avoidance, construction constraints, and/or the establishment of buffers.

- Roads to be constructed, improved, or reclaimed as part of the Project would be reviewed by the BLM and required to conform to the requirements of BLM Manual 9113 and the *Gold Book*, as applicable to the intended Project use.

- The access roads and well pads would be recontoured and ripped and then covered with native topsoil and reseeded when project activities are completed.

- Revegetation will follow the Reclamation Plan (Appendix C) and includes site appropriate seed mixtures. Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious, invasive, and non-native seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded. Seed mixtures will be subject to the approval of the BLM.

- Mineral materials placed upon the playa surface for road or drill pad construction will be stripped from the playa surface during reclamation and placed in a local area where similar materials are found, then recontoured and revegetated to blend with the surroundings.

- Wellhead equipment left on the drill site following the completion of drilling would be painted a color, subject to approval by the authorized officer, which would blend with the landscape. Prior to paint selection, Ram would contact the Tonopah Field Office Project lead for concurrence.

- Given the importance of maintaining dark sky conditions, conscious efforts would be made to protect the current dark skies from light pollution. All drill rig and facility lights would be limited to those required to safely conduct the operations, and would be

shielded and/or directed in a manner that focuses direct light to the immediate work area.

- In order to minimize the potential for the spread of noxious and invasive weeds in the Project area, all construction vehicles and equipment will be cleaned of all soil and plant material using high-pressure equipment (compressed air or water) prior to arrival at the work site.

7. COORDINATION AND CONSULTATION

7.1 LIST OF PREPARERS

BLM Battle Mountain Renewable Energy Coordination Office (RECO)
Tim Coward, Battle Mountain District, Project Manager
Larry Grey, Battle Mountain District, Hydrologist
William Coyle, Battle Mountain District, GIS Specialist
Wendy Seley, Battle Mountain District, Realty Specialist
Joe Moskiewicz, Battle Mountain, Environmental Protection Specialist
Michael Wissenbach, Battle Mountain, Planning and Environmental Coordinator

BLM Tonopah Field Office
Devin Englestead, Wildlife Biologist
Adam Stephens, Rangeland Management Specialist
Sheryl Post, Rangeland Management Specialist
Leighandra Keeven, Mining Engineer
John Hartley, Planning and Environmental Coordinator
Dustin Hollowell, Wild Horse & Burro Specialist
Marc Pointel, Supervisory Rangeland Management Specialist
Susan Rigby, Cultural Resources Specialist

EPG, Inc.
Newton Debardeleben, Senior Environmental Planner
Nate Ferguson, Environmental Planner
Alison Pruett, Biologist
Rebecca Halbmaier, Senior Archeologist
Conrad Langley, Visual Resource Specialist

Environmental Management Associates
Heather Altman, Senior Environmental Specialist
Terry Casaceli, Senior Environmental Specialist

7.2 AGENCIES, GROUPS, AND INDIVIDUALS CONTACTED

Native American Contacts
Timbisha Shoshone Tribe
Yomba Shoshone Tribe
Duckwater Shoshone Tribe

Ram Power, Inc.
Christy Morris, Vice President Land and Permitting

This page intentionally left blank.

8. REFERENCES

Albers, J.P. and J.H. Stewart. 1972. Geology and Mineral Deposits of Esmeralda County. Nevada Bureau of Mines and Geology, Bulletin 78.

Brown, M.B. 2010. Seeing Stars: The Sky is the Limit When it Comes to Nevada's Myriad Stargazing Destinations. Nevada Magazine. Available at http://www.nevadamagazine.com/issues/read/seeing_stars/. Accessed February 25, 2011.

Bureau of Land Management (BLM). 1986. Bureau of Land Management Manual Handbook H-8410-1 Visual Resource Inventory. January 1, 1986.

_____. 1997. Tonopah Resource Management Plan and Record of Decision. October 6, 1997.

_____. 2008. National Environmental Policy Act. Handbook H-1790-1

_____. 2010a. Geographic Report, System Id-MC. List of Mining Claims by Section. Land and Mineral Records, LR2000. Retrieved on June 27, 2010.

_____. 2010b. Geographic Report, System Id-CR. Geographic Report with Customer, Authorized. Land and Mineral Records, LR2000. Retrieved on June 27, 2010.

Chemetall Foote Corporation. 2010. News Release, July 12, 2010. Available at http://www.chemetalllithium.com/en/news/company-news.html.

Eakin, T.E., G.B. Maxey, T.W. Robinson, J.C. Fredericks, and O.J. Loeltz. 1951. Contributions to the hydrology of eastern Nevada: Nevada State Engineer's Office, Water Resources Bulletin no. 12. 171 p.

Environmental Protection Agency (EPA). 2010. Currently Designated Nonattainment Areas for All Criteria Pollutants. Available at http://www.epa.gov/oar/oaqps/greenbk/ancl.html#NEVADA. Accessed September 7, 2010.

Esmeralda County. 2007. Silver Peak, NV. Available at http://www.accessesmeralda.com/SilverPeak_Demo.htm. Accessed August 19, 2010.

Fenneman, N.M. 1931. Physiography of the Western United States. New York: 34 McGraw-Hill Book Company, New York.

Jennings, M. 2010. Re-analysis of Groundwater Supply Fresh Water Aquifer of Clayton Valley, Nevada.

Mandelko, S., S. McDaniell, and R. Halbmaier. 2011. A Cultural Resource Survey for the Clayton Valley Geothermal Exploration Project, Esmeralda County, Nevada. EPG NV Cultural Resource Services Technical Report No. 2010-010. BLM Report No. 6-2812.

Soil Conservation Service. 1983. Soil Survey of Esmeralda County Area, Nevada. In cooperation with U.S. Department of the Interior, Bureau of Land Management, and University of Nevada, Agricultural Experiment Station.

Stephens, A. 2010. Email communication between Nate Ferguson, EPG Environmental Planner, and Adam Stephens, Rangeland Management Specialist, BLM Tonopah Field Office. August 24, 2010.

U.S. Census Bureau. 2010a. Esmeralda County, Nevada, Fact Sheet. Available at http://factfinder.census.gov/servlet/SAFFFacts?_event=Search&geo_id=01000US&_geoContext=01000US&_street=&_county=esmeralda+county&_cityTown=esmeralda+county&_state=04000US32&_zip=&_lang=en&_sse=on&ActiveGeoDiv=geoSelect&_useEV=&pctxt=fph&pgsl=010&_submenuId=factsheet_1&ds_name=DEC_2000_SAFF&_ci_nbr=null&qr_name=null&reg=null%3Anull&_keyword=&_industry=. Accessed July 21, 2010.

_____. 2010b. Tonopah CDP, Nevada, Fact Sheet. Available at http://factfinder.census.gov/servlet/SAFFFacts?_event=Search&geo_id=01000US&_geoContext=01000US&_street=&_county=Tonopah&_cityTown=Tonopah&_state=04000US32&_zip=&_lang=en&_sse=on&ActiveGeoDiv=geoSelect&_useEV=&pctxt=fph&pgsl=010&_submenuId=factsheet_1&ds_name=DEC_2000_SAFF&_ci_nbr=null&qr_name=null&reg=null%3Anull&_keyword=&_industry=. Accessed July 21, 2010.

U.S. Department of the Interior and United States Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

U.S. Fish and Wildlife Service (USFWS). 2010. Species list for the Clayton Valley Geothermal Exploration Project, Esmeralda County, Nevada.

U.S. Geological Survey(USGS). 2004. National Gap Analysis Program Provisional Digital Land Cover Map for the Southwestern United States. Version 1.0. RS/GIS Laboratory, College of Natural Resources, Utah State University. Available at http://earth.gis.usu.edu/swgap/landcover.html.

Appendix A

Best Management Practices for Road Construction

This page intentionally left blank.

Best Management Practices for Road Construction

General Guidelines

Soils that have a low bearing strength tend to rut readily when wet, which leads to water concentration and erosion. This low bearing strength results in water quality impacts. Roads constructed in these soils should be designed to withstand wet weather traffic or traffic should be restricted in wet seasons.

If there is a potential for wet weather use, a stable road base should be designed. For long term all weather use, the road should have a structural section designed to mitigate rutting.

Road Slope and Spoil Disposal Area Stabilization

Identify soil environmental site factors and their variance along the roadway. Determine the proper seed/fertilizer mixture to stabilize roadway slopes and waste spoils areas.

Mechanical stabilization should be accomplished in highly erodible soils using geotechnical materials, jute netting, punched straw or other proven technique.

Road Slope Stabilization

For cut slopes, allow them to be left as steep as possible to minimize the surface area subject to erosion. Do not lay the slopes back.

Control of Road Drainage

For roads within highly erodible areas, use insloped roads only in cases where maintenance can be performed on a regular basis. All other roads should be outsloped.

For highly erodible soils, inslope and ditch fill sections with culverts in order to prevent water from flowing down the face of fills.

Berms may be used to direct water to overside drains, if available.

Culvert headwalls should be constructed for perennial or intermittent stream crossings in highly erodible soil areas using riprap, soil cement, concrete, in order to prevent erosion.

Energy dissipators should be used in areas of water concentration, where significant erosion will result.

Construction of Stable Embankments (Fills) and Culvert Backfill

In highly erodible soil areas, the larger and more critical fills should be compacted to 95% of AASHTO T-99 specification. Fill slopes should be constructed at 1½ to 1. For fills compacted through layer placement along, fill slopes should be constructed at 1¾ to 1. No fills will be constructed on side slopes exceeding 55%.

For areas designed to have compacted fills and having slopes exceeding 40%, terrace the natural slope to key in the fill.

Care should be taken to compact the outer edge of the fill in highly erodible soil areas using a sheeps-foot type roller or other approved techniques.

Maintenance of Roads

In highly erodible soil areas, special attention should be paid to maintaining road drainages, including surface drainage configuration, culverts and overside drains for roads having all levels of maintenance. Cut slopes should not be undercut and drainages should be kept open, clean and functioning.

Road Surface Treatment to Prevent Loss of Materials

For road construction in areas having highly erodible soils, full-width stabilization, including the ditch, should be performed using aggregate, asphalt concrete, penetration oil treatment or other approved methods that will achieve long term stabilization of the road bed. Stabilization methods should be designed to exceed normal use so erosion control devices remain effective well past the intended use. Stabilization should be considered for road segments adjacent to or crossing sensitive streams, grades exceeding 6% and for areas having sideslopes in excess of 30%.

Appendix B

Geothermal Leases, Terms, Conditions, and Stipulations

This page intentionally left blank.

RECEIVED

AUG 2 8 2008

Form 3200-24a
(July 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Ram Power, Inc.

Serial No.

NVN-85736

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES

(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1 Name	1a. Street	
Ram Power Inc.	691 Sierra Rose Drive, Suite B	
1b City	1c. State	1d. Zip Code
Reno	NV	89511

2. Surface managing agency if other than BLM: _____ Unit/Project: _____

Legal description of land requested (segregate by public domain and acquired lands): Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted: Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease: Enter T., R., Meridian, State and County

T.0010S, R.0400E, 21 MDM, NV
Sec. 019 LOTS 25-48;
019 E2;
020 ALL;
021 ALL;
022 ALL;
Esmeralda County

Total Acres in Lease 3098.18

Rental Retained $ 6198.00

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated.

Type of Lease:

- ☑ Competitive
- ☐ Noncompetitive
- ☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY _____ (Signing Official)

ATANDA CLARK
(Printed Name)

Chief, Branch of Minerals Adjudication
(Title)

AUG 2 6 2008
(Date)

EFFECTIVE DATE OF LEASE SEP 0 1 2008

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

4 (a) The undersigned certifies that
(1) The offeror is a citizen of the United States; an association of such citizens, a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia, (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act, (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act, and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice, and any amendment or separate lease that may cover any land described in this offer open to lease application at the time this offer was filed but omitted for any reason from this lease The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments Title 18 U S C. § 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

Duly executed this 28 day of August, 20 08 RAM POWER INC. (Printed Name of Lessee or Attorney-in-fact) CHRISTY L. MORRIS (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec 1 Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year Annual rental rates per acre or fraction thereof, as applicable, are

(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant) $1.00 for the first 10 years, thereafter $5 00, or

(b) Competitive lease $2 00 for the first year, $3 00 for the second through tenth year, thereafter $5.00

Annual rental is always due by the anniversary date of this lease (43 CFR 3211 13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production.

Rental may only be credited toward royalty under 43 CFR 3211 15 and 30 CFR 218 303 Rental may not be credited against direct use fees Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213 14

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor Royalties are due on the last day of the month following the month of production Royalties will be computed in accordance with applicable regulations and orders Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are. 1 75 percent for the first 10 years of production and 3 5 percent after the first 10 years The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H

The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U S.C. 181), is 5 percent, except for sodium compounds, for which the royalty rate is 2 percent for sodium produced between September 29, 2006 and September 29, 2011 (Pub L No 109-338, § 102, note to 30 U S.C 262) No royalty is due on byproducts that are not specified in 30 U S C § 181 (43 CFR 3211 19)

If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease

(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211 17, 3211 18)

(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212 15(a) and 30 CFR 218 305

(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211 18, 30 CFR 206 356)

This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202 351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases Direct use fees are due on the last day of the month following the month of production

(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211 18(a)(3) and 30 CFR 206 366, check here ☐ A lessee under this paragraph is not subject to paragraph (d), above In lieu of royalties, the lessee under this paragraph must pay a nominal fee of

$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations.

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207.11, 3207 12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207 13)

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold, (b) proceeds derived therefrom or from the sale of electricity generated using such resources, (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206 351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity, and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest.

In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests, keep a record of subsurface investigations, and furnish copies to lessor when required.

Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor

Sec. 6. Conduct of operations—Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee

Sec. 8. Damages to property--Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly Lessee must comply with Executive Order No 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto Neither lessee nor lessee's subcontractor may maintain segregated facilities

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for paying all accrued rentals and royalties, plugging and abandoning all wells on the relinquished land, restoring and reclaiming the surface and other resources, and complying with 43 CFR 3200 4

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200 4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213 This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200 4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto

(Continued on page 3)

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modifications of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act, 16 USC § 1531 *et seq.*, as amended, including completion of any required procedure for conference or consultation.

CULTURAL RESOURCE PROTECTION
LEASE STIPULATION

This lease may be found to contain historic properties or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require exploration or development proposals to be modified to protect such properties, or it may disapprove any activity that is likely to result in adverse effects that could not be successfully avoided, minimized, or mitigated.

RECEIVED

AUG 2 8 2008

Form 3200-24a
(July 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Ram Power, Inc.

Serial No.

NVN-85737

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES
(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1. Name	1a. Street	
Ram Power Inc.	691 Sierra Rose Drive, Suite B	
1b. City	1c. State	1d. Zip Code
Reno	NV	89511

2. Surface managing agency if other than BLM: _____ Unit/Project: _____

Legal description of land requested (segregate by public domain and acquired lands): Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted. Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3 Land included in lease: Enter T., R., Meridian, State and County

T.0010S, R.0400E, 21 MDM, NV
Sec. 023 ALL;
026 ALL;
035 E2E2;
035 N2NWNE,N2NENW,S2SWSE;
Esmeralda County

Total Acres in Lease 1500.00

Rental Retained $ 3000.00

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated.

Type of Lease:

- ☑ Competitive
- ☐ Noncompetitive
- ☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY _____
(Signing Official)

ATANDA CLARK
(Printed Name)

Chief, Branch of Minerals Adjudication
(Title)

AUG 2 6 2008
(Date)

EFFECTIVE DATE OF LEASE SEP 0 1 2008

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

4 (a) The undersigned certifies that

(1) The offeror is a citizen of the United States, an association of such citizens, a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia, (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act, (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act, and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice, and any amendment or separate lease that may cover any land described in this offer open to lease application at the time this offer was filed but omitted for any reason from this lease The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments Title 18 U S C § 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.

Duly executed this 28 day of August 2008 RAM Power Inc. (Printed Name of Lessee or Attorney-in-fact) Christy L. Morris (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec 1 Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year Annual rental rates per acre or fraction thereof, as applicable, are

(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant) $1 00 for the first 10 years, thereafter $5 00, or

(b) Competitive lease $2 00 for the first year; $3 00 for the second through tenth year, thereafter $5 00

Annual rental is always due by the anniversary date of this lease (43 CFR 3211 13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production

Rental may only be credited toward royalty under 43 CFR 3211 15 and 30 CFR 218 303 Rental may not be credited against direct use fees Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213 14

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor Royalties are due on the last day of the month following the month of production Royalties will be computed in accordance with applicable regulations and orders. Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are 1 75 percent for the first 10 years of production and 3.5 percent after the first 10 years The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H

The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U S C. 181), is 5 percent, except for sodium compounds, for which the royalty rate is 2 percent for sodium produced between September 29, 2006 and September 29, 2011 (Pub L No 109-338, § 102, note to 30 U S C 262) No royalty is due on byproducts that are not specified in 30 U S C § 181 (43 CFR 3211 19)

If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease

(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211 17, 3211 18)

(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212 15(a) and 30 CFR 218 305

(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211 18, 30 CFR 206 356) This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202 351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases Direct use fees are due on the last day of the month following the month of production

(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211 18(a)(3) and 30 CFR 206 366, check here ☐ A lessee under this paragraph is not subject to paragraph (d), above In lieu of royalties, the lessee under this paragraph must pay a nominal fee of

$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations.

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207 11, 3207 12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207.13).

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold; (b) proceeds derived therefrom or from the sale of electricity generated using such resources; (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206 351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity, and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest.

In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests, keep a record of subsurface investigations, and furnish copies to lessor when required

Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees. All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor

Sec. 6. Conduct of operations—Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee

Sec. 8. Damages to property—Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly Lessee must comply with Executive Order No 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto Neither lessee nor lessee's subcontractor may maintain segregated facilities

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations lessee must file with lessor any assignment or other transfer of an interest in this lease Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for: paying all accrued rentals and royalties, plugging and abandoning all wells on the relinquished land; restoring and reclaiming the surface and other resources, and complying with 43 CFR 3200.4

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200 4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213 This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200 4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto

(Continued on page 3)

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modifications of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act, 16 USC § 1531 *et seq.*, as amended, including completion of any required procedure for conference or consultation.

CULTURAL RESOURCE PROTECTION
LEASE STIPULATION

This lease may be found to contain historic properties or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require exploration or development proposals to be modified to protect such properties, or it may disapprove any activity that is likely to result in adverse effects that could not be successfully avoided, minimized, or mitigated.

RECEIVED

AUG 2 8 2008

Form 3200-24a
(July 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Ram Power, Inc.

Serial No.
NVN-85738

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES
(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1. Name	1a. Street	
Ram Power Inc.	691 Sierra Rose Drive, Suite B	
1b. City	1c. State	1d. Zip Code
Reno	NV	89511

2. Surface managing agency if other than BLM: _____ Unit/Project: _____

Legal description of land requested (segregate by public domain and acquired lands): Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted: Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease: Enter T., R., Meridian, State and County

T.0010S, R.0400E, 21 MDM, NV
Sec. 024 ALL;
025 ALL;
036 ALL;
Esmeralda County

Total Acres in Lease 1920.00

Rental Retained $ 3840.00

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated.

Type of Lease:

☑ Competitive

☐ Noncompetitive

☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY _____
(Signing Official)

ATANDA CLARK
(Printed Name)

Chief, Branch of Minerals Adjudication
(Title)

AUG 2 6 2008
(Date)

EFFECTIVE DATE OF LEASE SEP 0 1 2008

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

4 (a) The undersigned certifies that

(1) The offeror is a citizen of the United States, an association of such citizens; a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia, (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act, (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act, and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice, and any amendment or separate lease that may cover any land described in this offer open to lease application at the time this offer was filed but omitted for any reason from this lease The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments Title 18 U S C § 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

Duly executed this 28 day of August, 2008 RAM POWER INC. (Printed Name of Lessee or Attorney-in-fact) CHRISTY L. MORRIS (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec 1 Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year Annual rental rates per acre or fraction thereof, as applicable, are

(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant) $1.00 for the first 10 years, thereafter $5.00, or

(b) Competitive lease $2.00 for the first year, $3.00 for the second through tenth year, thereafter $5.00

Annual rental is always due by the anniversary date of this lease (43 CFR 3211 13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production.

Rental may only be credited toward royalty under 43 CFR 3211 15 and 30 CFR 218 303 Rental may not be credited against direct use fees Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213 14

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor. Royalties are due on the last day of the month following the month of production Royalties will be computed in accordance with applicable regulations and orders. Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are 1 75 percent for the first 10 years of production and 3.5 percent after the first 10 years. The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H

The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U.S C 181), is 5 percent, except for sodium compounds, for which the royalty rate is 2 percent for sodium produced between September 29, 2006 and September 29, 2011 (Pub L. No. 109-338, § 102; note to 30 U S C 262) No royalty is due on byproducts that are not specified in 30 U S C § 181 (43 CFR 3211 19)

If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease

(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211.17, 3211.18).

(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212.15(a) and 30 CFR 218 305

(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211 18, 30 CFR 206 356)

This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202 351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases. Direct use fees are due on the last day of the month following the month of production

(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211.18(a)(3) and 30 CFR 206 366, check here. ☐ A lessee under this paragraph is not subject to paragraph (d), above In lieu of royalties, the lessee under this paragraph must pay a nominal fee of

$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations.

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207 11, 3207 12), and must prevent unnecessary damage to, loss of, or waste of leased resources Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207 13)

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold, (b) proceeds derived therefrom or from the sale of electricity generated using such resources; (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206 351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity, and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest

In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests, keep a record of subsurface investigations, and furnish copies to lessor when required.

Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor

Sec. 6. Conduct of operations—Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee. Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor. If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee.

Sec. 8. Damages to property—Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. Lessee must comply with Executive Order No 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto Neither lessee nor lessee's subcontractor may maintain segregated facilities.

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for: paying all accrued rentals and royalties; plugging and abandoning all wells on the relinquished land, restoring and reclaiming the surface and other resources; and complying with 43 CFR 3200 4.

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200 4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213 This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default. Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200 4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense.

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto

(Continued on page 3)

INSTRUCTIONS

A General

1. Items 1 and 2 need to be completed only by parties filing for a noncompetitive lease. The BLM will complete the front of the form for other types of leases The BLM may use the "Comments" space under Item 3 to identify when: the lessee has elected to make all lease terms subject to the Energy Policy Act of 2005 under 43 CFR 3200.7(a)(2) or 43 CFR 3200.8(b) (box labeled "converted lease" must also be checked), the lease is being issued noncompetitively to a party who holds a mining claim on the same lands as is covered by the lease under 43 CFR 3204.12; the lease is a direct use lease issued to a State, local, or tribal government (box at section 2(E) under Lease Terms must also be checked); the lease is a competitive lease with direct-use-only stipulations attached; or other circumstances exist. A lessee who seeks to convert only the royalty rate of a lease under 43 CFR 3212.25 or who qualifies for a case-by-case royalty rate determination under 43 CFR 3211.17(b)(1)(i) should not use this form, but should instead use an addendum to the existing lease.

2. Entries must be typed or printed plainly in ink. The offeror must sign the form (Item 4) in ink.

3 An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.10 for office locations.

4. If more space is needed, additional sheets must be attached to each copy of the form submitted.

B. Specific

Item 1—Enter the offeror's name and billing address.

Item 2—Indicate the agency managing the surface use of the land and the name of the unit or project of which the land is a part. The offeror may also provide other information that will assist in establishing status of the lands. The description of land must conform to 43 CFR 3203.10. Total acres applied for must not exceed that allowed by regulations (43 CFR 3203.10, 43 CFR 3206.12).

Payments: For noncompetitive leases, the amount remitted must include the processing fee for noncompetitive lease applications (43 CFR 3204.10; 43 CFR 3000.12) and the first year's rental at the rate of $1 per acre or fraction thereof. If the United States owns only a fractional interest in the geothermal resources, you must pay a prorated rental under 43 CFR 3211.11(d). The BLM will retain the processing fee even if the offer is completely rejected or withdrawn. To maintain the offeror's priority, the offeror must submit rental sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact acreage of which is not known to the offeror, rental should be submitted on the basis of each such lot or quarter-quarter section containing 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the BLM will return the rental remitted for the parts withdrawn or rejected.

The BLM will fill in the processing fee for competitive lease applications (43 CFR 3203.17, 43 CFR 3000.12) and the first year's rental at the rate of $2 per acre or fraction thereof.

Item 3—The BLM will complete this space.

NOTICES

The Privacy Act of 1974 and the regulation at 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this geothermal lease application.
AUTHORITY: 30 U.S.C. 1000 et seq.
PRINCIPAL PURPOSE—The information is to be used to process geothermal lease applications.
ROUTINE USES. (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting uses or rights in public lands or resources. (4) Transfer to the appropriate Federal, State, local, or foreign agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions.

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modifications of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act, 16 USC § 1531 *et seq.*, as amended, including completion of any required procedure for conference or consultation.

CULTURAL RESOURCE PROTECTION
LEASE STIPULATION

This lease may be found to contain historic properties or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require exploration or development proposals to be modified to protect such properties, or it may disapprove any activity that is likely to result in adverse effects that could not be successfully avoided, minimized, or mitigated.

This page intentionally left blank.

Form 3200-24a
(July 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES
(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

Serial No.
N-85739

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1. Name	1a. Street	
Sierra Geothermal Power Inc.	1068 Fir Street SE	
1b. City	1c. State	1d. Zip Code
Olympia	WA	98501-1859

2. Surface managing agency if other than BLM: _____ Unit/Project: _____

Legal description of land requested (segregate by public domain and acquired lands): Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted: Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease: Enter T., R., Meridian, State and County

T. 0010S, R. 0400E, 21 MDM, NV
Sec. 027 ALL;
028 ALL;
029 ALL;
030 LOTS 25-50;
030 E2.
Esmeralda County

Total Acres in Lease 3097.23

Rental Retained $ 6196.00

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated.

Type of Lease:

☑ Competitive
☐ Noncompetitive
☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY Elaine M. Lewis (Signing Official)

Elaine M. Lewis
ATANDA CLARK

(Printed Name)

Acting Chief, Branch of Minerals Adjudication (Title)

AUG 20 2008 (Date)

EFFECTIVE DATE OF LEASE SEP 01 2008

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

Pearl

4. (a) The undersigned certifies that:
(1) The offeror is a citizen of the United States; an association of such citizens; a municipality; or a corporation organized under the laws of the United States, any State or the District of Columbia; (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act; (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act; and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice, and any amendment or separate lease that may cover any land described in this offer open to lease application at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments. Title 18 U.S.C. § 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.

Duly executed this _____ day of _____, 20____

(Printed Name of Lessee or Attorney-in-fact) (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year. Annual rental rates per acre or fraction thereof, as applicable, are:
(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant): $1.00 for the first 10 years; thereafter $5.00; or
(b) Competitive lease: $2.00 for the first year; $3.00 for the second through tenth year; thereafter $5.00.
Annual rental is always due by the anniversary date of this lease (43 CFR 3211.13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production.
Rental may only be credited toward royalty under 43 CFR 3211.15 and 30 CFR 218.303. Rental may not be credited against direct use fees. Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213.14.

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor. Royalties are due on the last day of the month following the month of production. Royalties will be computed in accordance with applicable regulations and orders. Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are: 1.75 percent for the first 10 years of production and 3.5 percent after the first 10 years. The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H.
The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U.S.C. 181), is 5 percent, except for sodium compounds, for which the royalty rate is 2 percent for sodium produced between September 29, 2006 and September 29, 2011 (Pub. L. No. 109-338, § 102; note to 30 U.S.C. 262). No royalty is due on byproducts that are not specified in 30 U.S.C. § 181. (43 CFR 3211.19.)
If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease.
(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211.17, 3211.18).
(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212.15(a) and 30 CFR 218.305.
(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211.18; 30 CFR 206.356).
This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202.351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases. Direct use fees are due on the last day of the month following the month of production.
(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211.18(a)(3) and 30 CFR 206.366, check here: ☐. A lessee under this paragraph is not subject to paragraph (d), above. In lieu of royalties, the lessee under this paragraph must pay a nominal fee of
$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations.

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207.11, 3207.12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor. Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207.13).

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease. At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold; (b) proceeds derived therefrom or from the sale of electricity generated using such resources; (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206.351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity; and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest.
In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests; keep a record of subsurface investigations; and furnish copies to lessor when required.
Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees. All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent. Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

Sec. 6. Conduct of operations—Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee. Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor. If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor. Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects.

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee.

Sec. 8. Damages to property—Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety. Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. Lessee must comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractor may maintain segregated facilities.

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease. Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for: paying all accrued rentals and royalties; plugging and abandoning all wells on the relinquished land; restoring and reclaiming the surface and other resources; and complying with 43 CFR 3200.4.

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment.

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200.4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default. Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time. Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200.4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense.

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

(Continued on page 3)

INSTRUCTIONS

A. General

1. Items 1 and 2 need to be completed only by parties filing for a noncompetitive lease. The BLM will complete the front of the form for other types of leases. The BLM may use the "Comments" space under Item 3 to identify when: the lessee has elected to make all lease terms subject to the Energy Policy Act of 2005 under 43 CFR 3200.7(a)(2) or 43 CFR 3200.8(b) (box labeled "converted lease" must also be checked); the lease is being issued noncompetitively to a party who holds a mining claim on the same lands as is covered by the lease under 43 CFR 3204.12; the lease is a direct use lease issued to a State, local, or tribal government (box at section 2(E) under Lease Terms must also be checked); the lease is a competitive lease with direct-use-only stipulations attached; or other circumstances exist. A lessee who seeks to convert only the royalty rate of a lease under 43 CFR 3212.25 or who qualifies for a case-by-case royalty rate determination under 43 CFR 3211.17(b)(1)(i) should not use this form, but should instead use an addendum to the existing lease.

2. Entries must be typed or printed plainly in ink. The offeror must sign the form (Item 4) in ink.

3. An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.10 for office locations.

4. If more space is needed, additional sheets must be attached to each copy of the form submitted.

B. Specific

Item 1—Enter the offeror's name and billing address.

Item 2—Indicate the agency managing the surface use of the land and the name of the unit or project of which the land is a part. The offeror may also provide other information that will assist in establishing status of the lands. The description of land must conform to 43 CFR 3203.10. Total acres applied for must not exceed that allowed by regulations (43 CFR 3203.10; 43 CFR 3206.12).

Payments: For noncompetitive leases, the amount remitted must include the processing fee for noncompetitive lease applications (43 CFR 3204.10; 43 CFR 3000.12) and the first year's rental at the rate of $1 per acre or fraction thereof. If the United States owns only a fractional interest in the geothermal resources, you must pay a prorated rental under 43 CFR 3211.11(d). The BLM will retain the processing fee even if the offer is completely rejected or withdrawn. To maintain the offeror's priority, the offeror must submit rental sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact acreage of which is not known to the offeror, rental should be submitted on the basis of each such lot or quarter-quarter section containing 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the BLM will return the rental remitted for the parts withdrawn or rejected.

The BLM will fill in the processing fee for competitive lease applications (43 CFR 3203.17; 43 CFR 3000.12) and the first year's rental at the rate of $2 per acre or fraction thereof.

Item 3—The BLM will complete this space.

NOTICES

The Privacy Act of 1974 and the regulation at 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this geothermal lease application.
AUTHORITY: 30 U.S.C. 1000 et seq.
PRINCIPAL PURPOSE—The information is to be used to process geothermal lease applications.
ROUTINE USES: (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting uses or rights in public lands or resources. (4) Transfer to the appropriate Federal, State, local, or foreign agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions.

4. (a) The undersigned certifies that:
(1) The offeror is a citizen of the United States, an association of such citizens; a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia; (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act; (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act; and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice, and any amendment or separate lease that may cover any land described in this offer open to lease application at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments. Title 18 U.S.C. § 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.

Duly executed this _____ day of _____, 20____

(Printed Name of Lessee or Attorney-in-fact) (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year. Annual rental rates per acre or fraction thereof, as applicable, are:
(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant): $1.00 for the first 10 years; thereafter $5.00; or
(b) Competitive lease: $2.00 for the first year; $3.00 for the second through tenth year; thereafter $5.00.
Annual rental is always due by the anniversary date of this lease (43 CFR 3211.13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production.
Rental may only be credited toward royalty under 43 CFR 3211.15 and 30 CFR 218.303. Rental may not be credited against direct use fees. Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213.14.

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor. Royalties are due on the last day of the month following the month of production. Royalties will be computed in accordance with applicable regulations and orders. Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are: 1.75 percent for the first 10 years of production and 3.5 percent after the first 10 years. The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H.
The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U.S.C. 181), is 5 percent, except for sodium compounds, for which the royalty rate is 2 percent for sodium produced between September 29, 2006 and September 29, 2011 (Pub. L. No. 109-338, § 102; note to 30 U.S.C. 262). No royalty is due on byproducts that are not specified in 30 U.S.C. § 181. (43 CFR 3211.19.)
If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease.
(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211.17, 3211.18).
(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212.15(a) and 30 CFR 218.305.
(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211.18; 30 CFR 206.356).
This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202.351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases. Direct use fees are due on the last day of the month following the month of production.
(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211.18(a)(3) and 30 CFR 206.366, check here: ☐ . A lessee under this paragraph is not subject to paragraph (d), above. In lieu of royalties, the lessee under this paragraph must pay a nominal fee of
$ _____.

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations.

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207.11, 3207.12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor. Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207.13).

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease. At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold; (b) proceeds derived therefrom or from the sale of electricity generated using such resources; (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206.351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity; and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest.
In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests; keep a record of subsurface investigations; and furnish copies to lessor when required.
Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees. All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent. Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

Sec. 6. Conduct of operations—Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee. Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor. If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor. Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects.

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee.

Sec. 8. Damages to property—Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety. Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. Lessee must comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractor may maintain segregated facilities.

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease. Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for: paying all accrued rentals and royalties; plugging and abandoning all wells on the relinquished land; restoring and reclaiming the surface and other resources; and complying with 43 CFR 3200.4.

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment.

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200.4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default. Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time. Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200.4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense.

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

(Continued on page 3)

INSTRUCTIONS

A. General

1. Items 1 and 2 need to be completed only by parties filing for a noncompetitive lease. The BLM will complete the front of the form for other types of leases. The BLM may use the "Comments" space under Item 3 to identify when: the lessee has elected to make all lease terms subject to the Energy Policy Act of 2005 under 43 CFR 3200.7(a)(2) or 43 CFR 3200.8(b) (box labeled "converted lease" must also be checked); the lease is being issued noncompetitively to a party who holds a mining claim on the same lands as is covered by the lease under 43 CFR 3204.12; the lease is a direct use lease issued to a State, local, or tribal government (box at section 2(E) under Lease Terms must also be checked); the lease is a competitive lease with direct-use-only stipulations attached; or other circumstances exist. A lessee who seeks to convert only the royalty rate of a lease under 43 CFR 3212.25 or who qualifies for a case-by-case royalty rate determination under 43 CFR 3211.17(b)(1)(i) should not use this form, but should instead use an addendum to the existing lease.

2. Entries must be typed or printed plainly in ink. The offeror must sign the form (Item 4) in ink.

3. An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.10 for office locations.

4. If more space is needed, additional sheets must be attached to each copy of the form submitted.

B. Specific

Item 1—Enter the offeror's name and billing address.

Item 2—Indicate the agency managing the surface use of the land and the name of the unit or project of which the land is a part. The offeror may also provide other information that will assist in establishing status of the lands. The description of land must conform to 43 CFR 3203.10. Total acres applied for must not exceed that allowed by regulations (43 CFR 3203.10; 43 CFR 3206.12).

Payments: For noncompetitive leases, the amount remitted must include the processing fee for noncompetitive lease applications (43 CFR 3204.10; 43 CFR 3000.12) and the first year's rental at the rate of $1 per acre or fraction thereof. If the United States owns only a fractional interest in the geothermal resources, you must pay a prorated rental under 43 CFR 3211.11(d). The BLM will retain the processing fee even if the offer is completely rejected or withdrawn. To maintain the offeror's priority, the offeror must submit rental sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact acreage of which is not known to the offeror, rental should be submitted on the basis of each such lot or quarter-quarter section containing 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the BLM will return the rental remitted for the parts withdrawn or rejected.

The BLM will fill in the processing fee for competitive lease applications (43 CFR 3203.17; 43 CFR 3000.12) and the first year's rental at the rate of $2 per acre or fraction thereof.

Item 3—The BLM will complete this space.

NOTICES

The Privacy Act of 1974 and the regulation at 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this geothermal lease application.
AUTHORITY: 30 U.S.C. 1000 et seq.
PRINCIPAL PURPOSE—The information is to be used to process geothermal lease applications.
ROUTINE USES: (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting uses or rights in public lands or resources. (4) Transfer to the appropriate Federal, State, local, or foreign agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions.

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modifications of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act, 16 USC § 1531 *et seq.*, as amended, including completion of any required procedure for conference or consultation.

CULTURAL RESOURCE PROTECTION
LEASE STIPULATION

This lease may be found to contain historic properties or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require exploration or development proposals to be modified to protect such properties, or it may disapprove any activity that is likely to result in adverse effects that could not be successfully avoided, minimized, or mitigated.

This page intentionally left blank.

Form 3200-24a
(September 2008)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES
(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

Serial No.
N-88463

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1 Name	1a. Street	
RAM POWER INC	6880 S MCCARRAN BLVD STE 1	
1b City	1c State	1d. Zip Code
RENO	NV	89509

2 Surface managing agency if other than BLM _____ Unit/Project _____

Legal description of land requested (segregate by public domain and acquired lands) Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3 Land included in lease: Enter T., R., Meridian, State and County

T.0010S, R.0390E, 21 MDM, NV Esmeralda County
Sec. 001 LOTS 1-4,S2N2,S2;
002 LOTS 1-4,S2N2,S2;
011 ALL;
012 ALL;

Total Acres in Lease 2604.04

Rental Retained $ 5210.00

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated

Type of Lease
- ☑ Competitive
- ☐ Noncompetitive
- ☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY _____
(Signing Official)

ATANDA CLARK
(Printed Name)

Chief, Branch of Minerals Adjudication
(Title)

JUN 10 2010
(Date)

EFFECTIVE DATE OF LEASE 07/01/2010

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

4 (a) The undersigned certifies that

(1) The offeror is a citizen of the United States, an association of such citizens, a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia, (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act, (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act, and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments Title 18 U S C § 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

Duly executed this 14 day of June, 20 10 CL Morris for Ron Pike (Printed Name of Lessee or Attorney-in-fact) (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec 1 Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year Annual rental rates per acre or fraction thereof, as applicable, are

(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant) $1 00 for the first 10 years, thereafter $5 00, or

(b) Competitive lease $2 00 for the first year, $3 00 for the second through tenth year, thereafter $5 00

Annual rental is always due by the anniversary date of this lease (43 CFR 3211 13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production

Rental may only be credited toward royalty under 43 CFR 3211 15 and 30 CFR 218 303 Rental may not be credited against direct use fees Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213 14

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor Royalties are due on the last day of the month following the month of production Royalties will be computed in accordance with applicable regulations and orders Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are 1 75 percent for the first 10 years of production and 3 5 percent after the first 10 years The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H

The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U S C 181), is 5 percent, except for sodium compounds, produced between September 29, 2006 and September 29, 2011 (Pub L No 109-338, §102, note to 30 U S C 362) for which the royalty rate is 2 percent No royalty is due on byproducts that are not specified in 30 U S C § 181 (43 CFR 3211 19)

If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease

(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211 17, 3211 18)

(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212 15(a) and 30 CFR 218 305

(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211 18, 30 CFR 206 356)

This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202 351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases Direct use fees are due on the last day of the month following the month of production

(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211 18(a)(3) and 30 CFR 206 366 check here ☐ A lessee under this paragraph is not subject to paragraph (d), above In lieu of royalties, the lessee under this paragraph must pay a nominal fee of

$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207 11, 3207 12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207 13)

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold, (b) proceeds derived therefrom or from the sale of electricity generated using such resources, (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206 351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity, and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest

In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests, keep a record of subsurface investigations, and furnish copies to lessor when required

Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor

Sec. 6. Conduct of operations—Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee

Sec. 8. Damages to property—Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly Lessee must comply with Executive Order No 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto Neither lessee nor lessee's subcontractor may maintain segregated facilities

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for paying all accrued rentals and royalties, plugging and abandoning all wells on the relinquished land, restoring and reclaiming the surface and other resources, and complying with 43 CFR 3200 4

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200 4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213 This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200 4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto

(Continued on page 3)

INSTRUCTIONS

A. General

1 Items 1 and 2 need to be completed only by parties filing for a noncompetitive lease. The BLM will complete the front of the form for other types of leases. The BLM may use the "Comments" space under Item 3 to identify when: the lessee has elected to make all lease terms subject to the Energy Policy Act of 2005 under 43 CFR 3200.7(a)(2) or 43 CFR 3200.8(b) (box labeled "converted lease" must also be checked); the lease is being issued noncompetitively to a party who holds a mining claim on the same lands as is covered by the lease under 43 CFR 3204.12; the lease is a direct use lease issued to a State, local, or tribal government (box at section 2(e) under Lease Terms must also be checked); the lease is a competitive lease with direct-use-only stipulations attached; or other special circumstances exist. A lessee who seeks to convert only the royalty rate of a lease under 43 CFR 3212.25 or who qualifies for a case-by-case royalty rate determination under 43 CFR 3211.17(b)(1)(i) should not use this form, but should instead use an addendum to the existing lease.

2 Entries must be typed or printed plainly in ink. The offeror must sign the form (Item 4) in ink.

3 An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.10 for office locations.

4 If more space is needed, additional sheets must be attached to each copy of the form submitted.

B. Specific

Item 1—Enter the offeror's name and billing address.

Item 2—Indicate the agency managing the surface use of the land and the name of the unit or project of which the land is a part. The offeror may also provide other information that will assist in establishing status of the lands. The description of land must conform to 43 CFR 3203.10. Total acres applied for must not exceed that allowed by regulations (43 CFR 3203.10, 43 CFR 3206.12).

Payments. For noncompetitive leases, the amount remitted must include the processing fee for noncompetitive lease applications (43 CFR 3204.10, 43 CFR 3000.12) and the first year's rental at the rate of $1 per acre or fraction thereof. If the United States owns only a fractional interest in the geothermal resources, you must pay a prorated rental under 43 CFR 3211.11(d). The BLM will retain the processing fee even if the offer is completely rejected or withdrawn. To maintain the offeror's priority, the offeror must submit rental sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact acreage of which is not known to the offeror, rental should be submitted on the assumption that each such lot or quarter-quarter section contains 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the BLM will return the rental remitted for the parts withdrawn or rejected.

The BLM will fill in the processing fee for competitive lease applications (43 CFR 3203.17, 43 CFR 3000.12) and the first year's rental at the rate of $2 per acre or fraction thereof.

Item 3—The BLM will complete this space.

NOTICES

The Privacy Act of 1974 and the regulation at 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this geothermal lease application.
AUTHORITY. 30 U.S.C. 1000 et seq.
PRINCIPAL PURPOSE—The information is to be used to process geothermal lease applications.
ROUTINE USES. (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting uses or rights in public lands or resources. (4) Transfer to the appropriate Federal, State, local, or foreign agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions.

NOTICE

Washington Office Instruction Memorandum No. 2010-171, dated March 5, 2010, supplements the Bureau of Land Management's 2004 National Sage-Grouse Habitat Conservation Strategy and provides the following guidance pertaining to the sale of parcels for oil & gas/geothermal development:

"Attach a lease notice to new leases alerting the lessee that additional conditions will be applied to approvals to develop the lease, including Applications for Permit to Drill (APDs), sundry notices and associated rights-of-way, if future sage-grouse conservation efforts are appropriate."

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modifications of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act, 16 USC § 1531 *et seq.*, as amended, including completion of any required procedure for conference or consultation.

CULTURAL RESOURCE PROTECTION
LEASE STIPULATION

This lease may be found to contain historic properties or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require exploration or development proposals to be modified to protect such properties, or it may disapprove any activity that is likely to result in adverse effects that could not be successfully avoided, minimized, or mitigated.

Other Lease Stipulations

Protection of Geothermal Features

Under the following situations, the BLM or FS would apply stipulations to protect the integrity of geothermal resource features, such as springs and geysers. If it is determined that geothermal operations are reasonably likely to result in a significant adverse effect to such a feature, then BLM would decline to issue the lease.

Any lease that contain thermal features (e.g., springs or surface expressions) would have a stipulation requiring monitoring of the thermal features during any exploration, development, and production of the lease to ensure that there are no impacts to water quality or quantity.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 26, PROT All; sec. 27, W2SW, E2SE; sec. 28, NE; sec. 28, PROT W2, SE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 11, NE.
PARCEL NV-10-05-078	T. 31 N., R. 46 E., MDM, Nevada sec. 02, lots 9-12, 15-18; sec. 10, S2S2; sec. 14, N2.
PARCEL NV-10-05-079	T. 14 N., R. 47 E., MDM, Nevada sec. 15, All; sec. 16, All; sec. 21, All; sec. 22, NW, N2SW, SWSW; sec. 28, All.
PARCEL NV-10-05-082	T. 02 N., R. 50 E., MDM, Nevada sec. 02, lots 3,4, S2NW, SW; sec. 03, lots 1-2, S2NE, SE; sec. 10, E2; sec. 11, W2; sec. 14, W2. T. 03 N., R. 50 E., MDM, Nevada sec. 27, PROT All; sec. 34, PROT All.

PARCEL NV-10-05-088	T. 09 N., R. 51 E., MDM, Nevada sec. 12, PROT All. T. 10 N., R. 51 E., MDM, Nevada sec. 25, N2, N2SW, SWSW, SE; sec. 26, All; sec. 36, E2.
PARCEL NV-10-05-105	T. 02 S., R. 35 E., MDM, Nevada sec. 05, lots 1-4, S2N2, S2; sec. 08, All; sec. 17, All; sec. 20, All; sec. 29, All; sec. 32, All.
PARCEL NV-10-05-106	T. 01 S., R. 36 E., MDM, Nevada sec. 24, N2; sec. 24, PROT S2; sec. 25, PROT All; sec. 26, NW; sec. 26, PROT E2, SW; sec. 27, All; sec. 33, All; sec. 34, NW.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 04, lots 1-4, S2N2, S2; sec. 07, lots 1-4, NWNE, E2NW, NESW, E2SE; sec. 08, E2, NENW, S2NW, SW; sec. 09, All.
PARCEL NV-10-05-108	T. 03 S., R. 38 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 02, lots 1-4, S2N2, S2; sec. 03, lots 1-2, S2NE, SE; sec. 10, E2; sec. 11, All; sec. 12, All. T. 03 S., R. 39 E., MDM, Nevada sec. 06, lots 1-7, S2NE, SENW, E2SW, SE; sec. 07, lots 1-4, E2, E2W2.
PARCEL NV-10-05-109	T. 01 S., R. 39 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 02, lots 1-4, S2N2, S2; sec. 11, All; sec. 12, All.

PARCEL NV-10-05-110	T. 01 S., R. 39 E., MDM, Nevada sec. 13, PROT All; sec. 14, PROT All; sec. 23, PROT All; sec. 24, PROT All.
PARCEL NV-10-05-111	T. 01 S., R. 39 E., MDM, Nevada sec. 25, PROT All; sec. 26, PROT All; sec. 27, PROT All; sec. 28, PROT All; sec. 36, PROT All. T. 02 S., R. 39 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 12, All.
PARCEL NV-10-05-112	T. 03 S., R. 40 E., MDM, Nevada sec. 26, All; sec. 27, All; sec. 34, All; sec. 35, All. T. 04 S., R. 40 E., MDM, Nevada sec. 02, lots 1-4, S2N2, S2; sec. 03, lots 1-4, S2N2, S2; sec. 10, All; sec. 11, N2, SW, N2SE, SWSE; sec. 11, N2SESE, SWSESE.
PARCEL NV-10-05-113	T. 12 S., R. 46 E., MDM, Nevada sec. 07, lot 4, E2, SESW; sec. 08, S2NW, N2SW, SWSW; sec. 16, lot 27, SWSW, S2SE; sec. 17, W2, S2SE; sec. 18, lots 1-4, E2, E2W2; sec. 19, lots 1-4, E2, E2W2; sec. 20, All; sec. 21, All.
PARCEL NV-10-05-114	T. 12 S., R. 48 E., MDM, Nevada sec. 16, PROT All; sec. 21, PROT All; sec. 22, PROT All; sec. 27, PROT All; sec. 28, PROT All; sec. 33, PROT All; sec. 34, PROT All.

This page intentionally left blank.

Form 3200-24a
(September 2008)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES
(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

Serial No.
N-88464

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1. Name	1a Street	
RAM POWER INC	6880 S MCCARRAN BLVD STE 1	
1b City	1c State	1d Zip Code
RENO	NV	89509

2 Surface managing agency if other than BLM: _____ Unit/Project _____

Legal description of land requested (segregate by public domain and acquired lands). Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted: Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3 Land included in lease: Enter T., R., Meridian, State and County

T.0010S, R.0390E, 21 MDM, NV Esmeralda County
Sec. 013 PROT ALL;
014 PROT ALL;
023 PROT ALL;
024 PROT ALL;

Total Acres in Lease 2560.00

Rental Retained $ 5120.00

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to: applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance; and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated.

Type of Lease
- ☑ Competitive
- ☐ Noncompetitive
- ☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY _____
(Signing Official)

ATANDA CLARK
(Printed Name)

Chief, Branch of Minerals Adjudication
(Title)

JUN 10 2010
(Date)

EFFECTIVE DATE OF LEASE 07/01/2010

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

4 (a) The undersigned certifies that

(1) The offeror is a citizen of the United States, an association of such citizens, a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia; (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act; (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act, and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments. Title 18 U.S.C. § 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.

Duly executed this 14 day of June 20 10 C L Morris for Ram Power

(Printed Name of Lessee or Attorney-in-fact) (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year. Annual rental rates per acre or fraction thereof, as applicable, are:

(a) Noncompetitive lease (includes post-sale parcels not receiving bids, a direct use lease or a lease issued to a mining claimant) $1.00 for the first 10 years, thereafter $5.00, or

(b) Competitive lease $2.00 for the first year, $3.00 for the second through tenth year, thereafter $5.00.

Annual rental is always due by the anniversary date of this lease (43 CFR 3211.13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production.

Rental may only be credited toward royalty under 43 CFR 3211.15 and 30 CFR 218.303. Rental may not be credited against direct use fees. Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213.14.

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor. Royalties are due on the last day of the month following the month of production. Royalties will be computed in accordance with applicable regulations and orders. Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are 1.75 percent for the first 10 years of production and 3.5 percent after the first 10 years. The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H.

The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U.S.C. 181), is 5 percent, except for sodium compounds, produced between September 29, 2006 and September 29, 2011 (Pub. L. No. 109-338, §102, note to 30 U.S.C. 362) for which the royalty rate is 2 percent. No royalty is due on byproducts that are not specified in 30 U.S.C. § 181. (43 CFR 3211.19.)

If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease.

(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211.17, 3211.18).

(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212.15(a) and 30 CFR 218.305.

(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211.18, 30 CFR 206.356). This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202.351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases. Direct use fees are due on the last day of the month following the month of production.

(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211.18(a)(3) and 30 CFR 206.366, check here ☐. A lessee under this paragraph is not subject to paragraph (d), above. In lieu of royalties, the lessee under this paragraph must pay a nominal fee of

$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations.

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207.11, 3207.12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor. Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207.13).

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease. At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold, (b) proceeds derived therefrom or from the sale of electricity generated using such resources, (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206.351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity, and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest.

In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests; keep a record of subsurface investigations; and furnish copies to lessor when required.

Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees. All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent. Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

Sec. 6. Conduct of operations--Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee. Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor. If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor. Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects.

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee.

Sec. 8. Damages to property--Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 9. Protection of diverse interests and equal opportunity—Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety. Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. Lessee must comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractor may maintain segregated facilities.

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease. Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for paying all accrued rentals and royalties, plugging and abandoning all wells on the relinquished land, restoring and reclaiming the surface and other resources, and complying with 43 CFR 3200.4.

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment.

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200.4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default. Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time. Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200.4, and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense.

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

(Continued on page 3)

INSTRUCTIONS

A. General

1. Items 1 and 2 need to be completed only by parties filing for a noncompetitive lease. The BLM will complete the front of the form for other types of leases. The BLM may use the "Comments" space under Item 3 to identify when: the lessee has elected to make all lease terms subject to the Energy Policy Act of 2005 under 43 CFR 3200.7(a)(2) or 43 CFR 3200.8(b) (box labeled "converted lease" must also be checked); the lease is being issued noncompetitively to a party who holds a mining claim on the same lands as is covered by the lease under 43 CFR 3204.12; the lease is a direct use lease issued to a State, local, or tribal government (box at section 2(e) under Lease Terms must also be checked); the lease is a competitive lease with direct-use-only stipulations attached; or other special circumstances exist. A lessee who seeks to convert only the royalty rate of a lease under 43 CFR 3212.25 or who qualifies for a case-by-case royalty rate determination under 43 CFR 3211.17(b)(1)(i) should not use this form, but should instead use an addendum to the existing lease.

2. Entries must be typed or printed plainly in ink. The offeror must sign the form (Item 4) in ink.

3. An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.10 for office locations.

4. If more space is needed, additional sheets must be attached to each copy of the form submitted.

B. Specific

Item 1—Enter the offeror's name and billing address.

Item 2—Indicate the agency managing the surface use of the land and the name of the unit or project of which the land is a part. The offeror may also provide other information that will assist in establishing status of the lands. The description of land must conform to 43 CFR 3203.10. Total acres applied for must not exceed that allowed by regulations (43 CFR 3203.10; 43 CFR 3206.12).

Payments. For noncompetitive leases, the amount remitted must include the processing fee for noncompetitive lease applications (43 CFR 3204.10; 43 CFR 3000.12) and the first year's rental at the rate of $1 per acre or fraction thereof. If the United States owns only a fractional interest in the geothermal resources, you must pay a prorated rental under 43 CFR 3211.11(d). The BLM will retain the processing fee even if the offer is completely rejected or withdrawn. To maintain the offeror's priority, the offeror must submit rental sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact acreage of which is not known to the offeror, rental should be submitted on the assumption that each such lot or quarter-quarter section contains 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the BLM will return the rental remitted for the parts withdrawn or rejected.

The BLM will fill in the processing fee for competitive lease applications (43 CFR 3203.17; 43 CFR 3000.12) and the first year's rental at the rate of $2 per acre or fraction thereof.

Item 3—The BLM will complete this space.

NOTICES

The Privacy Act of 1974 and the regulation at 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this geothermal lease application.

AUTHORITY: 30 U.S.C. 1000 et seq.

PRINCIPAL PURPOSE—The information is to be used to process geothermal lease applications.

ROUTINE USES: (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting uses or rights in public lands or resources. (4) Transfer to the appropriate Federal, State, local, or foreign agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions.

NOTICE

Washington Office Instruction Memorandum No. 2010-171, dated March 5, 2010, supplements the Bureau of Land Management's 2004 National Sage-Grouse Habitat Conservation Strategy and provides the following guidance pertaining to the sale of parcels for oil & gas/geothermal development:

"Attach a lease notice to new leases alerting the lessee that additional conditions will be applied to approvals to develop the lease, including Applications for Permit to Drill (APDs), sundry notices and associated rights-of-way, if future sage-grouse conservation efforts are appropriate."

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modifications of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act, 16 USC § 1531 *et seq.*, as amended, including completion of any required procedure for conference or consultation.

CULTURAL RESOURCE PROTECTION
LEASE STIPULATION

This lease may be found to contain historic properties or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require exploration or development proposals to be modified to protect such properties, or it may disapprove any activity that is likely to result in adverse effects that could not be successfully avoided, minimized, or mitigated.

Other Lease Stipulations

Protection of Geothermal Features

Under the following situations, the BLM or FS would apply stipulations to protect the integrity of geothermal resource features, such as springs and geysers. If it is determined that geothermal operations are reasonably likely to result in a significant adverse effect to such a feature, then BLM would decline to issue the lease.

Any lease that contain thermal features (e.g., springs or surface expressions) would have a stipulation requiring monitoring of the thermal features during any exploration, development, and production of the lease to ensure that there are no impacts to water quality or quantity.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 26, PROT All; sec. 27, W2SW, E2SE; sec. 28, NE; sec. 28, PROT W2, SE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 11, NE.
PARCEL NV-10-05-078	T. 31 N., R. 46 E., MDM, Nevada sec. 02, lots 9-12, 15-18; sec. 10, S2S2; sec. 14, N2.
PARCEL NV-10-05-079	T. 14 N., R. 47 E., MDM, Nevada sec. 15, All; sec. 16, All; sec. 21, All; sec. 22, NW, N2SW, SWSW; sec. 28, All.
PARCEL NV-10-05-082	T. 02 N., R. 50 E., MDM, Nevada sec. 02, lots 3,4, S2NW, SW; sec. 03, lots 1-2, S2NE, SE; sec. 10, E2; sec. 11, W2; sec. 14, W2. T. 03 N., R. 50 E., MDM, Nevada sec. 27, PROT All; sec. 34, PROT All.

PARCEL NV-10-05-088	T. 09 N., R. 51 E., MDM, Nevada sec. 12, PROT All. T. 10 N., R. 51 E., MDM, Nevada sec. 25, N2, N2SW, SWSW, SE; sec. 26, All; sec. 36, E2.
PARCEL NV-10-05-105	T. 02 S., R. 35 E., MDM, Nevada sec. 05, lots 1-4, S2N2, S2; sec. 08, All; sec. 17, All; sec. 20, All; sec. 29, All; sec. 32, All.
PARCEL NV-10-05-106	T. 01 S., R. 36 E., MDM, Nevada sec. 24, N2; sec. 24, PROT S2; sec. 25, PROT All; sec. 26, NW; sec. 26, PROT E2, SW; sec. 27, All; sec. 33, All; sec. 34, NW.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 04, lots 1-4, S2N2, S2; sec. 07, lots 1-4, NWNE, E2NW, NESW, E2SE; sec. 08, E2, NENW, S2NW, SW; sec. 09, All.
PARCEL NV-10-05-108	T. 03 S., R. 38 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 02, lots 1-4, S2N2, S2; sec. 03, lots 1-2, S2NE, SE; sec. 10, E2; sec. 11, All; sec. 12, All. T. 03 S., R. 39 E., MDM, Nevada sec. 06, lots 1-7, S2NE, SENW, E2SW, SE; sec. 07, lots 1-4, E2, E2W2.
PARCEL NV-10-05-109	T. 01 S., R. 39 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 02, lots 1-4, S2N2, S2; sec. 11, All; sec. 12, All.

PARCEL NV-10-05-110	T. 01 S., R. 39 E., MDM, Nevada sec. 13, PROT All; sec. 14, PROT All; sec. 23, PROT All; sec. 24, PROT All.
PARCEL NV-10-05-111	T. 01 S., R. 39 E., MDM, Nevada sec. 25, PROT All; sec. 26, PROT All; sec. 27, PROT All; sec. 28, PROT All; sec. 36, PROT All. T. 02 S., R. 39 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 12, All.
PARCEL NV-10-05-112	T. 03 S., R. 40 E., MDM, Nevada sec. 26, All; sec. 27, All; sec. 34, All; sec. 35, All. T. 04 S., R. 40 E., MDM, Nevada sec. 02, lots 1-4, S2N2, S2; sec. 03, lots 1-4, S2N2, S2; sec. 10, All; sec. 11, N2, SW, N2SE, SWSE; sec. 11, N2SESE, SWSESE.
PARCEL NV-10-05-113	T. 12 S., R. 46 E., MDM, Nevada sec. 07, lot 4, E2, SESW; sec. 08, S2NW, N2SW, SWSW; sec. 16, lot 27, SWSW, S2SE; sec. 17, W2, S2SE; sec. 18, lots 1-4, E2, E2W2; sec. 19, lots 1-4, E2, E2W2; sec. 20, All; sec. 21, All.
PARCEL NV-10-05-114	T. 12 S., R. 48 E., MDM, Nevada sec. 16, PROT All; sec. 21, PROT All; sec. 22, PROT All; sec. 27, PROT All; sec. 28, PROT All; sec. 33, PROT All; sec. 34, PROT All.

This page intentionally left blank.

Form 3200-24a
(September 2008)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OFFER TO LEASE AND LEASE FOR GEOTHERMAL RESOURCES
(For New Leases Issued Under the Energy Policy Act of 2005 [August 5, 2005])

Serial No.
N-88465

The undersigned (see page 2) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

READ INSTRUCTIONS BEFORE COMPLETING

1 Name	1a Street	
RAM POWER INC	6880 S MCCARRAN BLVD STE 1	
1b City	1c State	1d Zip Code
RENO	NV	89509

2 Surface managing agency if other than BLM _____ Unit/Project _____

Legal description of land requested (segregate by public domain and acquired lands) Enter T., R., Meridian, State and County

Total Acres Applied for _____

Percent U.S. interest _____

Amount remitted Processing Fee $ _____ Rental Fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease: Enter T., R., Meridian, State and County

T.0010S, R.0390E, 21 MDM, NV
Sec. 025 ALL;
026 ALL;
027 ALL;
028 ALL;
036 ALL;

T.0020S, R.0390E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
012 ALL;

Esmeralda County

Total Acres in Lease 4478.80

Rental Retained $ 8958.00

In accordance with the above offer, or the previously submitted competitive bid, this lease is issued granting the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon, for a primary term of 10 years and subsequent extensions thereof in accordance with 43 CFR subpart 3207. Rights granted are subject to applicable laws; the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and, when not inconsistent with the provisions of this lease, regulations and formal orders hereafter promulgated.

Type of Lease
- ☑ Competitive
- ☐ Noncompetitive
- ☐ Noncompetitive direct use (43 CFR subpart 3205)

Comments:

THE UNITED STATES OF AMERICA

BY _____
(Signing Official)

ATANDA CLARK
(Printed Name)

Chief, Branch of Minerals Adjudication
(Title)

JUN 10 2010
(Date)

EFFECTIVE DATE OF LEASE 07/01/2010

Check if this is a converted lease ☐

EFFECTIVE DATE OF LEASE CONVERSION _____

(Continued on page 2)

4 (a) The undersigned certifies that

(1) The offeror is a citizen of the United States, an association of such citizens, a municipality, or a corporation organized under the laws of the United States, any State or the District of Columbia, (2) All parties holding an interest in the offer are in compliance with 43 CFR part 3200 and the authorizing Act, (3) The offeror's chargeable interests, direct and indirect, do not exceed those allowed under the Act, and (4) The offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located

(b) The undersigned agrees that signing this offer constitutes acceptance of this lease, including all terms, conditions and stipulations of which the offeror has been given notice The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States

This offer will be rejected and will afford the offeror no priority if it is not properly completed and executed in accordance with the regulations or if it is not accompanied by the required payments Title 18 U S C § 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

Duly executed this 14 day of June, 20 10 C.L. Moore for Ram Power Inc (Printed Name of Lessee or Attorney-in-fact) (Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec 1 Rentals—Rentals must be paid to the proper office of the lessor in advance of each lease year Annual rental rates per acre or fraction thereof, as applicable, are

(a) Noncompetitive lease (includes post-sale parcels not receiving bids a direct use lease or a lease issued to a mining claimant) $1 00 for the first 10 years, thereafter $5 00, or

(b) Competitive lease $2 00 for the first year, $3 00 for the second through tenth year, thereafter $5 00

Annual rental is always due by the anniversary date of this lease (43 CFR 3211 13), regardless of whether the lease is in a unit or outside of a unit, the lease is in production or not, or royalties or direct use fees apply to the production

Rental may only be credited toward royalty under 43 CFR 3211 15 and 30 CFR 218 303 Rental may not be credited against direct use fees Failure to pay annual rental timely will result in late fees and will make the lease subject to termination in accordance with 43 CFR 3213 14

Sec. 2. (a) Royalties—Royalties must be paid to the proper office of the lessor Royalties are due on the last day of the month following the month of production Royalties will be computed in accordance with applicable regulations and orders Royalty rates for geothermal resources produced for the commercial generation of electricity but not sold in an arm's length transaction are 1 75 percent for the first 10 years of production and 3 5 percent after the first 10 years The royalty rate is to be applied to the gross proceeds derived from the sale of electricity in accordance with 30 CFR part 206 subpart H

The royalty rate for byproducts derived from geothermal resource production that are minerals specified in section 1 of the Mineral Leasing Act (MLA), as amended (30 U S C 181), is 5 percent, except for sodium compounds, produced between September 29, 2006 and September 29, 2011 (Pub L No 109-338, §102, note to 30 U S C 362) for which the royalty rate is 2 percent No royalty is due on byproducts that are not specified in 30 U S C § 181 (43 CFR 3211 19)

If this lease or a portion thereof is committed to an approved communitization or unit agreement and the agreement contains a provision for allocation of production, royalties must be paid on the production allocated to this lease

(b) Arm's length transactions—The royalty rate for geothermal resources sold by you or your affiliate at arm's length to a purchaser is 10 percent of the gross proceeds derived from the arm's-length sale (43 CFR 3211 17, 3211 18)

(c) Advanced royalties—In the absence of a suspension, if you cease production for more than one calendar month on a lease that is subject to royalties and that has achieved commercial production, your lease will remain in effect only if you make advanced royalty payments in accordance with 43 CFR 3212 15(a) and 30 CFR 218 305

(d) Direct use fees—Direct use fees must be paid in lieu of royalties for geothermal resources that are utilized for commercial, residential, agricultural, or other energy needs other than the commercial production or generation of electricity, but not sold in an arm's length transaction (43 CFR 3211 18, 30 CFR 206 356)

This requirement applies to any direct use of federal geothermal resources (unless the resource is exempted as described in 30 CFR 202 351(b) or the lessee is covered by paragraph (e), below) and is not limited to direct use leases Direct use fees are due on the last day of the month following the month of production

(e) If the lessee is a State, tribal, or local government covered by 43 CFR 3211 18(a)(3) and 30 CFR 206 366, check here ☐ A lessee under this paragraph is not subject to paragraph (d), above In lieu of royalties, the lessee under this paragraph must pay a nominal fee of

$ _____

Sec. 3. Bonds—A bond must be filed and maintained for lease operations as required by applicable regulations

Sec. 4. Work requirements, rate of development, unitization, and drainage--Lessee must perform work requirements in accordance with applicable regulations (43 CFR 3207 11, 3207 12), and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves the right to specify rates of development and production and to require lessee to commit to a communitization or unit agreement, within 30 days of notice, if in the public interest Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in the amount determined by lessor. Lessor will exempt lessee from work requirements only where the lease overlies a mining claim that has an approved plan of operations and where BLM determines that the development of the geothermal resource on the lease would interfere with the mining operation (43 CFR 3207 13)

Sec. 5. Documents, evidence, and inspection—Lessee must file with the proper office of the lessor, not later than (30) days after the effective date thereof, any contract or evidence of other arrangement for the sale, use, or disposal of geothermal resources, byproducts produced, or for the sale of electricity generated using geothermal resources produced from the lease At such times and in such form as lessor may prescribe, lessee must furnish detailed statements and all documents showing (a) amounts and quality of all geothermal resources produced and used (either for commercial production or generation of electricity, or in a direct use operation) or sold, (b) proceeds derived therefrom or from the sale of electricity generated using such resources, (c) amounts that are unavoidably lost or reinjected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206 351) or electricity for lease operations, or otherwise used for lease operations related to the commercial production or generation of electricity, and (d) amounts and quality of all byproducts produced and proceeds derived from the sale or disposition thereof Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest

In a format and manner approved by lessor, lessee must keep a daily drilling record, a log, and complete information on well surveys and tests, keep a record of subsurface investigations, and furnish copies to lessor when required

Lessee must keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands Lessee must maintain copies of all contracts, sales agreements, accounting records, billing records, invoices, gross proceeds and payment data regarding the sale, disposition, or use of geothermal resources, byproducts produced, and the sale of electricity generated using resources produced from the lease, and all other information relevant to determining royalties or direct use fees All such records must be maintained in lessee's accounting offices for future audit by lessor and produced upon request by lessor or lessor's authorized representative or agent Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor

Sec. 6. Conduct of operations --Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section To the extent consistent with leased rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way Such uses will be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources Lessor may require lessee to complete minor inventories or short term special studies under guidelines provided by lessor If, in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor Lessee must cease any operations that are likely to affect or take such species, or result in the modification, damage or destruction of such habitats or objects

Sec. 7. Production of byproducts—If the production, use, or conversion of geothermal resources from these leased lands is susceptible of producing a valuable byproduct or byproducts, including commercially demineralized water for beneficial uses in accordance with applicable State water laws, lessor may require substantial beneficial production or use thereof by lessee

Sec. 8. Damages to property--Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations

Sec. 9. Protection of diverse interests and equal opportunity--Lessee must maintain a safe working environment in accordance with applicable regulations and standard industry practices, and take measures necessary to protect public health and safety Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly Lessee must comply with Executive Order No 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto Neither lessee nor lessee's subcontractor may maintain segregated facilities

Sec. 10. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease Subject to the requirements of 43 CFR subpart 3213, lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date BLM receives it, subject to the continued obligation of the lessee and surety to be responsible for: paying all accrued rentals and royalties, plugging and abandoning all wells on the relinquished land, restoring and reclaiming the surface and other resources, and complying with 43 CFR 3200 4

Sec. 11. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee must place all wells in condition for suspension or abandonment, reclaim the land as specified by lessor, and within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells or continued protection of the environment

Sec. 12. Proceedings in case of default—If lessee fails to comply with any provisions of this lease or other applicable requirements under 43 CFR 3200 4, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to termination in accordance with the Act and 43 CFR 3213 This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy or action, including waiver of the default Any such remedy, waiver, or action will not prevent later termination for the same default occurring at any other time Whenever the lessee fails to comply in a timely manner with any of the provisions of the Act, this lease, the regulations, or other applicable requirements under 43 CFR 3200 4 and immediate action is required, the lessor may enter on the leased lands and take measures deemed necessary to correct the failure at the lessee's expense

Sec. 13. Heirs and successors-in-interest—Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto

(Continued on page 3)

INSTRUCTIONS

A General

1 Items 1 and 2 need to be completed only by parties filing for a noncompetitive lease. The BLM will complete the front of the form for other types of leases. The BLM may use the "Comments" space under Item 3 to identify when the lessee has elected to make all lease terms subject to the Energy Policy Act of 2005 under 43 CFR 3200.7(a)(2) or 43 CFR 3200.8(b) (box labeled "converted lease" must also be checked), the lease is being issued noncompetitively to a party who holds a mining claim on the same lands as is covered by the lease under 43 CFR 3204.12, the lease is a direct use lease issued to a State, local, or tribal government (box at section 2(e) under Lease Terms must also be checked), the lease is a competitive lease with direct-use-only stipulations attached, or other special circumstances exist. A lessee who seeks to convert only the royalty rate of a lease under 43 CFR 3212.25 or who qualifies for a case-by-case royalty rate determination under 43 CFR 3211.17(b)(1)(i) should not use this form, but should instead use an addendum to the existing lease.

2 Entries must be typed or printed plainly in ink. The offeror must sign the form (Item 4) in ink.

3 An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.10 for office locations.

4 If more space is needed, additional sheets must be attached to each copy of the form submitted.

B Specific

Item 1—Enter the offeror's name and billing address.

Item 2—Indicate the agency managing the surface use of the land and the name of the unit or project of which the land is a part. The offeror may also provide other information that will assist in establishing status of the lands. The description of land must conform to 43 CFR 3203.10. Total acres applied for must not exceed that allowed by regulations (43 CFR 3203.10, 43 CFR 3206.12).

Payments. For noncompetitive leases, the amount remitted must include the processing fee for noncompetitive lease applications (43 CFR 3204.10, 43 CFR 3000.12) and the first year's rental at the rate of $1 per acre or fraction thereof. If the United States owns only a fractional interest in the geothermal resources, you must pay a prorated rental under 43 CFR 3211.11(d). The BLM will retain the processing fee even if the offer is completely rejected or withdrawn. To maintain the offeror's priority, the offeror must submit rental sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact acreage of which is not known to the offeror, rental should be submitted on the assumption that each such lot or quarter-quarter section contains 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the BLM will return the rental remitted for the parts withdrawn or rejected.

The BLM will fill in the processing fee for competitive lease applications (43 CFR 3203.17, 43 CFR 3000.12) and the first year's rental at the rate of $2 per acre or fraction thereof.

Item 3—The BLM will complete this space.

NOTICES

The Privacy Act of 1974 and the regulation at 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this geothermal lease application.

AUTHORITY. 30 U.S.C. 1000 et seq.

PRINCIPAL PURPOSE—The information is to be used to process geothermal lease applications.

ROUTINE USES. (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting uses or rights in public lands or resources. (4) Transfer to the appropriate Federal, State, local, or foreign agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions.

NOTICE

Washington Office Instruction Memorandum No. 2010-171, dated March 5, 2010, supplements the Bureau of Land Management's 2004 National Sage-Grouse Habitat Conservation Strategy and provides the following guidance pertaining to the sale of parcels for oil & gas/geothermal development:

"Attach a lease notice to new leases alerting the lessee that additional conditions will be applied to approvals to develop the lease, including Applications for Permit to Drill (APDs), sundry notices and associated rights-of-way, if future sage-grouse conservation efforts are appropriate."

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modifications of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act, 16 USC § 1531 *et seq.*, as amended, including completion of any required procedure for conference or consultation.

CULTURAL RESOURCE PROTECTION
LEASE STIPULATION

This lease may be found to contain historic properties or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require exploration or development proposals to be modified to protect such properties, or it may disapprove any activity that is likely to result in adverse effects that could not be successfully avoided, minimized, or mitigated.

No Surface Occupancy

No surface occupancy (NSO) stipulations are considered a major constraint, as they do no allow for surface development. An NSO is appropriate when the standard terms and conditions, other less restrictive lease stipulations (see below), and best management practices for permit approval are determined to be insufficient to achieve the resource protection objectives.

Water bodies, riparian areas, wetlands, playas, and 100-year floodplains.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-070	T. 28 N., R. 42 E., MDM, Nevada sec. 25, PROT SWNW; sec. 26, PROT NWNW, NESW; sec. 27, PROT NENE, E2SE.
PARCEL NV-10-05-071	T. 28 N., R. 42 E., MDM, Nevada sec. 12, PROT All; sec. 13, PROT All; sec. 24, PROT All.
PARCEL NV-10-05-072	T. 29 N., R. 42 E., MDM, Nevada sec. 07, lots 1-4, E2, E2W2; sec. 18, lots 1-4, E2, E2W2.
PARCEL NV-10-05-073	T. 31 N., R. 42 E., MDM, Nevada sec. 04, lots 1-4, S2N2, S2.
PARCEL NV-10-05-078	T. 31 N., R. 46 E., MDM, Nevada sec. 02, lots 10,12.
PARCEL NV-10-05-081	T. 32 N., R. 47 E., MDM, Nevada sec. 34, all.
PARCEL NV-10-05-083	T. 04 N., R. 50 E., MDM, Nevada sec. 17, W2NESE, E2NWSE, W2SESE, E2SWSE.
PARCEL NV-10-05-084	T. 04 N., R. 50 E., MDM, Nevada sec. 30, SWSE.
PARCEL NV-10-05-108	T. 03 S., R. 38 E., MDM, Nevada sec. 01, S2N2, S2; sec. 02, S2N2, S2; sec. 03, S2NE, SE.
PARCEL NV-10-05-111	T. 02 S., R. 39 E., MDM, Nevada sec. 12, All.

PARCEL NV-10-05-113	T. 12 S., R.46 E., MDM, Nevada sec. 08, S2NW; sec. 17, SWSW, SESE; sec. 21, SESE.
PARCEL NV-10-05-114	T. 12 S., R. 48 E., MDM, Nevada sec. 16, PROT All; sec. 21, PROT All; sec. 22, PROT All.

No Surface Occupancy

No surface occupancy (NSO) stipulations are considered a major constraint, as they do no allow for surface development. An NSO is appropriate when the standard terms and conditions, other less restrictive lease stipulations (see below), and best management practices for permit approval are determined to be insufficient to achieve the resource protection objectives.

Designated or proposed critical habitat for listed species under the Endangered Species Act of 1973 (as amended) if it would adversely modify the habitat. For listed or proposed species without designated habitat, NSO would be implemented to the extent necessary to avoid jeopardy.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-052	T. 06 N., R. 37 E., MDM, Nevada sec. 24, PROT S2S2; sec. 25, PROT All; sec. 26, PROT SENE, SE.
PARCEL NV-10-05-053	T. 02 N., R. 38 E., MDM, Nevada sec. 35, PROT E2E2.
PARCEL NV-10-05-060	T. 02 N., R. 39 E., MDM, Nevada sec. 07, PROT N2NE, SWNE.
PARCEL NV-10-05-071	T. 28 N., R. 42 E., MDM, Nevada sec. 23, PROT NWNW.
PARCEL NV-10-05-072	T. 29 N., R. 42 E., MDM, Nevada sec. 05, lots 3,4, SWNW; sec. 06, lots 1-7, S2NE, SENW, E2SW, E2SE; sec. 07, lot 1.
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 27, PROT NW; sec. 27, W2SW; sec. 28, NE; sec. 28, PROT NW, W2SW, NWSE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 10, E2E2; sec. 11, N2NW, SWNW, N2SW, SWSW; sec. 14, W2NW, E2SW; sec. 15, N2NE, SESW; sec. 22, lots 1-11, E2NW; sec. 26, S2NW, SW; sec. 27, lots 1-8, E2.

PARCEL NV-10-05-077	T. 30 N., R. 45 E., MDM, Nevada sec. 24, NWNW; sec. 27, N2SW, SESW, W2SE.
PARCEL NV-10-05-080	T. 32 N., R. 47 E., MDM, Nevada sec. 20, E2SW.
PARCEL NV-10-05-083	T. 04 N., R. 50 E., MDM, Nevada sec. 20, SWSW.
PARCEL NV-10-05-084	T. 04 N., R. 50 E., MDM, Nevada sec. 28, PROT SESE.
PARCEL NV-10-05-085	T. 07 N., R. 50 E., MDM, Nevada sec. 21, SWSW.
PARCEL NV-10-05-088	T. 10 N., R. 51 E., MDM, Nevada sec. 25, E2NW, N2SW; sec. 36, SWSE.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 07, E2SE; sec. 08, SWNW.
PARCEL NV-10-05-111	T. 02 S., R. 39 E., MDM, Nevada sec. 12, NESW, S2SW.

No Surface Occupancy

No surface occupancy (NSO) stipulations are considered a major constraint, as they do no allow for surface development. An NSO is appropriate when the standard terms and conditions, other less restrictive lease stipulations (see below), and best management practices for permit approval are determined to be insufficient to achieve the resource protection objectives.

Within the boundary of properties designated or eligible for the National Register of Historic Places, including National Landmarks and National Register Districts and Sites, and additional lands outside the designated boundaries to the extent necessary to protect values where the setting and integrity is critical to their designation or eligibility.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-052	T. 06 N., R. 37 E., MDM, Nevada sec. 24, PROT S2S2; sec. 25, PROT All; sec. 26, PROT SENE, SE.
PARCEL NV-10-05-053	T. 02 N., R. 38 E., MDM, Nevada sec. 35, PROT E2E2.
PARCEL NV-10-05-060	T. 02 N., R. 39 E., MDM, Nevada sec. 07, PROT N2NE, SWNE.
PARCEL NV-10-05-071	T. 28 N., R. 42 E., MDM, Nevada sec. 23, PROT NWNW.
PARCEL NV-10-05-072	T. 29 N., R. 42 E., MDM, Nevada sec. 05, lots 3,4, SWNW; sec. 06, lots 1-7, S2NE, SENW, E2SW, E2SE; sec. 07, lot 1.
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 27, PROT NW; sec. 27, W2SW; sec. 28, NE; sec. 28, PROT NW, W2SW, NWSE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 10, E2E2; sec. 11, N2NW, SWNW, N2SW, SWSW; sec. 14, W2NW, E2SW; sec. 15, N2NE, SESW; sec. 22, lots 1-11, E2NW; sec. 26, S2NW, SW; sec. 27, lots 1-8, E2.

PARCEL NV-10-05-077	T. 30 N., R. 45 E., MDM, Nevada sec. 24, NWNW; sec. 27, N2SW, SESW, W2SE.
PARCEL NV-10-05-080	T. 32 N., R. 47 E., MDM, Nevada sec. 20, E2SW.
PARCEL NV-10-05-083	T. 04 N., R. 50 E., MDM, Nevada sec. 20, SWSW.
PARCEL NV-10-05-084	T. 04 N., R. 50 E., MDM, Nevada sec. 28, PROT SESE.
PARCEL NV-10-05-085	T. 07 N., R. 50 E., MDM, Nevada sec. 21, SWSW.
PARCEL NV-10-05-088	T. 10 N., R. 51 E., MDM, Nevada sec. 25, E2NW, N2SW; sec. 36, SWSE.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 07, E2SE; sec. 08, SWNW.
PARCEL NV-10-05-111	T. 02 S., R. 39 E., MDM, Nevada sec. 12, NESW, S2SW.

No Surface Occupancy

No surface occupancy (NSO) stipulations are considered a major constraint, as they do no allow for surface development. An NSO is appropriate when the standard terms and conditions, other less restrictive lease stipulations (see below), and best management practices for permit approval are determined to be insufficient to achieve the resource protection objectives.

Areas with important cultural and archaeological resources, such as traditional cultural properties and Native American sacred sites, as identified through consultation.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-052	T. 06 N., R. 37 E., MDM, Nevada sec. 24, PROT S2S2; sec. 25, PROT All; sec. 26, PROT SENE, SE.
PARCEL NV-10-05-053	T. 02 N., R. 38 E., MDM, Nevada sec. 35, PROT E2E2.
PARCEL NV-10-05-060	T. 02 N., R. 39 E., MDM, Nevada sec. 07, PROT N2NE, SWNE.
PARCEL NV-10-05-071	T. 28 N., R. 42 E., MDM, Nevada sec. 23, PROT NWNW.
PARCEL NV-10-05-072	T. 29 N., R. 42 E., MDM, Nevada sec. 05, lots 3,4, SWNW; sec. 06, lots 1-7, S2NE, SENW, E2SW, E2SE; sec. 07, lot 1.
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 27, PROT NW; sec. 27, W2SW; sec. 28, NE; sec. 28, PROT NW, W2SW, NWSE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 10, E2E2; sec. 11, N2NW, SWNW, N2SW, SWSW; sec. 14, W2NW, E2SW; sec. 15, N2NE, SESW; sec. 22, lots 1-11, E2NW; sec. 26, S2NW, SW; sec. 27, lots 1-8, E2.

PARCEL NV-10-05-077	T. 30 N., R. 45 E., MDM, Nevada sec. 24, NWNW; sec. 27, N2SW, SESW, W2SE.
PARCEL NV-10-05-080	T. 32 N., R. 47 E., MDM, Nevada sec. 20, E2SW.
PARCEL NV-10-05-083	T. 04 N., R. 50 E., MDM, Nevada sec. 20, SWSW.
PARCEL NV-10-05-084	T. 04 N., R. 50 E., MDM, Nevada sec. 28, PROT SESE.
PARCEL NV-10-05-085	T. 07 N., R. 50 E., MDM, Nevada sec. 21, SWSW.
PARCEL NV-10-05-088	T. 10 N., R. 51 E., MDM, Nevada sec. 25, E2NW, N2SW; sec. 36, SWSE.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 07, E2SE; sec. 08, SWNW.
PARCEL NV-10-05-111	T. 02 S., R. 39 E., MDM, Nevada sec. 12, NESW, S2SW.

No Surface Occupancy

No surface occupancy (NSO) stipulations are considered a major constraint, as they do no allow for surface development. An NSO is appropriate when the standard terms and conditions, other less restrictive lease stipulations (see below), and best management practices for permit approval are determined to be insufficient to achieve the resource protection objectives.

Water bodies, riparian areas, wetlands, playas, and 100-year floodplains.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-052	T. 06 N., R. 37 E., MDM, Nevada sec. 24, PROT S2S2; sec. 25, PROT All; sec. 26, PROT SENE, SE.
PARCEL NV-10-05-053	T. 02 N., R. 38 E., MDM, Nevada sec. 35, PROT E2E2.
PARCEL NV-10-05-060	T. 02 N., R. 39 E., MDM, Nevada sec. 07, PROT N2NE, SWNE.
PARCEL NV-10-05-071	T. 28 N., R. 42 E., MDM, Nevada sec. 23, PROT NWNW.
PARCEL NV-10-05-072	T. 29 N., R. 42 E., MDM, Nevada sec. 05, lots 3,4, SWNW; sec. 06, lots 1-7, S2NE, SENW, E2SW, E2SE; sec. 07, lot 1.
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 27, PROT NW; sec. 27, W2SW; sec. 28, NE; sec. 28, PROT NW, W2SW, NWSE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 10, E2E2; sec. 11, N2NW, SWNW, N2SW, SWSW; sec. 14, W2NW, E2SW; sec. 15, N2NE, SESW; sec. 22, lots 1-11, E2NW; sec. 26, S2NW, SW; sec. 27, lots 1-8, E2.

PARCEL NV-10-05-077	T. 30 N., R. 45 E., MDM, Nevada sec. 24, NWNW; sec. 27, N2SW, SESW, W2SE.
PARCEL NV-10-05-080	T. 32 N., R. 47 E., MDM, Nevada sec. 20, E2SW.
PARCEL NV-10-05-083	T. 04 N., R. 50 E., MDM, Nevada sec. 20, SWSW.
PARCEL NV-10-05-084	T. 04 N., R. 50 E., MDM, Nevada sec. 28, PROT SESE.
PARCEL NV-10-05-085	T. 07 N., R. 50 E., MDM, Nevada sec. 21, SWSW.
PARCEL NV-10-05-088	T. 10 N., R. 51 E., MDM, Nevada sec. 25, E2NW, N2SW; sec. 36, SWSE.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 07, E2SE; sec. 08, SWNW.
PARCEL NV-10-05-111	T. 02 S., R. 39 E., MDM, Nevada sec. 12, NESW, S2SW.

Timing Limitations and Controlled Surface Use Lease Stipulations

Where standard lease terms and permit-level decisions are deemed insufficient to protect sensitive resources, but where an NSO is deemed overly restrictive, the BLM and FS would apply seasonal or time limited stipulations or controlled surface use stipulations to leases. In general, timing limitations are used to protect resources that are sensitive to disturbance during certain periods. Such stipulations are generally applicable to specific areas, seasons, and resources. They are commonly applied to wildlife activities and habitat, such as winter range for deer, elk, and moose; nesting habitat for raptors and migratory birds; and breeding areas. Buffer zones are also used to further mitigate impacts from any human activities. The size of buffers can also be specific to species and location, and can change based on findings of science or movement of species. Therefore, timing limitations would be applied by the authorizing officer as appropriate for the specific lease areas and in compliance with the unit's resource management plan. The BLM would consult with the appropriate agencies (e.g., state wildlife agencies) in establishing the periods and extent of area for timing limitations.

A controlled surface use stipulation allows the BLM to require that any future activity or development be modified or relocated from the proposed location if necessary to achieve resource protection. The project applicant will be required to submit a plan to meet the resource management objectives through special design, construction, operation, mitigation, or reclamation measures, and/or relocation. Unless the plan is approved, no surface occupancy would be allowed on the lease. The following controlled surface use stipulations would be applied by the authorizing officer as appropriate for the specific area and site conditions.

Protection of riparian and wetland habitat. This stipulation would be applied within 500 feet of riparian or wetland vegetation to protect the values and functions of these areas. Measures required will be based on the nature, extent, and value of the area potentially affected.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-052	T. 06 N., R. 37 E., MDM, Nevada sec. 24, PROT S2S2; sec. 25, PROT All; sec. 26, PROT SENE, SE.
PARCEL NV-10-05-053	T. 02 N., R. 38 E., MDM, Nevada sec. 35, PROT E2E2.
PARCEL NV-10-05-060	T. 02 N., R. 39 E., MDM, Nevada sec. 07, PROT N2NE, SWNE.
PARCEL NV-10-05-071	T. 28 N., R. 42 E., MDM, Nevada sec. 23, PROT NWNW.
PARCEL NV-10-05-072	T. 29 N., R. 42 E., MDM, Nevada sec. 05, lots 3,4, SWNW; sec. 06, lots 1-7, S2NE, SENW, E2SW, N2SE;

PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 27, PROT NW; sec. 27, W2SW; sec. 28, NE; sec. 28, PROT NW, W2SW, NWSE.
PARCEL NV-10-05-077	T. 30 N., R. 45 E., MDM, Nevada sec. 24, NWNW, SWSW; sec. 27, SENE, SWSW, NESE.
PARCEL NV-10-05-080	T. 32 N., R. 47 E., MDM, Nevada sec. 20, SWNE, SENW, E2SW, W2SE.
PARCEL NV-10-05-084	T. 04 N., R. 50 E., MDM, Nevada sec. 28, PROT SESE.
PARCEL NV-10-05-085	T. 07 N., R. 50 E., MDM, Nevada sec. 21, SWSW.
PARCEL NV-10-05-088	T. 10 N., R. 51 E., MDM, Nevada sec. 25, W2NE, NW, W2SW, S2SE; sec. 36, SWSE.
PARCEL NV-10-05-111	T. 02 S., R. 39 E, MDM, Nevada sec. 12, NESW, S2SW.

Other Lease Stipulations

Protection of Geothermal Features

Under the following situations, the BLM or FS would apply stipulations to protect the integrity of geothermal resource features, such as springs and geysers. If it is determined that geothermal operations are reasonably likely to result in a significant adverse effect to such a feature, then BLM would decline to issue the lease.

Any lease that contain thermal features (e.g., springs or surface expressions) would have a stipulation requiring monitoring of the thermal features during any exploration, development, and production of the lease to ensure that there are no impacts to water quality or quantity.

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 26, PROT All; sec. 27, W2SW, E2SE; sec. 28, NE; sec. 28, PROT W2, SE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 11, NE.
PARCEL NV-10-05-078	T. 31 N., R. 46 E., MDM, Nevada sec. 02, lots 9-12, 15-18; sec. 10, S2S2; sec. 14, N2.
PARCEL NV-10-05-079	T. 14 N., R. 47 E., MDM, Nevada sec. 15, All; sec. 16, All; sec. 21, All; sec. 22, NW, N2SW, SWSW; sec. 28, All.
PARCEL NV-10-05-082	T. 02 N., R. 50 E., MDM, Nevada sec. 02, lots 3,4, S2NW, SW; sec. 03, lots 1-2, S2NE, SE; sec. 10, E2; sec. 11, W2; sec. 14, W2. T. 03 N., R. 50 E., MDM, Nevada sec. 27, PROT All; sec. 34, PROT All.

PARCEL NV-10-05-088	T. 09 N., R. 51 E., MDM, Nevada sec. 12, PROT All. T. 10 N., R. 51 E., MDM, Nevada sec. 25, N2, N2SW, SWSW, SE; sec. 26, All; sec. 36, E2.
PARCEL NV-10-05-105	T. 02 S., R. 35 E., MDM, Nevada sec. 05, lots 1-4, S2N2, S2; sec. 08, All; sec. 17, All; sec. 20, All; sec. 29, All; sec. 32, All.
PARCEL NV-10-05-106	T. 01 S., R. 36 E., MDM, Nevada sec. 24, N2; sec. 24, PROT S2; sec. 25, PROT All; sec. 26, NW; sec. 26, PROT E2, SW; sec. 27, All; sec. 33, All; sec. 34, NW.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 04, lots 1-4, S2N2, S2; sec. 07, lots 1-4, NWNE, E2NW, NESW, E2SE; sec. 08, E2, NENW, S2NW, SW; sec. 09, All.
PARCEL NV-10-05-108	T. 03 S., R. 38 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 02, lots 1-4, S2N2, S2; sec. 03, lots 1-2, S2NE, SE; sec. 10, E2; sec. 11, All; sec. 12, All. T. 03 S., R. 39 E., MDM, Nevada sec. 06, lots 1-7, S2NE, SENW, E2SW, SE; sec. 07, lots 1-4, E2, E2W2.
PARCEL NV-10-05-109	T. 01 S., R. 39 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 02, lots 1-4, S2N2, S2; sec. 11, All; sec. 12, All.

PARCEL NV-10-05-110	T. 01 S., R. 39 E., MDM, Nevada sec. 13, PROT All; sec. 14, PROT All; sec. 23, PROT All; sec. 24, PROT All.
PARCEL NV-10-05-111	T. 01 S., R. 39 E., MDM, Nevada sec. 25, PROT All; sec. 26, PROT All; sec. 27, PROT All; sec. 28, PROT All; sec. 36, PROT All. T. 02 S., R. 39 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 12, All.
PARCEL NV-10-05-112	T. 03 S., R. 40 E., MDM, Nevada sec. 26, All; sec. 27, All; sec. 34, All; sec. 35, All. T. 04 S., R. 40 E., MDM, Nevada sec. 02, lots 1-4, S2N2, S2; sec. 03, lots 1-4, S2N2, S2; sec. 10, All; sec. 11, N2, SW, N2SE, SWSE; sec. 11, N2SESE, SWSESE.
PARCEL NV-10-05-113	T. 12 S., R. 46 E., MDM, Nevada sec. 07, lot 4, E2, SESW; sec. 08, S2NW, N2SW, SWSW; sec. 16, lot 27, SWSW, S2SE; sec. 17, W2, S2SE; sec. 18, lots 1-4, E2, E2W2; sec. 19, lots 1-4, E2, E2W2; sec. 20, All; sec. 21, All.
PARCEL NV-10-05-114	T. 12 S., R. 48 E., MDM, Nevada sec. 16, PROT All; sec. 21, PROT All; sec. 22, PROT All; sec. 27, PROT All; sec. 28, PROT All; sec. 33, PROT All; sec. 34, PROT All.

Cultural Resources

In accordance with BLM Instruction Memorandum No. 2005-003, the BLM will apply the following stipulation to protect cultural resources:

"This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated."

PARCEL	DESCRIPTION OF LANDS
PARCEL NV-10-05-070	T. 27 N., R. 42 E., MDM, Nevada sec. 02, PROT All. T. 28 N., R. 42 E., MDM, Nevada sec. 25, PROT All; sec. 26, PROT All; sec. 27, PROT All; sec. 35, PROT All; sec. 36, PROT All.
PARCEL NV-10-05-071	T. 28 N., R. 42 E., MDM, Nevada sec. 11, PROT All; sec. 12, PROT All; sec. 14, PROT All; sec. 23, PROT All.
PARCEL NV-10-05-075	T. 24 N., R. 43 E., MDM, Nevada sec. 28, NE; sec. PROT W2, SE.
PARCEL NV-10-05-076	T. 27 N., R. 43 E., MDM, Nevada sec. 26, S2NW, S2.
PARCEL NV-10-05-077	T. 30 N., R. 45 E., MDM, Nevada sec. 10, E2, NENW, W2SW, SESW; sec. 22, lots 4-11, W2, SWSE; sec. 23, lots 2-3, E2SW; sec. 24, All; sec. 27, lot 2, W2NE, SENE, W2, SE.
PARCEL NV-10-05-079	T. 14 N., R. 47 E., MDM, Nevada sec. 22, NW, N2SW, SWSW.

PARCEL NV-10-05-080	T. 31 N., R. 47 E., MDM, Nevada sec. 36, All. T. 32 N., R. 47 E., MDM, Nevada sec. 20, All.
PARCEL NV-10-05-081	T. 32 N., R. 47 E., MDM, Nevada sec. 26, All; sec. 28, All; sec. 34, All.
PARCEL NV-10-05-085	T. 07 N., R. 50 E., MDM, Nevada sec. 35, W2.
PARCEL NV-10-05-088	T. 10 N., R. 51 E., MDM, Nevada sec. 36, E2.
PARCEL NV-10-05-089	T. 07 N., R. 55 E., MDM, Nevada sec. 09, PROT All; sec. 17, PROT All.
PARCEL NV-10-05-105	T. 02 S., R. 35 E., MDM, Nevada sec. 05, lots 1-4, S2N2, S2; sec. 20, All; sec. 29, All.
PARCEL NV-10-05-107	T. 02 S., R. 36 E., MDM, Nevada sec. 09, All.
PARCEL NV-10-05-108	T. 03 S., R. 38 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2. T. 03 S., R. 39 E., MDM, Nevada sec. 06, lots 1-7, S2NE, SENW, E2SW, SE.
PARCEL NV-10-05-111	T. 02 S., R. 39 E.,MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 12, All.
PARCEL NV-10-05-113	T. 12 S., R. 46 E., MDM, Nevada sec. 07, lot 4, E2, SESW; sec. 16, lot 27, SWSW, S2SE; sec. 17, W2, S2SE; sec. 18, lots 1-4, E2, E2W2.

This page intentionally left blank.

Appendix C

Reclamation Plan

This page intentionally left blank.

Reclamation Plan

Ram Power, Inc. Clayton Valley Geothermal Exploration Project

Esmeralda County, Nevada
March, 2011

This Geothermal Exploration Project will be reclaimed in accordance with the requirements of 43 CFR 3200. Reclamation of the project will involve interim reclamation to the extent practicable. Interim reclamation will take place during the project life. Final reclamation will involve removal of the exploration features and all associated equipment and will occur at the time of completion.

Reclamation Objectives:

The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat, visual, and forage loss during the life of the project. Individual well sites and other facilities may be partially restored by interim reclamation.

The objective of final reclamation is long-term and is designed to return the land to a condition approximating that which existed prior to disturbance by this project. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

General Reclamation

The BLM Tonopah Field Office Authorized Officer will be notified 24 hours prior to the commencement or undertaking of any interim or final reclamation operations.

Housekeeping:

1. Immediately upon well completion, all well locations and surrounding areas will be cleared and maintained free of: debris, materials, trash, and equipment not required for production or injection.
2. No hazardous substances, trash, or litter will be buried or placed in reserve pits. Upon well completion, any hydrocarbons in the reserve pit will be remediated or removed for proper disposal at an approved facility.
3. Vegetation removal and surface disturbance will be minimized wherever possible.

Topsoil Management:

1. Operations will disturb the minimum amount of surface area necessary to conduct safe and efficient operations. When possible, equipment will be stored and operated on vegetated ground to minimize surface disturbance.

2. In areas to be heavily disturbed, the top eight (8) inches of soil material, will be stripped and stockpiled around the perimeter of the well location and along the perimeter of the access road to control run-on and run-off, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil may include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils. If additional topsoil is required for reclamation, topsoil shall be imported from a location approved by the BLM.
3. Earthwork for interim and final reclamation will be completed within 6 months of well completion or plugging unless a delay is approved in writing by the BLM Tonopah Field Office Authorized Officer.
4. Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment. If such equipment creates ruts in excess of four (4) inches deep, the soil will be deemed too wet.
5. No major depressions will be left that would trap water and cause ponding unless the purpose is to trap runoff and sediment.
6. Areas able to be reclaimed will be ripped, tilled, or disked on contour, as necessary to restore approximate original contour and minimize erosion. Any compacted areas will be ripped to a minimum depth of eighteen (18) inches with a minimum furrow spacing of two (2) feet to relieve compaction.
7. Wherever possible, cut slopes, fill slopes, and borrow ditches will be covered with topsoil and revegetated. Final reclamation includes re-contouring of roads back to original contour.
8. Salvaged topsoil will be replaced at the approximate original thickness prior to seedbed preparation.

Seeding:

Seedbed Preparation:

1. Initial seedbed preparation will consist of re-contouring to the appropriate interim or final reclamation land surface. All compacted areas to be seeded will be ripped to a minimum depth of eighteen (18) inches with a minimum furrow spacing of two (2) feet, followed by re-contouring the surface. Topsoil that has been stockpiled shall be replaced by spreading in an evenly distributed manner. Prior to seeding, the seedbed will be scarified, pitted, or barricaded as necessary and left with a rough surface.
2. Planting procedures will be adjusted for individual seed mixtures and plant species. If broadcast seeding is to be used and is delayed, final seedbed preparation will consist of contour cultivating to a depth of four (4) to six (6) inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to loosen the soil and create seed germination micro-sites.

Seed Application:

1. Seeding will be conducted no more than 24 hours following completion of final seedbed preparation.

2. Re-vegetation will include site appropriate seed mixtures for various ecological site types encountered. Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious weeds, invasive weeds, and non-native species seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded. Seed mixtures will be subject to the approval of the BLM Tonopah Field Office.
3. Seed mix and rates will be used on all disturbed surfaces including pipelines and road cut & fill slopes.
4. The following recommendations are based on the ecological conditions of the area:
    a. The reclamation area is hostile to any seedings or plantings
    b. The available water capacity of the soils is poor
    c. The survivability of the seedlings is low because of
        i) the ambient environment
        ii) high Aeolian events and
        iii) Aeolian action transporting sodic and saline particulates in the atmosphere and depositing the material on the soils.
    d. Unstable surface soil conditions i.e. blowing soils
    e. The presence of desert pavement which inhibits seedling establishment

The following is a potential seeding/planting recommendation

Option 1
Seeding in late November and December

Plant		**Drilled**	**Probability of Seedling Establishment**
Desert Wheatgrass	*Agropyron desertorum*	18 lbs/acre	10 to 50 percent
Utah milkvetch	*Astragalus utahensis*	2 lbs/acre	unknown

Option 2
Seeding November and December

Plant		**Drilled**	**Probability of Seedling Establishment**
Desert Wheatgrass	*Agropyron desertorum*	15 lbs/acre	10 to 50 percent
Plant Plugs		**Plant**	**Probability of Seedling Establishment**
Fourwing saltbush	*Atriplex confertifolia*	2 plugs per square meter	10 to 20 percent
Condition – Planting of plugs should occur on the coarse texture soils/Plugs will need to			

be protected (metal/plastic mesh around the plant) from rodentia and large mammals.

Plant Plugs		**Plant**	**Probability of Seedling Establishment**
Black greasewood	*Sarcobatus vermiculatus*	2 plugs per square meter	10 to 20 percent
Condition – Planting of plugs should occur on the desert pavement area and areas of sodic/saline conditions/Plugs will need to be protected ((metal/plastic mesh around the plant)) from rodentia and large mammals.			

Erosion Control and Mulching:

1. Mulch, silt fencing, waddles, certified weed-free hay bales, and other erosion control devices will be used on areas at risk of soil movement from wind and water erosion.
2. Water bars, detention basins, silt fencing or other erosion control devices shall be installed as necessary.
3. Mulch will be used if necessary to control erosion, create vegetation micro-sites, and retain soil moisture and may include hay, small-grain straw, wood fiber, live mulch, cotton, jute, or synthetic netting. Mulch will be free from mold, fungi, and certified free of noxious weed or invasive weed seeds.
4. If straw mulch is used, it will contain fibers long enough to facilitate crimping and provide the greatest cover.

Reserve Pit Closure:

1. Reserve pits will be closed and backfilled within six months of release of the drill rig. All reserve pits remaining open after six months will require written authorization of the BLM Tonopah Field Office Authorized Officer. Immediately upon well completion, any hydrocarbons or trash in the pit will be removed. Pits will be allowed to dry, pumped dry, or allowed to solidify in-situ prior to backfilling.
2. Following completion activities, pit liners will be completely removed or removed down to the solids level and disposed of at an approved landfill, or treated to prevent their reemergence to the surface and interference with long-term successful revegetation. If it was necessary to line the pit with a synthetic liner, the pit will not be trenched (cut) or filled (squeezed) while containing fluids. When dry, the pit will be backfilled with a minimum of five (5) feet of soil material. In relatively flat areas the pit area will be slightly mounded above the surrounding grade to allow for settling and to promote surface drainage away from the backfilled pit.
3. All refuse; junk, trash, tools, residual material, or personal property shall be removed from the drill pad and reserve pit prior to restoration work.

Control of Noxious Weeds, Invasive Weeds, and Non-Native Species:

1. All reclamation equipment will be cleaned prior to use to reduce the potential for introduction of noxious weeds or other undesirable non-native species.

2. A weed monitoring and control inspection will be conducted prior to site preparation for planting and will continue until interim or final reclamation is approved by the BLM Tonopah Field Office Authorized Officer.
3. Monitoring will be conducted at least annually during the growing season to determine the presence of noxious weeds, invasive weeds, and non-native species. Noxious weeds, invasive weeds, and non-native species that have been identified during monitoring will be promptly treated and controlled. A Herbicide Use Proposal (HUP) will be submitted to the BLM Tonopah Field Office Authorized Officer for approval prior to the use of herbicides.

Interim Reclamation

Geothermal Well Pads and Pipelines

Procedures:

1. Liquids from the reserve pits would either naturally evaporate or be removed as may be necessary (i.e. pumped into another well), or allowed to solidify in-situ prior to backfilling.
2. Reserve pits will be closed and backfilled within six months of release of the drill rig. All reserve pits remaining open after six months will require written authorization of the BLM Tonopah Field Office Authorized Officer. Immediately upon well completion, any hydrocarbons or trash in the pit will be removed.
3. The solid contents remaining in each of the reserve pits, typically consisting of non-hazardous, non-toxic drilling mud and rock cuttings would be tested to confirm that they are not hazardous. Typical tests may include the Toxicity Characteristic Leaching Procedure (TCLP) (EPA Method 1311), tested for heavy metals; pH (EPA method 9045D); Total Petroleum Hydrocarbons/Diesel (EPA Method 8015B); and Oil and Grease (EPA Method 413.1). If the test results indicate that these solids are non-hazardous, the solids would then be mixed with the excavated rock and soil and buried by backfilling the reserve pit. Hazardous materials, if any, would be taken to a "permitted TSD facility" as identified on the Nevada Division of Environmental Protection, Bureau of Waste Management website.
4. Following completion activities, pit liners will be completely removed or removed down to the solids level and disposed of at an approved landfill, or treated to prevent their reemergence to the surface and interference with long-term successful revegetation. If it was necessary to line the pit with a synthetic liner, the pit will not be trenched (cut) or filled (squeezed) while containing fluids. When dry, the pit will be backfilled with a minimum of 5 feet of soil material. In relatively flat areas the pit area will be slightly mounded above the surrounding grade to allow for settling and to promote surface drainage away from the backfilled pit.
5. All refuse; junk, trash, tools, residual material, or personal property shall be removed from the drill pad and reserve pit prior to restoration work.
6. A well with no commercial potential may continue to be monitored, but will eventually be plugged and abandoned in conformance with the well abandonment

requirements of the BLM and NDOM. Abandonment typically involves filling the well bore with clean, heavy abandonment mud and cement until the top of the cement is at ground level, which is designed to ensure that fluids will not move across these barriers into different aquifers. The well head (and any other equipment) will then be removed, the casing cut off well below ground surface and the hole backfilled to the surface.

7. Portions of cleared well sites not needed for operational and safety purposes (e. g. the "shoulders" of the pad) would be re-contoured to a final or intermediate contour that would blend with the surrounding topography as much as possible. Stockpiled topsoil will be spread on the area to aid in revegetation. Areas to be reclaimed will be ripped, tilled, or disked on contour, as necessary.
8. Revegetation will include site appropriate seed mixtures for various ecological site types encountered. Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious, invasive, and non-native seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded. Seed mixtures will be subject to the approval of the BLM.
9. Interim reclamation stormwater management actions will be taken to ensure disturbed areas are quickly stabilized to control surface water flow and to protect both the disturbed and adjacent areas from erosion and siltation. This may involve construction and maintenance of temporary detention basins, silt fences, berms, ditches, and mulching.
10. When well drilling and completion has occurred, some portions of the well location will undergo interim reclamation and some portions of the well pad may be restored. Most well locations will have limited areas of bare ground, such as a small area around production facilities or the surface of a rocked road. Interim reclamation may take place where workover rigs and fracturing tanks need a level area to set up in the future. Some areas will undergo final reclamation where portions of the well pad will no longer be needed for production operations and can be re-contoured to restore the original landform.

Interim Reclamation Procedures - Additional

Re-contouring:

1. Interim reclamation actions will be completed no later than 12 months from the time that the final well on the location has been completed, weather permitting. Portions of cleared well sites not needed for active operational and safety purposes will be re-contoured to the original contour if feasible, or to an interim contour that blends with the surrounding topography as much as possible. Sufficient semi-level areas may remain for setup of a workover rig or for equipment storage. In some cases, rig anchors may need to be pulled and reset after re-contouring to allow for maximum interim reclamation.
2. For production or injection wells, the interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Constructed slopes may be much steeper during drilling, but will be re-contoured to the above ratios during interim reclamation.

3. Roads and well production equipment, such as tanks, treaters, separators, vents, electrical boxes, and equipment associated with pipeline operation, will be placed on location so as to permit maximum interim reclamation of disturbed areas. If equipment is found to interfere with proper interim reclamation of disturbed areas, the equipment will be moved so proper re-contouring and revegetation can occur.

Application of Topsoil & Revegetation:

1. Topsoil will be evenly spread and revegetated over the entire disturbed area not needed for all-weather operations including road cuts and fills and to within a few feet of the production facilities, unless an all-weather, surfaced, access route or small "teardrop" turnaround is needed on the well pad.
2. In order to inspect and operate the well or complete workover operations, it may be necessary to drive, park, and operate equipment on restored, interim vegetation within the previously disturbed area.
3. Damage to soils and interim vegetation will be repaired and reclaimed following use. To prevent soil compaction, under some situations, such as the presence of moist, clay soils, the vegetation and topsoil will be removed prior to workover operations and restored and reclaimed following workover operations.

Visual Resources Mitigation:

1. Trees (if present) and tall vegetation will be left undisturbed along the edges of the pads whenever feasible to provide screening.
2. To help mitigate the contrast of re-contoured slopes, reclamation will include measures to feather cleared lines of vegetation and redistribute in-situ vegetation, woody debris, and large rocks over re-contoured cut and fill slopes.
3. Production facilities will be clustered and placed away from cut slopes and fill slopes to allow the maximum re-contouring of the cut and fill slopes.

Final Reclamation

Procedures:

The following minimum reclamation actions will be taken to ensure that the reclamation objectives and standards are met. It may be necessary to take additional reclamation actions beyond the minimum in order to achieve the Reclamation Standards.

Geothermal Well Pads and Pipelines

1. At the end of Project operations the wells would be plugged and abandoned as required by Nevada Division of Water Resources (NDWR) regulations and BLM. Abandonment typically involves filling the well bore with clean, heavy abandonment mud and cement until the top of the cement is at ground level, which is designed to ensure that fluids would not move across these barriers into different aquifers. The

well head (and any other equipment) would then be removed, the casing cut off well below ground surface and the hole backfilled to the surface.
2. Areas to be reclaimed will be ripped, tilled, or disked on contour, as necessary. Pipeline reclamation would include pipeline removal; placing fill in trenches; fill compaction; re-grading cut-and-fill slopes to restore the original contour; and replacing topsoil and revegetation.
3. Revegetation will include site appropriate seed mixtures for various ecological site types encountered. Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious weeds, invasive weeds, and non-native species seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded. Seed mixtures will be subject to the approval of the BLM.
4. Disposition of waste, residual material, junk trash, personal property.
5. All other above-ground facilities and areas of surface disturbance associated with geothermal development would be removed and reclaimed.

Final Reclamation Procedures - Additional

1. Final reclamation actions will be completed within 12 months of well plugging, weather permitting.
2. Final reclamation plans shall include the reclamation of roads, drill pads, containment basins, and sumps back to original contour. Removal of equipment, facilities, pipelines, and culverts.
3. All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be re-graded to match the contour that existed prior to initial construction; or a contour that blends indistinguishably with the surrounding landscape. Salvaged topsoil will be spread evenly over the entire disturbed site to ensure successful revegetation. To help mitigate the contrast of re-contoured slopes, reclamation will include measures to 'feather' cleared lines of vegetation and redistribute in-situ vegetation, woody debris, and large rocks over re-contoured cut and fill slopes.
4. Water breaks and terracing will only be installed when absolutely necessary to prevent erosion of fill material. Water breaks and terracing are not permanent features and will be removed and reseeded when the rest of the site is successfully revegetated and stabilized.
5. If necessary to ensure timely re-vegetation, and at BLM's discretion, well pads and other areas may be fenced to BLM standards to exclude livestock grazing (if project area lies within an active open range area) for the first two growing seasons or until the intended plant communities become firmly established, whichever comes later. Fencing will meet standards found on page 18 of the Gold Book, 4th Edition, or will be fenced with operational electric fencing.
6. Removal of pipelines and flowlines will involve flushing and properly disposing of any fluids in the lines. All surface lines and any lines that are buried close to the surface that may become exposed in the foreseeable future due to water or wind erosion, soil movement, or anticipated subsequent use, must be removed. Deeply

buried lines may remain in place unless otherwise directed by BLM Tonopah Field Office Authorized Officer.

7. Refuse, junk, trash, tools, residual material, or personal property will be removed from the project area prior to restoration work.

Reclamation Performance Standards:

The following reclamation performance standards will be met:

1. Interim reclamation includes disturbed areas that may be re-disturbed during operations and will be re-disturbed at final reclamation to achieve restoration of the original land form and natural vegetative community.

2. Interim reclamation will be judged successful when the BLM Tonopah Field Office Authorized Officer determines that:

3. Disturbed areas not needed for active, long-term production operations or vehicle travel have been re-contoured.

4. Areas to be reclaimed will be ripped, tilled, or disked on contour, as necessary; protected from erosion; and revegetated with a self-sustaining, vigorous, diverse, native (or as otherwise approved) plant community sufficient to minimize visual impacts; provide forage; stabilize soils; and impede the invasion of noxious, invasive, and non-native weeds.

5. Revegetation will include site appropriate seed mixtures for various ecological site types encountered. Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious weeds, invasive weeds, and non-native species seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded. Seed mixtures will be subject to the approval of the BLM.

6. Final reclamation includes disturbed areas where the original landform and a natural vegetative community have been restored.

7. Final reclamation will be judged successful when the BLM Tonopah Field Office Authorized Officer determines that:

8. The original landform has been restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors.

9. Reclaimed areas are ripped, tilled, or disked on contour, as necessary.

10. Upon completion of 3 years of restoration efforts the BLM and Ram will review reclamation efforts and determine reclamation success.

General Performance Standards:

A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and invasion by non-native plants and to reestablish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation. Revegetation will include site appropriate seed mixtures for various ecological site types encountered. Disturbed areas will be reseeded with a diverse mix of perennial native or introduced plant species. Noxious weeds, invasive weeds, and non-native species seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201) will be excluded.

Specific Performance Standards:

1. The National Resource Conservation Service Ecological Site(s) Descriptions for the area will determine seed mixtures and application rates or no single species will account for more than 30% total vegetative composition unless it is evident at higher levels in the adjacent landscape. Permanent vegetative cover will be determined successful when the basal cover of desirable perennial species is at least 80% of the basal cover on adjacent or nearby undisturbed areas where vegetation is in a healthy condition; or 80% of the potential basal cover as defined in the National Resource Conservation Service Ecological Site(s) for the area. Plants must be resilient as evidenced by well-developed root systems and flowers.
2. Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, head-cutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed.
3. The site is free of Noxious, invasive, and non-native seeds listed in the Nevada Designated Noxious Weed List (Nevada Administrative Code 555.010) or prohibited by the Federal Seed Act (7 CFR Part 201), field debris, equipment, and contaminated soil.
4. Invasive and non-native weeds are controlled.
5. Refuse, junk, trash, tools, residual material, or personal property is removed from the project area.

<u>Reclamation Monitoring and Final Abandonment Approval</u>

1. Reclamation monitoring will be documented in an annual reclamation report submitted to the BLM Tonopah Field Office Authorized Officer by March 1 of each calendar year. The report will document compliance with all aspects of the

reclamation objectives and standards, identify whether the reclamation objectives and standards are likely to be achieved in the near future without additional actions, and identify actions that have been or will be taken to meet the objectives and standards. The report will also include acreage figures for: initial disturbed acres; successful interim reclaimed acres; successful final reclaimed acres.

2. Annual reports will not be submitted for the project or portions thereof when approval by the Tonopah Field Office Authorized Officer was obtained in writing as having achieved interim or final reclamation standards. Monitoring and reporting shall continue annually until interim or final reclamation is approved. Whenever 30% or more of a reclaimed area is re-disturbed, monitoring will be reinitiated.
3. The BLM Tonopah Field Office Authorized Officer shall be informed when reclamation has been completed, appears to be successful, and the site is ready for final inspection.

This page intentionally left blank.

Appendix D

Sierra Geothermal Power, Inc. Joinder Unit Agreement

This page intentionally left blank.

RATIFICATION AND JOINDER UNIT AGREEMENT

AND

UNIT OPERATING AGREEMENT

In consideration of the execution of the Pearl Hot Springs Unit Agreement for the Development and Operation of the Clayton Valley Geothermal Exploration Project in the County of Esmeralda, State of Nevada, in form approved on behalf of the Secretary of the Interior, and in consideration of the execution or ratification by other working interest owners of the contemporary Unit Operating Agreement which relates to said Unit Agreement, the undersigned hereby irrevocably commits to ratify, approve and adopt said Unit Agreement, and also said Unit Operating Agreement as fully as though the undersigned had executed the original instrument.

This Ratification and Joinder shall be effective as to the undersigned's interests in any lands and leases, or interests therein, and royalties presently held or which may arise under existing option agreements or other interests in unitized substances, covering any lands within the Unit Area in which the undersigned may be found to have a geothermal interest.

This Ratification and Joinder shall be binding upon the undersigned, its heirs, devisees, assignees or successors in interest.

Sierra Geothermal Power, Inc.
9460 Double R Blvd.; Suite 200
Reno, NV 89521

Corporate Acknowledgement

State of Nevada
County of Washoe

This instrument was acknowledged before me by Steven Scott

As Secretary of Sierra Geothermal Power, Inc.

This 1st day of March 2011.

(Notary Stamp)

ANGIE S. MAGNER
NOTARY PUBLIC
STATE OF NEVADA
My Commission Expires: 4-07-14
Certificate No: 10-2182-2

(Signature of notarial officer)