

## **Appendix A: Geothermal Leases and Stipulations**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Serial No.  
NVN86899

**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 under the Geothermal Steam Act of 1970, as amended (30 U.S.C. 1001-1025).

Future rental payments must be made on or before the anniversary date to:  
Minerals Management Service  
Royalty Management Program  
P.O. Box 5640  
Denver, CO 80217

**READ INSTRUCTIONS BEFORE COMPLETING**

1. Name TGP DEVELOPMENT COMPANY LLC	1a. Street 9590 PROTOTYPE CT STE 200	1d. Zip Code 89521
1b. City RENO	1c. State NV	

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. 0270N, R. 0380E, 21 MDM, NV

- Sec. 004 LOTS 1-4;
- 004 S2N2, S2;
- 005 LOTS 1, 2;
- 005 S2NE, SE;
- 005 PROT W2;
- 008 E2;
- 008 PROT W2;
- 009 ALL;

T. 0280N, R. 0380E, 21 MDM, NV

- Sec. 032 ALL;
- 033 ALL;

Pershing County

Total Acres in Lease 3810.02

Rental Retained \$ 7622.00

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 Atanda Clark  
(Signing Official)

ATANDA CLARK  
(Printed Name)

Chief, Branch of Minerals Adjudication  
(Title) AUG 07 2009  
(Date)

EFFECTIVE DATE OF LEASE SEP - 1 2009

Check if this is a converted lease

EFFECTIVE DATE OF LEASE CONVERSION \_\_\_\_\_

- 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 \_\_\_\_\_ 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, 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 rejected 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 plans 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.

## 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.

**Threatened, Endangered, or other special status species**

All development activities proposed under the authority of this lease are subject to the requirement for Native American consultation prior to BLM authorizing the activity. Depending on the nature of the lease developments being proposed and the resources of concerns to tribes potentially affected, Native American consultation and resulting mitigation measures to avoid significant impacts may extend time frames for processing authorizations for development activities, as well as, change in the ways in which developments are implemented.

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002*

*PEIS for Geothermal Leasing in the Western US, October 2008*

	<u>Description of Lands</u>
PARCEL NV-09-07-001 THRU PARCEL NV-09-07-006	ALL LANDS
PARCEL NV-09-07-009 THRU PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-018 THRU PARCEL NV-09-07-019	ALL LANDS
PARCEL NV-09-07-021 THRU PARCEL NV-09-07-024	ALL LANDS
PARCEL NV-09-07-029 THRU PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-034	ALL LANDS
PARCEL NV-09-07-035	ALL LANDS
PARCEL NV-09-07-036	ALL LANDS
PARCEL NV-09-07-038 THRU PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-052 THRU PARCEL NV-09-07-054	ALL LANDS

PARCEL NV-09-07-058 THRU PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068 THRU PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-084 THRU PARCEL NV-09-07-090	ALL LANDS
PARCEL NV-09-07-092	ALL LANDS

**National Historic Protection**

All surface disturbing activities proposed after issuance of the lease are subject to compliance with Section 106 of the National Historic Protection Act (NHPA) and its implementation through the protocol between the BLM Nevada State Director and the Nevada State Historic Preservation Officer.

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002*

*PEIS for Geothermal Leasing in the Western US, October 2008*

	<u>Description of Lands</u>
PARCEL NV-09-07-001 THRU PARCEL NV-09-07-006	ALL LANDS
PARCEL NV-09-07-009 THRU PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-018 THRU PARCEL NV-09-07-019	ALL LANDS
PARCEL NV-09-07-021 THRU PARCEL NV-09-07-024	ALL LANDS
PARCEL NV-09-07-029 THRU PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-034	ALL LANDS
PARCEL NV-09-07-035	ALL LANDS
PARCEL NV-09-07-036	ALL LANDS
PARCEL NV-09-07-038 THRU PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-052 THRU PARCEL NV-09-07-054	ALL LANDS

PARCEL NV-09-07-058 THRU PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068 THRU PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-084 THRU PARCEL NV-09-07-090	ALL LANDS
PARCEL NV-09-07-092	ALL LANDS

Stipulation

No drilling, including exploration or development activities within linear Rights-of-way.

*Authority/Supporting Documentation EA-NV-02-029 Geothermal Resources Leasing PEA,  
September 10, 2002  
PEIS for Geothermal Leasing in the Western US, October 2008  
BLM Instruction Memorandum No. 2002-174*

	<u>Description of Lands</u>
PARCEL NV-09-07-001 THRU PARCEL NV-09-07-006	ALL LANDS
PARCEL NV-09-07-009 THRU PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-018 THRU PARCEL NV-09-07-019	ALL LANDS
PARCEL NV-09-07-021 THRU PARCEL NV-09-07-024	ALL LANDS
PARCEL NV-09-07-029 THRU PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-034	ALL LANDS
PARCEL NV-09-07-035	ALL LANDS
PARCEL NV-09-07-036	ALL LANDS
PARCEL NV-09-07-038 THRU PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-052 THRU PARCEL NV-09-07-054	ALL LANDS

PARCEL NV-09-07-058 THRU PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068 THRU PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-084 THRU PARCEL NV-09-07-090	ALL LANDS
PARCEL NV-09-07-092	ALL LANDS

Stipulation

In the event that previously undiscovered paleontological resources are discovered in the performance of any surface disturbing activities, the item(s) or condition(s) will be left intact and immediately brought to the attention of the authorized officer of the BLM.

*Authority/Supporting Documentation EA-NV-02-029 Geothermal Resources Leasing PEA,  
September 10, 2002  
PEIS for Geothermal Leasing in the Western US, October 2008  
BLM Instruction Memorandum No. 2002-174*

	<u>Description of Lands</u>
PARCEL NV-09-07-001 THRU PARCEL NV-09-07-006	ALL LANDS
PARCEL NV-09-07-009 THRU PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-018 THRU PARCEL NV-09-07-019	ALL LANDS
PARCEL NV-09-07-021 THRU PARCEL NV-09-07-024	ALL LANDS
PARCEL NV-09-07-029 THRU PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-034	ALL LANDS
PARCEL NV-09-07-035	ALL LANDS
PARCEL NV-09-07-036	ALL LANDS
PARCEL NV-09-07-038 THRU PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-052 THRU PARCEL NV-09-07-054	ALL LANDS

PARCEL NV-09-07-058 THRU PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068 THRU PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-084 THRU PARCEL NV-09-07-090	ALL LANDS
PARCEL NV-09-07-092	ALL LANDS

### Controlled Surface Use

#### **Controlled surface use for moderate potential for paleontological resources. Potential Fossil Yield Classification (PFYC) 3: Moderate Potential.**

Inventory and/or on-site monitoring during disturbance or spot checking may be required. If fossils are discovered, avoidance or data recovery will be required prior to their disturbance if they are deemed to be of scientific importance.

It has been determined the following areas contain lands classified as PFYC 3:

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002  
PEIS for Geothermal Leasing in the Western US, October 2008*

	<u>Description of Lands</u>
PARCEL NV-09-07-001	T. 23 N., R. 24 E., MDM, Nevada sec. 02, S2NW, SW; sec. 10, all; sec. 12, E2, S2SW; sec. 14, all.
	T. 23 N., R. 25 E., MDM, Nevada sec. 18, lots 1-4, E2NW.
PARCEL NV-09-07-002	T. 23 N., R. 24 E., MDM, Nevada sec. 04, S2N2, S2; sec. 16, all; sec. 22, W2, W2E2; sec. 24, all.
PARCEL NV-09-07-003	ALL LANDS
PARCEL NV-09-07-004	T. 33 N., R. 24 E., MDM, Nevada sec. 15, PROT SE; sec. 21, PROT SE, S2NE, SW.
PARCEL NV-09-07-005	T. 33 N., R. 24 E., MDM, Nevada sec. 29, PROT E2NE, SE; sec. 31, PROT SE.
PARCEL NV-09-07-006	T. 24 N., R. 25 E., MDM, Nevada sec. 026, S2NE, S2.
PARCEL NV-09-07-009	T. 27 N., R. 27 E., MDM, Nevada sec. 01, lots 3,4, S2NW, SW; sec. 02, lots 1-3, S2NE, SENE, SE; sec. 11, E2W2; sec. 12, All; sec. 14, E2, E2W2.

PARCEL NV-09-07-010	T. 27 N., R. 27 E., MDM, Nevada sec. 21, SW, S2SE; sec. 22, S2SW, SE; sec. 26, all; sec. 28, all; sec. 34, all.
PARCEL NV-09-07-011	T. 28 N., R. 27 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 02, lots 1-4, S2N2, S2; sec. 03, lots 1-4, S2N2, S2; sec. 04, lots 1-4, S2N2, S2; sec. 09, N2, N2SW, SWSW, SE; sec. 10, all; sec. 11, all; sec. 12, all.
PARCEL NV-09-07-012	T. 28 N., R. 27 E., MDM, Nevada sec. 13, all; sec. 14, all; sec. 15, all; sec. 16, NENE; sec. 22, E2, E2W2; sec. 23, all; sec. 24, all; sec. 25, all.
PARCEL NV-09-07-013	T. 28 N., R. 27 E., MDM, Nevada sec. 27, NE, E2SE, NWSE; sec. 31, lots 1-4, E2, E2W2; sec. 32, W2NW; sec. 35, E2, NW, E2SW; sec. 36, all.
PARCEL NV-09-07-014	T. 45 N., R. 27 E., MDM, Nevada sec. 14, PROT All; sec. 15, PROT N2, NESE.
PARCEL NV-09-07-018	T. 27 N., R. 28 E., MDM, Nevada sec. 06, lots 1-7, S2NE, SENE, E2SW, SE; sec. 08, all; sec. 16, all; sec. 18, lots 1-4, E2, E2W2; sec. 20, all; sec. 30, lots 1-4, E2, E2W2.
PARCEL NV-09-07-021	T. 23 N., R. 29 E., MDM, Nevada sec. 03, lots 1,2, SWNE, S2S2; sec. 10, SENE, SESW, NESE; sec. 12, SENE, W2NW, SENW, S2; sec. 14, NE, S2NW, S2; sec. 16, SWNE, S2NE, NW, E2SW, NWSW, SE; sec. 22, N2N2, SWNW.

PARCEL NV-09-07-022	T. 47 N., R. 29 E., MDM, Nevada sec. 13, lots 2-4, E2, E2W2; T. 47 N., R. 30 E., MDM, Nevada sec. 07, lots 1-2, W2NE, W2, SE; sec. 08, lots 1-4, NE, SW, N2SE; sec. 17, NENE, S2NE, NWNW, S2NW, S2; sec. 19, all; sec. 20, all.
PARCEL NV-09-07-023	T. 37 N., R. 30 E., MDM, Nevada sec. 04, lots 3,4, S2NW, SW; sec. 05, lots 1-4, S2N2, S2; sec. 08, all; sec. 09, W2E2, W2; T. 38 N., R. 30 E., MDM, Nevada sec. 32, All; sec. 33, NE, W2, NESE, W2SE.
PARCEL NV-09-07-024	T. 37 N., R. 30 E., MDM, Nevada sec. 16, all; sec. 17, all; sec. 20, all; sec. 21, N2, N2SW, SWSW.
PARCEL NV-09-07-029	ALL LANDS
PARCEL NV-09-07-030	ALL LANDS
PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-034	ALL LANDS
PARCEL NV-09-07-036	ALL LANDS
PARCEL NV-09-07-038	ALL LANDS
PARCEL NV-09-07-039	T. 40 N., R. 33 E., MDM, Nevada sec. 05, lots 1,2,5,8,9,10,12, S2NE, SE; sec. 07, lots 8-11, 14-18; sec. 08, E2, E2SW; sec. 17, E2, NW, NWSW; sec. 18, lots 5, 12, 13, 16, 17; sec. 19, lots 7-10, 13-20; sec. 20, NE, E2NW, SWNW, SW, N2SE.
PARCEL NV-09-07-052	T. 25 N., R. 35 E., MDM, Nevada sec. 09, all; sec. 16, all; sec. 20, all; sec. 21, all; sec. 22, W2; sec. 28, N2, W2SW; sec. 29, all; sec. 32, NE, W2, W2SW.

PARCEL NV-09-07-053	ALL LANDS
PARCEL NV-09-07-054	T. 41 N., R. 35 E., MDM, Nevada sec. 20, S2NE, NENW, NESE.
PARCEL NV-09-07-058	T. 26 N., R. 36 E., MDM, Nevada sec. 20, PROT All; sec. 21, PROT All; sec. 28, PROT All; sec. 33, PROT N2N2, SE.
PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068	T. 27 N., R. 38 E., MDM, Nevada sec. 01, lots 1-4, S2N2, S2; sec. 12, NE, W2, NESE, W2SE. T. 28 N., R. 38 E., MDM, Nevada sec. 25, all; sec. 36, all.
PARCEL NV-09-07-069	T. 27 N., R. 38 E., MDM, Nevada sec. 04, lots 1-4, S2N2, S2; sec. 05, lots 1,2, S2NE, SE; sec. 05, PROT W2; sec. 08, E2; sec. 08 PROT W2; sec. 09, all. T. 28 N., R. 38 E., MDM, Nevada sec. 32, NE, S2; sec. 33, all.
PARCEL NV-09-07-070	T. 28 N., R. 38 E., MDM, Nevada sec. 12, all; sec. 13, all; sec. 24, all.  T. 28 N., R. 39 E., MDM, Nevada sec. 05, lots 1,4, S2N2, SW, W2SE; sec. 06, lots 7-15, S2NE, SENW, E2SW, SE; sec. 07, lots 1-4, E2, E2W2; sec. 18, lots 1-4, W2E2, E2W2; sec. 19, lots 1-4, W2NE, E2W2.
PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	T. 29 N., R. 39 E., MDM, Nevada sec. 01, lot 2, S2NE, N2SE; sec. 12, E2NE, SWNE, E2NW, SESW, E2SE. T. 30 N., R. 39 E., MDM, Nevada sec. 36, NE, N2NW, SENW, NESE.
PARCEL NV-09-07-084	ALL LANDS

PARCEL NV-09-07-085	ALL LANDS
PARCEL NV-09-07-086	ALL LANDS
PARCEL NV-09-07-087	ALL LANDS
PARCEL NV-09-07-090	T. 31 N., R. 41 E., MDM, Nevada sec. 04, lots 1-4, S2N2, S2. sec. 05, SWSW. T. 32 N., R. 41 E., MDM, Nevada sec. 32, N2, N2SW, SESW, SE.
PARCEL NV-09-07-092	ALL LANDS

### Controlled Surface Use

#### **Controlled surface use for high and very high potential for paleontological resources. Potential Fossil Yield Classification (PFYC) 4, and 5: High and Very High Potential.**

This land is underlain by geologic units that have been documented to contain a high occurrence of fossils, which may consist of scientifically significant vertebrate, invertebrate, and, or plant fossils. A field survey by a qualified paleontologist, and at the lessee's expense, will be required prior to surface disturbing activities. If significant fossils of scientific importance are discovered they will require avoidance or data recovery prior to their disturbance. On site monitoring may be necessary during construction activities.

It has been determined the following areas contain lands classified as PFYC 2 or 5:

#### *Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002*

*PEIS for Geothermal Leasing in the Western US, October 2008*

#### Description of Lands

PARCEL NV-09-07-001	T. 23 N., R. 24 E., MDM, Nevada sec. 02, lots 2-4.
PARCEL NV-09-07-002	T. 24 N., R. 24 E., MDM, Nevada sec. 34, E2NE, SWNE, E2SE, NWSE.
PARCEL NV-09-07-003	ALL LANDS
PARCEL NV-09-07-011	T. 28 N., R. 27 E., MDM, Nevada sec. 04, lot 4.
PARCEL NV-09-07-021	T. 23 N., R. 29 E., MDM, Nevada sec. 02, lots 1-4, SENE, S2NW, NESW, W2SW, E2SE; sec. 10, N2, E2SW, N2SE; sec. 12, N2, NESW, W2SW, NWSE; sec. 16, NE, E2NW, N2SE.
PARCEL NV-09-07-069	T. 28 N., R. 38 E., MDM, Nevada sec. 32, SWSW.
PARCEL NV-09-07-070	T. 28 N., R. 39 E., MDM, Nevada sec. 05, SESW, SE; sec. 07, E2SE, SWSE; sec. 18, E2; sec. 19, E2, E2SW.
PARCEL NV-09-07-090	T. 31 N., R. 41 E., MDM, Nevada sec. 05, lot 4, SWNW, E2SW. T. 32 N., R. 41 E., MDM, Nevada sec. 32, N2N2NW, NWSW, S2SW.

### Controlled Surface Use

Controlled surface use for protection of erosive soils and soils on slopes greater than 30 percent. This stipulation would be applied to minimize the potential for adverse impacts to soils as defined as severe or very severe erosion classes based on Natural Resources Conservation Service mapping. There are portions of parcels that have >30% slope:

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002*  
*PEIS for Geothermal Leasing in the Western US, October 2008*

#### Description of Lands

PARCEL NV-09-07-001	T. 23 N., R. 24 E., MDM, Nevada sec. 02, lots 1-4, S2N2, SE. T. 23 N., R. 25 E., MDM, Nevada sec. 18, lots 1-4, E2, E2W2.
PARCEL NV-09-07-002	T. 23 N., R. 24 E., MDM, Nevada sec. 04, S2; sec. 16, all; sec. 24, all. T. 24 N., R. 24 E., MDM, Nevada sec. 34, all.
PARCEL NV-09-07-003	T. 24 N., R. 24 E., MDM, Nevada sec. 26, SE; sec. 36, all. T. 24 N., R. 25 E., MDM, Nevada sec. 32, W2.
PARCEL NV-09-07-004	T. 33 N., R. 24 E., MDM, Nevada sec. 21, PROT SE.
PARCEL NV-09-07-005	ALL LANDS
PARCEL NV-09-07-009	T. 27 N., R. 27 E., MDM, Nevada sec. 01, lots 3,4, S2NW, SW; sec. 02, lots 1,2, S2NE, SE; sec. 12, all; sec. 14, E2.
PARCEL NV-09-07-010	T. 27 N., R. 27 E., MDM, Nevada sec. 26, NE.
PARCEL NV-09-07-014	T. 45 N., R. 27 E., MDM, Nevada sec. 15, PROT All.
PARCEL NV-09-07-011	T. 28 N., R. 27 E., MDM, Nevada sec. 04, lots 3,4, S2NW, SW; sec. 09, NE.

PARCEL NV-09-07-012	T. 28 N., R. 27 E., MDM, Nevada sec. 13, NW, S2; sec. 14, all; sec. 15, SW; sec. 22, E2; sec. 23, all; sec. 24, all; sec. 25, all.
PARCEL NV-09-07-013	T. 28 N., R. 27 E., MDM, Nevada sec. 27, E2; sec. 31, E2; sec. 32, W2; sec. 35, E2; sec. 36, E2.
PARCEL NV-09-07-018	T. 27 N., R. 28 E., MDM, Nevada sec. 08, W2; sec. 18, lots 1-4, E2, E2W2; sec. 20, W2; sec. 30, lots 1-4, E2, E2W2.
PARCEL NV-09-07-021	T. 23 N., R. 29 E., MDM, Nevada sec. 02, SW; sec. 10, all; sec. 12, N2, SE; sec. 14, E2; sec. 16, W2; sec. 22, SESE.
PARCEL NV-09-07-022	T. 47 N., R. 29 E., MDM, Nevada sec. 13, lots 1,2, NE, S2NW T. 47 N., R. 30 E., MDM, Nevada sec. 08, lots 1-4, NE, SW, N2SE; sec. 17, NENE, S2NE, NWNW, S2NW, S2; sec. 19, all; sec. 20, all.
PARCEL NV-09-07-023	T. 37 N., R. 30 E., MDM, Nevada sec. 04, lots 1-4, S2N2, S2; sec. 09, all.
PARCEL NV-09-07-024	T. 37 N., R. 30 E., MDM, Nevada sec. 16, E2; sec. 21, SE.
PARCEL NV-09-07-030	ALL LANDS
PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-039	T. 40 N., R. 33 E., MDM, Nevada sec. 17, all; sec. 18, lots 5-20.

PARCEL NV-09-07-052	T. 25 N., R. 35 E., MDM, Nevada sec. 22, S2.
PARCEL NV-09-07-058	T. 26 N., R. 36 E., MDM, Nevada sec. 33, PROT All.
PARCEL NV-09-07-059	T. 29 N., R. 37 E., MDM, Nevada sec. 33, PROT S2.
PARCEL NV-09-07-069	T. 28 N., R. 38 E., MDM, Nevada sec. 32, NW.
PARCEL NV-09-07-070	T. 28 N., R. 39 E., MDM, Nevada sec. 07, E2; sec. 18, E2; sec. 19, E2.
PARCEL NV-09-07-076	T. 29 N., R. 39 E., MDM, Nevada sec. 12, NWNW, SE.
PARCEL NV-09-07-084	T. 29 N., R. 40 E., MDM, Nevada sec. 27, W2.
PARCEL NV-09-07-090	T. 31 N., R. 41 E., MDM, Nevada sec. 05, lot 4, SWNW, W2SW. T. 32 N., R. 41 E., MDM, Nevada sec. 32, W2.

**Threatened, Endangered, or other special status species**

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 U.S.C. 1531, as amended, including completion of any required procedure for conference or consultation. Additionally, the BLM will provide a separate notification through a lease notice to prospective lessees identifying the particular special status species that are present on the lease parcel offered.

*Authority/Supporting Documentation EA-NV-02-029 Geothermal Resources Leasing PEA,  
September 10, 2002  
PEIS for Geothermal Leasing in the Western US, October 2008  
BLM Instruction Memorandum No. 2002-174*

	<u>Description of Lands</u>
PARCEL NV-09-07-001 THRU PARCEL NV-09-07-006	ALL LANDS
PARCEL NV-09-07-009 THRU PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-018 THRU PARCEL NV-09-07-019	ALL LANDS
PARCEL NV-09-07-021 THRU PARCEL NV-09-07-024	ALL LANDS
PARCEL NV-09-07-029 THRU PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-034	ALL LANDS
PARCEL NV-09-07-035	ALL LANDS
PARCEL NV-09-07-036	ALL LANDS
PARCEL NV-09-07-038 THRU PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-052 THRU PARCEL NV-09-07-054	ALL LANDS

PARCEL NV-09-07-058 THRU PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068 THRU PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-084 THRU PARCEL NV-09-07-090	ALL LANDS
PARCEL NV-09-07-092	ALL LANDS

**Threatened, Endangered, or other special status species**

“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 modification 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 as amended, 16 USC 1531 et seq., including completion of any required procedure for conference or consultation.”

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002*

*PEIS for Geothermal Leasing in the Western US, October 2008*

**Description of Lands**

PARCEL NV-09-07-001

ALL LANDS

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-002

ALL LANDS

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-003

ALL LANDS

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-006

ALL LANDS

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-009

ALL LANDS

**NTL: The presence of pale kangaroo mouse (*Microdipodops pallidus*) on the lease has been documented (Nevada Department of Wildlife Diversity Data Base). It's a State of Nevada protected species.**

PARCEL NV-09-07-014

ALL LANDS

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-011

ALL LANDS

**NTL: The presence of pale kangaroo mouse (*Microdipodops pallidus*) on the lease has been documented (Nevada Department of Wildlife Diversity Data Base). It's a State of Nevada protected species.**

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-012

ALL LANDS

**NTL: The presence of pale kangaroo mouse (*Microdipodops pallidus*) on the lease has been documented (Nevada Department of Wildlife Diversity Data Base). It's a State of Nevada protected species.**

PARCEL NV-09-07-013

ALL LANDS

**NTL: The presence of pale kangaroo mouse (*Microdipodops pallidus*) on the lease has been documented (Nevada Department of Wildlife Diversity Data Base). It's a State of Nevada protected species.**

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-018

ALL LANDS

**NTL: The presence of pale kangaroo mouse (*Microdipodops pallidus*) on the lease has been documented (Nevada Department of Wildlife Diversity Data Base). It's a State of Nevada protected species.**

PARCEL NV-09-07-021

ALL LANDS

**NTL: The Nevada Natural Heritage Data Base indicates the presence of Nevada *Oryctes* (*Oryctes nevadensis*), a BLM designated sensitive species, in the vicinity of the lease. Portions of the subject lease with habitat characteristics for this species should be inventoried for its presence.**

**NTL: The presence of Pallid bats (*Antrozous pallidus*) and Townsend's big-eared bats (*Corynorhinus townsendii*), both designated BLM sensitive species, has been identified on the subject lease (Nevada Department of Wildlife Diversity Data Base).**

PARCEL NV-09-07-022

ALL LANDS

**NTL: The Nevada Natural Heritage Data Base indicateds the presence of Pueblo Valley peppergrass (*Lepidium montanum* var. *nevadense*), and Denio sandhill skipper, both BLM designated sensitive species, in the vicinity of the lease. If portions of the subject lease exhibit habitat characteristics for these species, these portions should be inventoried for their presence.**

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-023

ALL LANDS

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-024

ALL LANDS

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-036

ALL LANDS

**NTL: The Nevada Natural Heritage Data Base indicates the presence of Nevada *Oryctes* (*Oryctes nevadensis*), a BLM designated sensitive species, in the vicinity of the lease. Portions of the subject lease with habitat characteristics for this species should be inventoried for its presence.**

**NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat**

PARCEL NV-09-07-038

ALL LANDS

**NTL:** The Nevada Natural Heritage Data Base indicates the presence of Bruneau River prickly phlox (*Leptodactylon glabrum*), a BLM designated sensitive species, in the vicinity of the lease. Portions of the subject lease with habitat characteristics for this species should be inventoried for its presence.

**NTL:** The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat

PARCEL NV-09-07-039

ALL LANDS

**NTL:**The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat.

**NTL:** The Nevada Natural Heritage Data Base indicates the presence of Wind Loving Buckwheat (*Eriogonum anemophilum*), a BLM designated sensitive species, in the vicinity of the lease. If portions of the subject lease exhibit habitat characteristics for this species, those portions should be inventoried for its presence.

**NTL:** The presence of Pallid bats (*Antrozous pallidus*) and Townsend's big-eared bats (*Corynorhinus townsendii*), both designated BLM sensitive species, has been identified on the subject lease (Nevada Department of Wildlife Diversity Data Base).

PARCEL NV-09-07-052

ALL LANDS

**NTL:** The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat.

**NTL:** The lease contains occupied desert bighorn sheep (*Orvis Canadensis nelson*) habitat.

PARCEL NV-09-07-053

ALL LANDS

**NTL:**The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat.

PARCEL NV-09-07-058

ALL LANDS

**NTL:** The presence of Pallid bats (*Antrozous pallidus*) and Townsend's big-eared bats (*Corynorhinus townsendii*), both designated BLM sensitive species, has been identified on the subject lease (Nevada Department of Wildlife Diversity Data Base).

**NTL:**The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat.

**NTL:** The lease contains occupied desert bighorn sheep (*Orvis Canadensis nelson*) habitat.

PARCEL NV-09-07-059

ALL LANDS

**NTL:**The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat.

**NTL:** The lease contains occupied desert bighorn sheep (*Orvis Canadensis nelson*) habitat.

PARCEL NV-09-07-068

ALL LANDS

**NTL:**The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat.

**NTL:** The lease contains occupied desert bighorn sheep (*Orvis Canadensis nelson*) habitat.

PARCEL NV-09-07-069

ALL LANDS

**NTL:**The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (*Brachylagus idahoensis*) habitat.

**NTL:** The lease contains occupied desert bighorn sheep (*Orvis Canadensis nelson*) habitat.

PARCEL NV-09-07-070 ALL LANDS  
NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (Brachylagus idahoensis) habitat.  
NTL: The lease contains occupied desert bighorn sheep (Orvis Canadensis nelson) habitat.

PARCEL NV-09-07-071 ALL LANDS  
NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (Brachylagus idahoensis) habitat.

PARCEL NV-09-07-076 ALL LANDS  
NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (Brachylagus idahoensis) habitat.  
NTL: The lease contains occupied desert bighorn sheep (Orvis Canadensis nelson) habitat.

PARCEL NV-09-07-085 ALL LANDS

PARCEL NV-09-07-086 ALL LANDS

PARCEL NV-09-07-087 ALL LANDS  
NTL: The Regap data shows the presence of big sagebrush on the lease, which may be potential pygmy rabbit (Brachylagus idahoensis) habitat.

PARCEL NV-09-07-090 ALL LANDS  
The lease is located in the Eleven Mile flat and 25 Allotment. Wildlife is administered by the Tuscorara Field Office, Elko District.

PARCEL NV-09-07-092 ALL LANDS  
The lease is located in the Eleven Mile flat and 25 Allotment. Wildlife is administered by the Tuscorara Field Office, Elko District.

**Timing Limitation**

**Timing limitation on wildlife migration corridors and important habitat.** This stipulation would be applied to protect the continuity of migration corridors and important habitat. Portions of the subject lease contains crucial pronghorn winter habitat that should be protected from disturbance from 11/15 to 3/16 inclusive.

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002*  
*PEIS for Geothermal Leasing in the Western US, October 2008*

**Description of Lands**

PARCEL NV-09-07-003	ALL LANDS
PARCEL NV-09-07-006	ALL LANDS
PARCEL NV-09-07-053	ALL LANDS
PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068	ALL LANDS
PARCEL NV-09-07-069	ALL LANDS
PARCEL NV-09-07-070	ALL LANDS
PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-087	ALL LANDS

Stipulations

No exploration during brooding/nesting period (April through August) in identified nesting habitat.

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002*

*PEIS for Geothermal Leasing in the Western US, October 2008*

Description of Lands

PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-053	ALL LANDS
PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068	ALL LANDS
PARCEL NV-09-07-069	ALL LANDS
PARCEL NV-09-07-070	ALL LANDS
PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS

## Stipulation

**Monitoring surface and subsurface water resources.** As exploration and development activities commence, the operator shall institute a surface and subsurface hydrologic monitoring program. The details of the monitoring programs will be site-specific and the intensity shall be commensurate with the level of exploration.

*Authority/Supporting Documentation EA-NV-02-029 Geothermal Resources Leasing PEA,  
September 10, 2002  
PEIS for Geothermal Leasing in the Western US, October 2008  
BLM Instruction Memorandum No. 2002-174*

### Description of Lands

PARCEL NV-09-07-001 THRU PARCEL NV-09-07-006	ALL LANDS
PARCEL NV-09-07-009 THRU PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-018 THRU PARCEL NV-09-07-019	ALL LANDS
PARCEL NV-09-07-021 THRU PARCEL NV-09-07-024	ALL LANDS
PARCEL NV-09-07-029 THRU PARCEL NV-09-07-031	ALL LANDS
PARCEL NV-09-07-034	ALL LANDS
PARCEL NV-09-07-035	ALL LANDS
PARCEL NV-09-07-036	ALL LANDS
PARCEL NV-09-07-038 THRU PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-052 THRU PARCEL NV-09-07-054	ALL LANDS
PARCEL NV-09-07-058 THRU PARCEL NV-09-07-059	ALL LANDS

PARCEL NV-09-07-068 THRU PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-084 THRU PARCEL NV-09-07-090	ALL LANDS
PARCEL NV-09-07-092	ALL LANDS

**No Surface Occupancy**

No surface occupancy in occupied sage-grouse Population Management Units.

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002  
PEIS for Geothermal Leasing in the Western US, October 2008*

**Description of Lands**

PARCEL NV-09-07-014	T. 45 N., R. 27 E., MDM, Nevada sec. 15, PROT W2.
PARCEL NV-09-07-039	T. 40 N., R. 33 E., MDM, Nevada sec. 06, lots 1, 8-17, E2SW, N2SE, SESE; sec. 07, lots 7-20; sec. 08, SWSW; sec. 17, W2NW, SW; sec. 18, lots 5-20; sec. 19, lots 5-20; sec. 20, W2NE, W2, NWSE.
PARCEL NV-09-07-053	T. 30 N., R. 35 E., MDM, Nevada sec. 01, lot 1. T. 31 N., R. 35 E., MDM, Nevada sec. 36, E2E2, W2NW, NWSE. T. 30 N., R. 36 E., MDM, Nevada sec. 06, lots 1-4, S2NW, NESW, SE.
PARCEL NV-09-07-059	T. 28 N., R. 36 E., MDM, Nevada sec. 12, PROT SE. T. 28 N., R. 37 E., MDM, Nevada sec. 05, lots 1,2, S2NE, SE; sec. 07, S2. T. 29 N., R. 37 E., MDM, Nevada sec. 32, PROT E2E2; sec. 33, PROT All.
PARCEL NV-09-07-068	ALL LANDS
PARCEL NV-09-07-069	T. 27 N., R. 38 E., MDM, Nevada sec. 04, lots 3,4, S2NW, W2SW; sec. 05, lots 1,2, S2NE, SE; sec. 08, PROT NW, W2SW. T. 28 N., R. 38 E., MDM, Nevada sec. 32, all; sec. 33, N2, SW, N2SE, SWSE.

NV-WDO-WILD-06A-NSO

1 of 2

PARCEL NV-09-07-070

T. 28 N., R. 38 E., MDM, Nevada  
sec. 12, SESE;  
sec. 13, E2E2, SWNE, W2SE, E2SW;  
sec. 24, E2, E2W2, W2SW.  
T. 28 N., R. 39 E., MDM, Nevada  
sec. 05, lots 1-4, S2N2, S2;  
sec. 06E2E2, W2SE;  
sec. 07, E2, E2W2, SWNW, W2SW;  
sec. 18, lots 1-4, E2, E2W2;  
sec. 19, lots 1-4, E2, E2W2.

PARCEL NV-09-07-071

T. 29 N., R. 38 E., MDM, Nevada  
sec. 02, lots 1-4, SWNE, S2NW, SW, NWSE;  
sec. 11, NW, W2SW;  
sec. 14, W2NW.  
T. 30 N., R. 38 E., MDM, Nevada  
sec. 35, all;  
sec. 36, N2NW, SWNW, NWSW.

PARCEL NV-09-07-076

ALL LANDS

PARCEL NV-09-07-087

ALL LANDS

**No Surface Occupancy**

No exploration during winter (October through March) in identified winter habitats.

*Authority/Supporting Documentation:*

*EA-NV-02-029 Geothermal Resources Leasing PEA, September 10, 2002  
PEIS for Geothermal Leasing in the Western US, October 2008*

Description of Lands

PARCEL NV-09-07-014	ALL LANDS
PARCEL NV-09-07-039	ALL LANDS
PARCEL NV-09-07-053	ALL LANDS
PARCEL NV-09-07-059	ALL LANDS
PARCEL NV-09-07-068	ALL LANDS
PARCEL NV-09-07-069	ALL LANDS
PARCEL NV-09-07-070	ALL LANDS
PARCEL NV-09-07-071	ALL LANDS
PARCEL NV-09-07-076	ALL LANDS
PARCEL NV-09-07-087	ALL LANDS

**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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Serial No.

NVN-089605

**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 TGP Development Company LLC		1a Street 11521 El Camino Real, Ste 100	
1b City San Diego		1c State CA	1d Zip Code 92130

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. 24 N., R. 36 E., MDM, NV Churchill County  
 sec. 27: All;  
 sec. 33: All.

Total Acres in Lease 1,280.00  
 Rental Retained \$ 2,560.00

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 <input checked="" type="checkbox"/> Competitive <input type="checkbox"/> Noncompetitive <input type="checkbox"/> Noncompetitive direct use (43 CFR subpart 3205)	THE UNITED STATES OF AMERICA BY  (Signing Official)	
	Atanda Clark (Printed Name)	
Comments: NV-11-03-031	Chief, Branch of Minerals Adjudication (Title)	APR 15 2011 (Date)
	EFFECTIVE DATE OF LEASE: 05/01/2011 Check if this is a converted lease <input type="checkbox"/> EFFECTIVE DATE OF LEASE CONVERSION: _____	

- 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 25<sup>th</sup> day of April, 2011 Vincent J. Sgajorotti (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.

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. 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.)

**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 apposed 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.

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

**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. 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 overrides 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. 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. 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 rejected before use, used to generate plant parasitic electricity (as defined in 30 CFR 206 151) 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 plans and schematic diagrams showing development work and improvements, and reports with respect to parties in interest.

**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 1213, 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.

In a formal 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.

**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 1213. 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.

**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 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."

NOTICE

NV-NSO-GEO-MIN

Stipulation

This parcel may contain existing mining claims and/or mill sites located under the 1872 Mining Law. To the extent it does, the geothermal lessee must conduct its operations, so far as reasonably practicable, to avoid damage to any known deposit of any mineral for which any mining claim on this parcel is located, and should not endanger or unreasonably or materially interfere with the mining claimant's operations, including any existing surface or underground improvements, workings, or facilities which may have been made for the purpose of mining operations. The provisions of the Multiple Mineral Development Act (30 U.S.C. 521 et seq.) shall apply on the leased lands.

Description of Lands

PARCEL NV-11-03-002 THRU PARCEL NV-11-03-005	ALL LANDS
PARCEL NV-11-03-007	ALL LANDS
PARCEL NV-11-03-008	ALL LANDS
PARCEL NV-11-03-010 THRU PARCEL NV-11-03-026	ALL LANDS
PARCEL NV-11-03-028	ALL LANDS
PARCEL NV-11-03-030 THRU PARCEL NV-11-03-055	ALL LANDS
PARCEL NV-11-03-057	ALL LANDS
PARCEL NV-11-03-058	ALL LANDS
PARCEL NV-11-03-059	ALL LANDS

NV-CCDO-ES

Stipulation

The lessee shall comply with the following conditions and stipulation unless they are modified by mutual agreement of the Lessee and the Authorized Officer:

**Endangered Species.** 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 objectives 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 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.

Description of Lands

PARCEL NV-11-03-001	ALL LANDS
PARCEL NV-11-03-002	ALL LANDS
PARCEL NV-11-03-003	ALL LANDS
PARCEL NV-11-03-005	ALL LANDS
PARCEL NV-11-03-007	ALL LANDS
PARCEL NV-11-03-010	ALL LANDS
PARCEL NV-11-03-014	ALL LANDS
PARCEL NV-11-03-015	ALL LANDS
PARCEL NV-11-03-016	ALL LANDS
PARCEL NV-11-03-017	ALL LANDS
PARCEL NV-11-03-018	ALL LANDS
PARCEL NV-11-03-019	ALL LANDS
PARCEL NV-11-03-024	ALL LANDS
PARCEL NV-11-03-025	ALL LANDS
PARCEL NV-11-03-026	ALL LANDS
PARCEL NV-11-03-027	ALL LANDS
PARCEL NV-11-03-031	ALL LANDS
PARCEL NV-11-03-034	ALL LANDS
PARCEL NV-11-03-040	ALL LANDS

NV-CCDO-ES

NV-CCDO-NAC

Stipulation

The lessee shall comply with the following conditions and stipulation unless they are modified by mutual agreement of the Lessee and the Authorized Officer:

**Native American Consultation.** All development activities proposed under the authority of this lease are subject to the requirement for Native American consultation prior to BLM authorizing the activity. Depending on the nature of the lease developments being proposed and the resources or concerns to tribes potentially affected, Native American consultation and resulting mitigation measures to avoid significant impacts may extend time frames for processing authorizations for development activities, as well as change in the ways in which developments are implemented.

	<u>Description of Lands</u>
PARCEL NV-11-03-001	ALL LANDS
PARCEL NV-11-03-002	ALL LANDS
PARCEL NV-11-03-003	ALL LANDS
PARCEL NV-11-03-005	ALL LANDS
PARCEL NV-11-03-007	ALL LANDS
PARCEL NV-11-03-010	ALL LANDS
PARCEL NV-11-03-014	ALL LANDS
PARCEL NV-11-03-015	ALL LANDS
PARCEL NV-11-03-016	ALL LANDS
PARCEL NV-11-03-017	ALL LANDS
PARCEL NV-11-03-018	ALL LANDS
PARCEL NV-11-03-019	ALL LANDS
PARCEL NV-11-03-024	ALL LANDS
PARCEL NV-11-03-025	ALL LANDS
PARCEL NV-11-03-026	ALL LANDS
PARCEL NV-11-03-027	ALL LANDS
PARCEL NV-11-03-031	ALL LANDS
PARCEL NV-11-03-034	ALL LANDS
PARCEL NV-11-03-040	ALL LANDS

NV-CCDO-RA

Stipulation

The lessee shall comply with the following conditions and stipulation unless they are modified by mutual agreement of the Lessee and the Authorized Officer:

**Riparian Areas.** No surface occupancy within 650 feet (horizontal measurement) of any surface water bodies, riparian areas, wetlands, playas or 100-year floodplains to protect the integrity of these resources (as delineated by the presence of riparian vegetation and not actual water). Exceptions to this restriction may be considered on a case-by-case basis if the BLM determines at least one of the following conditions apply: 1) additional development is proposed in an area where current development has shown no adverse impacts, 2) suitable off-site migration will be provided if habitat loss is expected, or 3) BLM determines development proposed under any plan of operations ensures adequate protection of the resources.

	<u>Description of Lands</u>	
PARCEL NV-11-03-001	ALL LANDS	
PARCEL NV-11-03-002	ALL LANDS	
PARCEL NV-11-03-003	ALL LANDS	
PARCEL NV-11-03-005	ALL LANDS	
PARCEL NV-11-03-007	ALL LANDS	
PARCEL NV-11-03-010	ALL LANDS	
PARCEL NV-11-03-014	ALL LANDS	
PARCEL NV-11-03-015	ALL LANDS	
PARCEL NV-11-03-016	ALL LANDS	
PARCEL NV-11-03-017	ALL LANDS	
PARCEL NV-11-03-018	ALL LANDS	
PARCEL NV-11-03-019	ALL LANDS	
PARCEL NV-11-03-024	ALL LANDS	
PARCEL NV-11-03-025	ALL LANDS	
PARCEL NV-11-03-026	ALL LANDS	
PARCEL NV-11-03-027	ALL LANDS	
PARCEL NV-11-03-031	ALL LANDS	
PARCEL NV-11-03-034	ALL LANDS	
PARCEL NV-11-03-040	ALL LANDS	NV-CCDO-RA

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Serial No.  
  
N-88416

**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 VENTURE PROSPECTS LLC		1a Street 8731 RED OAK BLVD, STE 200
1b City CHARLOTTE	1c State NC	1d Zip Code 28217

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.0230N, R.0360E, 21 MDM, NV Churchill County  
 Sec. 005 LOTS 1-4;  
 005 S2N2,S2;  
 006 LOTS 1-7;  
 006 S2NE,SE,SW,E2SW,SE;

Total Acres in Lease 1263.23  
 Rental Retained \$ 2528.00

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: <input checked="" type="checkbox"/> Competitive <input type="checkbox"/> Noncompetitive <input type="checkbox"/> Noncompetitive direct use (43 CFR subpart 3205)	THE UNITED STATES OF AMERICA	
	BY <u>Atanda Clark</u> (Signing Official)	
Comments:	ATANDA CLARK (Printed Name)	
	Chief, Branch of Minerals Adjudication (Title)	JUN 10 2010 (Date)
	EFFECTIVE DATE OF LEASE <u>07/01/2010</u>	
	Check if this is a converted lease <input type="checkbox"/>	
	EFFECTIVE DATE OF LEASE CONVERSION _____	

## 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.

**Riparian Areas Stipulation**

The lessee shall comply with the following special conditions and stipulations unless they are modified by mutual agreement of the Lessee and the Authorized Officer (AO):

No surface occupancy or disturbance will be allowed within 650 feet (horizontal measurement) of any surface water bodies, riparian areas, wetlands, playas, or 100-year floodplains to protect the integrity of these resources (as delineated by the presence of riparian vegetation and not actual water). Exceptions to this restriction may be considered on a case-by-case basis if the BLM determines at least one of the following conditions apply: 1) additional development is proposed in an area where current development has shown no adverse impacts, 2) suitable off-site mitigation will be provided if habitat loss is expected, or 3) BLM determines development proposed under any plan of operations ensures adequate protection of the resources.

<b><u>PARCEL</u></b>	<b><u>DESCRIPTION OF LANDS</u></b>
PARCEL NV-10-05-006 THRU PARCEL NV-10-05-008	ALL LANDS
PARCEL NV-10-05-011 THRU PARCEL NV-10-05-018	ALL LANDS
PARCEL NV-10-05-021 THRU PARCEL NV-10-05-022	ALL LANDS
PARCEL NV-10-05-024 THRU PARCEL NV-10-05-036	ALL LANDS
PARCEL NV-10-05-040 THRU PARCEL NV-10-05-044	ALL LANDS
PARCEL NV-10-05-052	ALL LANDS
PARCEL NV-10-05-057	ALL LANDS
PARCEL NV-10-05-058	ALL LANDS

**Native American Consultation Stipulation**

The lessee shall comply with the following special conditions and stipulations unless they are modified by mutual agreement of the Lessee and the Authorized Officer (AO):

All development activities proposed under the authority of this lease are subject to the requirement for Native American consultation prior to BLM authorizing the activity. Depending on the nature of the lease developments being proposed and the resources of concerns to tribes potentially effected, Native American consultation and resulting mitigation measures to avoid significant impacts may extend time frames for processing authorizations for development activities, as well as, change in the ways in which developments are implemented.

<b><u>PARCEL</u></b>	<b><u>DESCRIPTION OF LANDS</u></b>
PARCEL NV-10-05-006 THRU PARCEL NV-10-05-008	ALL LANDS
PARCEL NV-10-05-011 THRU PARCEL NV-10-05-018	ALL LANDS
PARCEL NV-10-05-021 THRU PARCEL NV-10-05-022	ALL LANDS
PARCEL NV-10-05-024 THRU PARCEL NV-10-05-036	ALL LANDS
PARCEL NV-10-05-040 THRU PARCEL NV-10-05-044	ALL LANDS
PARCEL NV-10-05-052	ALL LANDS
PARCEL NV-10-05-057	ALL LANDS
PARCEL NV-10-05-058	ALL LANDS

**Appendix B: Inter-Disciplinary Team Checklist for EA Preparation**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
CARSON CITY DISTRICT OFFICE

EA Project Initiation

**Part 1: Project Proposal**

**Project Lead:** Ed Klimasaskas

**Field Office:** Stillwater

**Name of Proposed Action:** Terra-Gen Power LLC Coyote Canyon South Geothermal Exploration

**Date of Proposal to ID Team:** 01/17/2012

**File Code (Project/Serial Number):** NVN-086889, NVN-088416, NVN-0

**Applicant/ Proponent (if BLM originated, identify program area):** Terra-Gen Power LLC

**Complete Description of Proposed Action:** Terra-Gen Power LLC proposes to evaluate the geothermal resources that exist at their geothermal leases in Dixie Valley. The project area is directly south of the Coyote Canyon geothermal project area previously analyzed. This will include drilling of observation wells between 6,000 and 10,000 feet deep at as many as 15 locations. Each drill site would require construction of a drill pad 350 feet by 350 feet (2.8 acres). Access roads to drill sites would use existing roads to the extent possible. Up to 6 miles of new road would need to be constructed as well as improvements made to some of the existing roads. Disturbance would be limited to a maximum of approximately 25 acres for new access roads and approximately 42 acres for construction of well pads. One or more temporary water wells may also be drilled to supply water for exploration operations, including construction, dust abatement, and drilling activities. Disturbance for possible temporary water wells would be limited to a maximum of approximately 0.5 acres. A personnel camp would be maintained at an existing drill pad for support of drilling operations.

**Complete Description of Purpose and Need for the Project:** Terra-Gen is preparing to explore the Coyote Canyon South geothermal resource area for the potential construction and operation of a geothermal power plant in Dixie Valley, Nevada. This project would use geothermal fluid to generate electricity. The need for the project is to provide renewable energy as directed by national policy.

**Legal Description (Attach a 7.5 Min Scale Electronic Location Map):** T23N R36E sec. 6; T24N R35E sec. 36; T24N R36E sec. 27, 28, 29, 30, 31, 32, 33 (Bolivia 1:24,000)

**Funding/Project Code:** LLNVC01000-EJ0000-LXSIGEOT0000

**Does Proposal conform to Carson City CRMP?** YES      **Cite reference:** MIN-1, 1. Encourage development of energy and mineral resources in a timely manner to meet national, regional, and local needs consistent with the objectives for other public land uses.

**Other Considerations:**

**Part 2: Signature to Proceed**

Supervisory Natural Resource Specialist Signature

*Carla Jannin*

Date: 01-13-12

**Part 3: ID Team CHECKLIST for EA Preparation** (THE FOLLOWING LIST WILL BE REVIEWED AND COMPLETED BY ID TEAM DURING INTIAL INTERNAL SCOPING MEETING)

Supplemental Authority*	Not Present **	Present/Not Affected	Present/May Be Affected***	Rationale
Air Quality		la	→	Range Specialist by Allotment:
Areas of Critical Environmental Concern	JRW DW			Jason Wright/Dan Westermeyer:
Cultural Resources		JRW		Jason Wright:
Environmental Justice	X	JRW		Chip Kramer:
Farm Lands (prime or unique)	la			Range Specialist by Allotment:
Forests and rangelands (HFRA Projects Only)	X			Coreen Francis:
Human Health and Safety ( Herbicide Projects)	JRW			Jill Devaurs:
Floodplains			la	Range Specialist by Allotment:
Invasive, Nonnative and Noxious Species			JRW	Jill Devaurs:
Migratory Birds			JRW	John Wilson:
Native American Religious Concerns	JRW	JRW		Jason Wright: several field trips w/ FPST cultural coordinator, no concerns
Threatened and/or Endangered Species	JRW	JRW		John Wilson:
Wastes, Hazardous or Solid		DB		Dave Schroeder:
Water Quality (Surface/Ground)			X	<del>Gabe Venegas:</del>
Wetlands/Riparian Zones			la	Range Specialist by Allotment:
Wild and Scenic Rivers	DW			Dan Westermeyer:
Wilderness	DW			Dan Westermeyer:

\*See H-1790-1(January 2008) Appendix 1 Supplemental Authorities to be Considered.

\*\*Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.

\*\*\*Supplemental Authorities determined to be Present/May Be Affected must be carried forward in the document.

Resource or Issue	Present/Not Affected#	Present/May Be Affected##	Rationale
Lands with Wilderness Characteristics	DW	.	Dan Westermeyer: NOT PRESENT
VRM		DW	Dan Westermeyer:
Recreation	DW		Dan Westermeyer:
ROWs/Lands		ESP	Erik Pignata/Chuck Valentile will run LRA for ROWs, etc.
WHBA	/		John Axtell: NOT PRESENT
Minerals		RD	Ken Depaoli: - will check mining claims & CR case files.
Renewable Energy			Ed Klimasaukas/Colleen Sievers: NOT PRESENT
Wildlife/Key Habitat		JRW	John Wilson:
BLM Sensitive Species		JRW	John Wilson:
Livestock Grazing	la		Linda Appel/Jill Devaurs/Chelsy Simerson

#Resources or uses determined to be Present/Not Affected need not be carried forward or discussed further in the document.

##Resources or uses determined to be Present/May Be Affected must be carried forward in the document.

## **Appendix C: Biological Survey Report**

# **Coyote Canyon Extension Geothermal Exploration Project**

## ***Biological Resources Report***

*TGP Dixie Development Company, LLC*



**August 2011**

**Prepared for TGP Dixie Development Company, LLC**  
**By EMPSi**  
Reno, Nevada

---

# TABLE OF CONTENTS

Chapter	Page
<b>I. INTRODUCTION .....</b>	<b>1-1</b>
1.1 Project Background.....	1-1
1.2 Regional and Geographic Overview.....	1-3
1.3 Methods .....	1-3
<b>2. VEGETATION.....</b>	<b>2-1</b>
2.1 Vegetation Types within the Project Area .....	2-1
2.1.1 Inter-Mountain Basins Mixed Salt Desert Scrub .....	2-1
2.1.1 Inter-Mountain Basins Playa .....	2-4
2.1.1 Inter-Mountain Basins Greasewood Flat.....	2-4
2.1.2 North American Arid West Emergent Marsh.....	2-4
2.1.3 Noxious, Invasive, and Non-Native Species.....	2-4
<b>3. WILDLIFE .....</b>	<b>3-1</b>
3.1 Regional Overview .....	3-1
3.2 Migratory Birds.....	3-1
3.2.1 Regulatory Background .....	3-1
3.2.2 Survey Results .....	3-2
3.3 Game Species.....	3-4
<b>4. SPECIAL STATUS SPECIES .....</b>	<b>4-1</b>
4.1 Regulatory Background .....	4-1
4.2 Special Status Species.....	4-2
<b>5. SUMMARY AND CONCLUSIONS.....</b>	<b>5-1</b>
<b>6. REFERENCES .....</b>	<b>6-1</b>

---

## APPENDICES

A	Agency Correspondence
B	Photo Log
C	List of Species Observed
D	Golden Eagle Aerial Survey Results

---

## FIGURES

	Page	
1	Coyote Canyon Extension Project Location .....	1-2
2	Southwest Regional GAP Analysis Landcover Types.....	2-3

<b>TABLES</b>	Page
Table 2-1 SWReGAP Landcover Types within the Project Area .....	2-2
Table 3-1 Typical Wildlife Species Associated with Habitats within Project Area .....	3-1
Table 3-2 Birds of Conservation Concern Potentially Occurring within the Project Area .....	3-3
Table 3-3 Game Birds Below Desired Condition Potentially Occurring within the Project Area .....	3-4
Table 4-1 BLM Sensitive Species Potentially Occurring within the Project Area .....	4-3
Table 4-2 Golden Eagle Observations within the Vicinity of the Survey Area .....	4-6

<b>ACRONYMS AND ABBREVIATIONS</b>	Full Phrase
BLM	United States Department of the Interior, Bureau of Land Management
ESA	Endangered Species Act
GPS	global positioning system
IM	Instruction Memorandum
MW	megawatt
NDOW	Nevada Department of Wildlife
NNHP	Nevada Natural Heritage Program
SWReGAP	Southwest Regional GAP Analysis Project
TGP	TGP Dixie Development Company
US	United States
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

# CHAPTER I

## INTRODUCTION

---

This report summarizes observations made during a biological field survey for the proposed TGP Dixie Development Company's (TGP) Coyote Canyon Extension Geothermal Exploration Project (Project) at the proposed site in Churchill County, Nevada (**Figure I**, Coyote Canyon Extension Project Location). The biological field survey was conducted to identify vegetation communities; evaluate project area habitat suitability for special status plant and wildlife species; locate important habitat features, such as nest sites and riparian and wetland areas; identify invasive, non-native species; and document wildlife use of the area.

The results of the biological survey will be used to evaluate potential impacts of the proposed Project on biological resources in the environmental document prepared by the United States (US) Department of the Interior, Bureau of Land Management (BLM), Stillwater Field Office in accordance with the National Environmental Policy Act.

### I.1 PROJECT BACKGROUND

The applicant, TGP, proposes to drill up to 15 exploratory geothermal wells, including the construction of access roads, well pads, sumps, and related facilities. Detailed plans are included in TGP's Plan of Operations.

The Project consists of 70.92 acres of disturbance, as follows:

- Up to 15 exploration wells, associated well pads, and a non-potable water well (42.2 acres of disturbance);
- Access roads (28.2 acres); and
- Water well (0.52 acre).

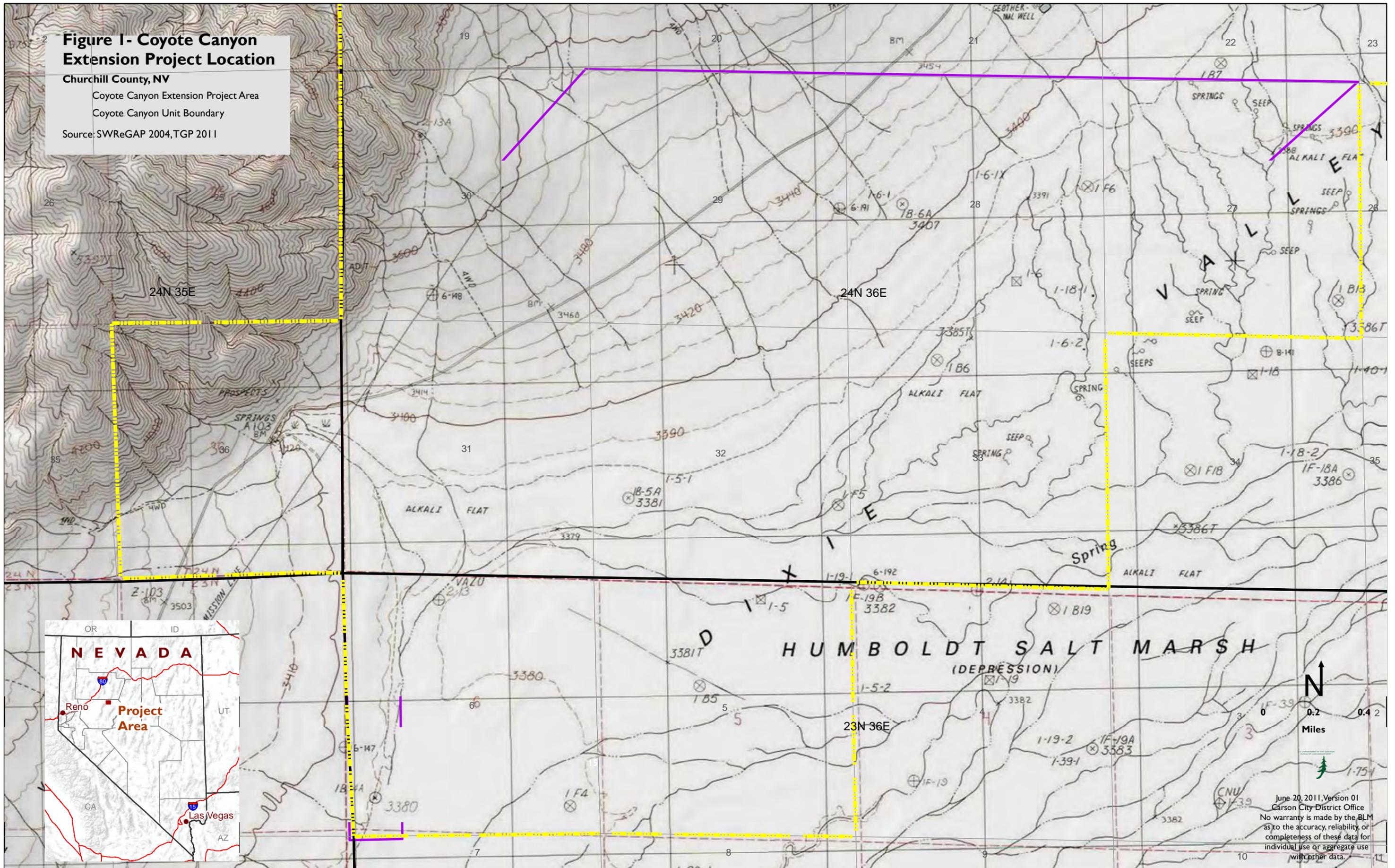
**Figure I- Coyote Canyon Extension Project Location**

Churchill County, NV

Coyote Canyon Extension Project Area

Coyote Canyon Unit Boundary

Source: SWReGAP 2004, TGP 2011



June 20, 2011, Version 01  
 Carson City District Office  
 No warranty is made by the BLM  
 as to the accuracy, reliability, or  
 completeness of these data for  
 individual use or aggregate use  
 with other data.

Aboveground pipelines would carry water to support drilling from the existing Dixie Valley power plant to the north, to each well as it is drilled. Additional temporary piping may also be installed to carry geothermal fluids from wells as they are flow tested, to sumps at the existing Dixie Valley power plant. Access roads would be required for the Project to each well pad and any pipelines would be laid on the ground within the right-of-ways for those access roads.

Access would be from Fallon, Nevada, along US Highway 50. The project area is approximately 43 miles north of Highway 50 along State Route 121.

A biological survey within the original Coyote Canyon lease area, which comprises a subset of the current Coyote Canyon Extension lease area, was conducted in 2009.

## **I.2 REGIONAL AND GEOGRAPHIC OVERVIEW**

The geothermal project area is located in the Dixie Valley, on the east side of the Stillwater Range (Figure I-1).

The project area is located within the Great Basin ecoregion, which is a cold desert characterized by a series of uplifted mountain ranges and their associated intervening valleys. Elevations range from approximately 3,300 feet to 3,600 feet, and the Stillwater National Wildlife Refuge is located approximately 35 miles to the southwest.

## **I.3 METHODS**

Existing GIS landcover data from the Southwest Regional GAP Analysis Project (SWReGAP) (US Geological Survey [USGS] National Gap Analysis Program 2004) were used for preliminary Project habitat mapping. Vegetation types and acreages of each type were calculated for the project area.

EMPSi reviewed the potentially occurring BLM Sensitive species and their habitat requirements, as listed in the biological survey report for the Coyote Canyon lease area (CH2M HILL 2009). In addition, EMPSi requested lists of threatened, endangered, and sensitive species from the Nevada Natural Heritage Program (NNHP), Nevada Department of Wildlife (NDOW), and the US Fish and Wildlife Service (USFWS) (Appendix A).

A field survey of the project area was conducted by two EMPSi biologists on May 9 and 10, 2011. The SWReGAP data were used as a basis for field verification of vegetation communities, and EMPSi recorded information about vegetation types and habitat conditions while walking meandering transects within the project area. The project area was accessed via car and foot. Biologists recorded a complete list of vegetation observed as well as the dominant shrub, grass, and forb species in each habitat type within the project area. Elevation was recorded based on global positioning system (GPS) locations and USGS topographical maps of the area. Notable habitat features such as rock

outcroppings, burrows, and wetland and riparian areas were recorded, as were incidental wildlife observations and wildlife sign.

For special status plants, potentially suitable plant communities were examined during the bloom period.

Ground burrows were examined for evidence of burrowing owls (e.g. feathers, pellets with insect exoskeletons, scat), although a protocol-level burrowing owl survey was not conducted.

Reconnaissance for potential golden eagle nesting habitat was concurrent with the ground survey; the survey area for this reconnaissance included the project area and a 2-mile buffer around the project area. Golden eagle and other raptors were surveyed specifically for the presence of nests by examining all rocky outcrops for suitability (e.g., enough vertical exposure), whitewash, and stick nests. Surveys focused on the western edge of the project area where the Stillwater Range bounds the project area. Maps and GIS shapefiles were loaded into a handheld GPS unit which was used to delineate a two-mile buffer survey area. Surveys for potential nests were performed by scanning suitable rock outcrops with binoculars and spotting scope generally following the USFWS protocols for golden eagle inventory and monitoring (Pagel et al. 2010). Areas not easily viewed from below were hiked and examined.

In addition, an aerial golden eagle survey was conducted for two nearby projects which encompassed a 4-mile buffer around the project area. Active and inactive nests were mapped using GPS technology. These data are incorporated into this report, where applicable.

# CHAPTER 2

## VEGETATION

---

In general, the vegetation within the project area is fairly homogenous, composed of mainly salt desert shrub, greasewood flat, or playa. Biotic crusts occur in many locations, indicating a lack of prior soil disturbance. However, invasive species such as cheatgrass (*Bromus tectorum*) and halogeton (*Halogeton glomeratus*) occur throughout the project area, and cheatgrass is the dominant species in some areas.

### 2.1 VEGETATION TYPES WITHIN THE PROJECT AREA

**Table 2-1**, SWReGAP Landcover Types within the Project Area, presents the SWReGAP landcover types, landcover description, and associated acreages within the project area (**Figure 2**, Southwest Regional GAP Analysis Landcover Types). **Appendix B**, Photo Log, shows SWReGAP landcover types observed within the project area. A complete list of plant species observed during the field survey is included as **Appendix C**, List of Species Observed.

#### 2.1.1 Inter-Mountain Basins Mixed Salt Desert Scrub

The mixed salt desert shrub community occurs in the western portion of the project area, and is composed of fairly equal amounts of Bailey's greasewood (*Sarcobatus baileyi*), rabbitbrush (*Chrysothamnus nauseosus* and *C. viscidiflorus*), and budsage (*Artemisia spinescens*). Horsebrush (*Tetradymia spinosa* and *T. glabrata*), Nevada ephedra (*Ephedra nevadensis*), and spiny hopsage (*Grayia spinosa*) were occasionally observed. The greasewood in this community was less robust and shorter than in the greasewood flat vegetation community, and the shrub layer was generally more open in comparison. The forb and grass component is comprised of cheatgrass, red brome (*Bromus rubens*), flixweed (*Descurainia sophia*), pincushion (*Chaenactis* sp.), prince's plume (*Stanleya pinnata*), desert dandelion (*Malacothrix* sp.), globemallow (*Sphaeralcea ambigua*), fiddleneck (*Amsinckia tessellata*), redstem filaree (*Erodium cicutarium*), halogeton, and Great Basin wildrye (*Leymus cinereus*).

**Table 2-1**  
**SWReGAP Landcover Types within the Project Area**

<b>SWReGAP Landcover Type</b>	<b>Landcover Description</b>	<b>Approximate Acres</b>
Inter-Mountain Basins Mixed Salt Desert Scrub	Open-canopied shrublands of typically saline basins, alluvial slopes and plains; substrates are often saline and calcareous, medium- to fine-textured, alkaline soils; vegetation characterized by a typically open to moderately dense shrubland composed of one or more saltbush ( <i>Atriplex</i> ) species; herbaceous layer varies from sparse to moderately dense.	2,086
Inter-Mountain Basins Playa	Composed of barren and sparsely vegetated playas (generally less than 10% plant cover); salt crusts common, with small saltgrass ( <i>Distichlis</i> sp.) beds in depressions and sparse shrubs around the margins; intermittently flooded.	1,147
Inter-Mountain Basins Greasewood Flat	Typically occurs near drainages on stream terraces and flats or may form rings around more sparsely vegetated playas; typically have saline soils, a shallow water table and flood intermittently, but remain dry for most growing seasons; usually occurs as a mosaic of multiple communities, with open to moderately dense shrublands dominated or co-dominated by greasewood ( <i>Sarcobatus</i> spp.); often surrounded by mixed salt desert scrub.	282
North American Arid West Emergent Marsh	Frequently or continually inundated, with water depths up to 2 meters. Water levels may be stable or may fluctuate 1 meter or more over the course of the growing season. Vegetation is characterized by herbaceous plants that are adapted to saturate soil conditions, such as rushes ( <i>Juncus</i> spp.) and cattails ( <i>Typha</i> spp.)	16

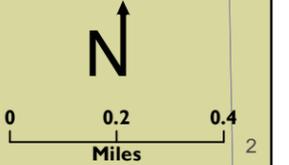
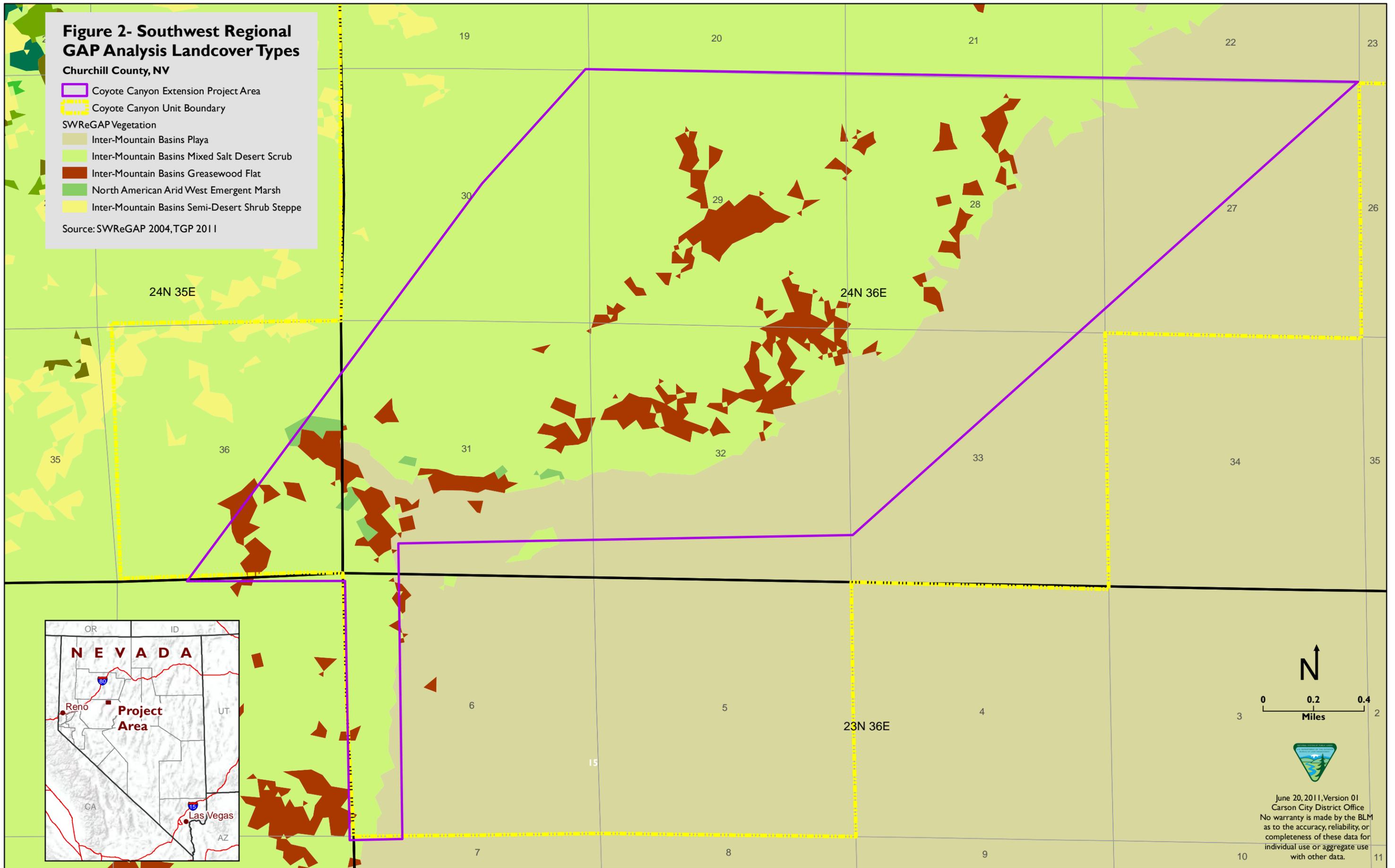
Source: USGS National Gap Analysis Program 2005

# Figure 2- Southwest Regional GAP Analysis Landcover Types

Churchill County, NV

-  Coyote Canyon Extension Project Area
-  Coyote Canyon Unit Boundary
- SWReGAP Vegetation
  -  Inter-Mountain Basins Playa
  -  Inter-Mountain Basins Mixed Salt Desert Scrub
  -  Inter-Mountain Basins Greasewood Flat
  -  North American Arid West Emergent Marsh
  -  Inter-Mountain Basins Semi-Desert Shrub Steppe

Source: SWReGAP 2004, TGP 2011



June 20, 2011, Version 01  
 Carson City District Office  
 No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

### **2.1.1 Inter-Mountain Basins Playa**

The playa community comprises the eastern portion of the project area. It is largely unvegetated, with some salt grass (*Distichlis spicata*) growing and salt crusts visible.

### **2.1.1 Inter-Mountain Basins Greasewood Flat**

Greasewood flat occurs in low-lying sites throughout the western portion of the project area, intergrading with the mixed salt desert shrub vegetation community. Greasewood flat is dominated by robust, usually 3- to 4-foot tall Bailey's greasewood, with a few rabbitbrush, budsage, and shadscale (*Atriplex confertifolia*) shrubs associated. In certain locations, tamarisk (*Tamarix ramosissima*) (both dead and alive) grew in a line from the greasewood flat towards the playa. Tamarisk within the project area has been treated with pesticides by the BLM to eradicate this invasive species. The forb and grass component was similar to the mixed salt desert scrub community.

### **2.1.2 North American Arid West Emergent Marsh**

One area in the southwestern portion of the project area is characterized as North American Arid West Emergent Marsh. Within the project area, this community is more accurately described as a wet meadow with a small marsh component, as it has a high percent cover of salt grass and small patches of Baltic rush (*Juncus balticus*) and canary reedgrass (*Phragmites australis*). The source of water for the wet meadow is located just west of the project area boundary, where there is a spring. During field surveys, there were small patches within the project area with a few inches of standing water, but generally any standing water had evaporated.

### **2.1.3 Noxious, Invasive, and Non-Native Species**

The State of Nevada lists 47 noxious weed species that require control (Nevada Administrative Code 555.10) (Nevada Department of Agriculture 2008). Of these, tamarisk was observed in several areas within the project area, notably growing in lines in Sections 28 and 31. Tamarisk within the project area has been treated with pesticides by the BLM to eradicate this invasive species. Cheatgrass and halogeton are invasive species that were observed throughout the project area. Small cheatgrass-dominated patches were noted in certain areas, such as the northeast corner of Section 29.

# CHAPTER 3

## WILDLIFE

---

### 3.1 REGIONAL OVERVIEW

**Table 3-1**, Typical Wildlife Species Associated with Habitats within Project Area, presents the habitat types within the project area and typically associated wildlife species within the Great Basin. Species documented during surveys were characteristic of the habitat types found within the project area. A complete list of wildlife species observed during the field survey is included as **Appendix C**.

**Table 3-1**  
**Typical Wildlife Species Associated with Habitats within Project Area**

<b>Habitat Type<sup>1</sup></b>	<b>Associated Species</b>
Inter-Mountain Basins Mixed Salt Desert Scrub	Pronghorn antelope; coyote; pocket mouse; loggerhead shrike; common raven; side-blotched lizard
Inter-Mountain Basins Playa	Pocket gopher; killdeer; American avocet; black-necked stilt
Inter-Mountain Basins Greasewood Flat	Black-tailed jackrabbit; white-tailed antelope squirrel; black-throated sparrow; horned lark; desert horned lizard
North American Arid West Emergent Marsh	Yellow-headed blackbird; marsh wren; spotted sandpiper; bullfrog

<sup>1</sup> Based on SWReGAP landcover types

### 3.2 MIGRATORY BIRDS

#### 3.2.1 Regulatory Background

##### ***Migratory Bird Treaty Act of 1918***

The Migratory Bird Treaty Act implements a series of international treaties that provide for migratory bird protection. The Act authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it shall be

unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird” (16 US Code [USC] 703) but does not regulate habitat. The list of species protected by the Act was revised in March 2010, and includes almost all bird species (1,007 species) that are native to the US.

#### ***Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds***

Signed on January 11, 2001, this Executive Order directs each federal agency taking actions that are likely to have a measureable effect on migratory bird populations to develop and implement a Memorandum of Understanding with the USFWS that promotes the conservation of migratory bird populations.

#### ***Instruction Memorandum 2008-050, Migratory Bird Treaty Act–Interim Management Guidance***

This Instruction Memorandum (IM) establishes a consistent approach for addressing migratory bird populations and habitats when adopting, revising, or amending land use plans and when making project level implementation decisions until a national Memorandum of Understanding with the USFWS is established. It provides guidance for conservation planning, land use planning, and management of habitat for USFWS Bird Species of Conservation Concern and Game Birds Below Desired Condition.

### **3.2.2 Survey Results**

#### ***Migratory Birds***

Based on the habitats observed, numerous migratory bird species have the potential to occur within the project area. Eighteen species were observed during field surveys, including black-throated sparrow (*Amphispiza bilineata*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), and western kingbird (*Tyrannus verticalis*) (Appendix C).

#### ***Birds of Conservation Concern***

Birds of Conservation Concern that could potentially occur within the project area are presented in **Table 3-2**, Birds of Conservation Concern Potentially Occurring within the Project Area. The following Birds of Conservation Concern are considered unlikely to occur based on lack of suitable habitat within the project area: tricolored blackbird (*Agelaius tricolor*), American bittern (*Botaurus lentiginosus*), yellow-billed cuckoo (*Coccyzus americanus*), peregrine falcon (*Falco peregrinus*), olive-sided flycatcher (*Contopus cooperi*), northern goshawk (*Accipiter gentilis*), rufous hummingbird (*Selasphorus rufus*), pinyon jay (*Gymnorhinus cyanocephalus*), pygmy nuthatch (*Sitta pygmaea*), flammulated owl (*Otus flammeolus*), spotted owl (*Strix occidentalis*), greater sage-grouse (*Centrocercus urophasianus*), red-naped sapsucker (*Sphyrapicus nuchalis*), Williamson’s sapsucker (*Sphyrapicus thyroideus*), black swift (*Cypseloides niger*), black-throated gray warbler (*Dendroica nigrescens*), Virginia’s warbler (*Vermivora*

**Table 3-2  
Birds of Conservation Concern Potentially Occurring within the Project Area**

<b>Species</b>	<b>Habitat</b>	<b>Potential for Occurrence</b>
American avocet <i>Recurvirostra americana</i>	Shallow marsh with sparse emergent vegetation; large mudflats; dry islands; playa margins	Potential to occur.
Long-billed curlew <i>Numenius americanus</i>	Grasslands and irrigated agricultural fields	Potential to occur.
Golden eagle <i>Aquila chrysaetos</i>	Variety of open and semi-open landscapes with sufficient mammalian prey base and cliff sites for nesting	Confirmed (see Section 4.2).
Prairie falcon <i>Falco mexicanus</i>	Nests on cliffs; forages over a variety of shrub habitats, agricultural crops, and native perennial grasses. Avoids dense cheatgrass	Potential to occur. Ample cliffs for nesting and shrublands for foraging. Observed during 2009 surveys.
Northern harrier <i>Circus cyaneus</i>	Marshes, meadows, grasslands, and cultivated fields; nests on ground, usually in dense cover	Confirmed. Observed within project area during surveys.
Swainson's hawk <i>Buteo swainsoni</i>	Usually occurs close to riparian or other wet habitats; forages over agricultural fields, wet meadows, or open shrublands	Confirmed. Observed within project area during surveys.
Ferruginous hawk <i>Buteo regalis</i>	Grasslands and semi-desert shrublands; nest in isolated trees, on rock outcrops, or ground	Potential to occur.
Costa's hummingbird <i>Calypte costae</i>	Desert, shrubland, chaparral	Potential to occur.
Burrowing owl <i>Athene cunicularia</i>	Treeless areas with low vegetation and burrows	Potential to occur.
Short-eared owl <i>Asio flammeus</i>	Wet meadow or grassland bordered by open shrublands or other dry habitat	Potential to occur.
Wilson's phalarope <i>Phalaropus tricolor</i>	Variety of large and small marshes with sufficient shoreline vegetation; ephemeral wetlands and playas for migration	Potential to occur.
Snowy plover <i>Charadrius alexandrinus</i>	Alkali flat, mudflat, or flat beach adjacent to permanent or seasonal surface water	Potential to occur.
Loggerhead shrike <i>Lanius ludovicianus</i>	Open country with scattered trees and shrubs, desert scrub; nests in shrubs or small trees	Confirmed. Observed within project area during surveys.
Brewer's sparrow <i>Spizella breweri</i>	Sagebrush, greasewood, perennial upland grasslands	Potential to occur.
Sage sparrow <i>Amphispiza belli</i>	Treeless sagebrush or salt desert shrubland with little or no cheatgrass invasion	Potential to occur.
Gray vireo <i>Vireo vicinior</i>	Hot, semi-arid, shrubby habitats	Potential to occur.

Sources: GBBO 2010; NatureServe 2011; Wildlife Action Plan Team 2006

*virginiae*), willet (*Tringa semipalmata*), Lewis's woodpecker (*Melanerpes lewis*), and white-headed woodpecker (*Picoides albolarvatus*).

#### **Game Birds Below Desired Condition**

Game Birds Below Desired Condition that could potentially occur within the project area are presented in **Table 3-3**, Game Birds Below Desired Condition Potentially Occurring within the Project Area. The two species that could occur within the project area are the mallard and mourning dove. Many mourning doves were observed during the field survey, although no mallards were observed. Game birds below desired condition considered unlikely to occur based on lack of suitable habitat include canvasback (*Aythya valisineria*), ring-necked duck (*Aythya collaris*), wood duck (*Aix sponsa*), band-tailed pigeon (*Columba fasciata*), and northern pintail (*Anas acuta*).

**Table 3-3**

#### **Game Birds Below Desired Condition Potentially Occurring within the Project Area**

<b>Species</b>	<b>Habitat</b>	<b>Potential for Occurrence</b>
Mallard <i>Anas platyrhynchos</i>	Primarily shallow waters	Potential to occur.
Mourning dove <i>Zenaida macroura</i>	Found in a variety of habitats except playas	Confirmed. Observed within project area during surveys.

Sources: CH2M HILL 2009; GBBO 2010; NatureServe 2011;

### **3.3 GAME SPECIES**

The BLM manages habitat for game species. The Stillwater Range in the vicinity of the Project is year-round mule deer and pronghorn antelope range, potential elk habitat, and occupied bighorn sheep habitat (BLM 2010). Pronghorn antelope and mule deer are the only big game species that were observed within the Coyote Canyon Extension project area during field surveys; the species were observed infrequently in salt desert shrub habitat.

# CHAPTER 4

## SPECIAL STATUS SPECIES

---

Special status species in this document include those species listed under the Endangered Species Act (ESA) as threatened or endangered and their designated critical habitat, species proposed or candidates for ESA listing, BLM Sensitive species, and species protected by the Bald and Golden Eagle Protection Act. These species and the regulations protecting them are described below.

### 4.1 REGULATORY BACKGROUND

#### ***Endangered Species Act***

The Endangered Species Act of 1973 (16 USC §§1531 et seq.), as amended, provides for the conservation of federally listed plant and animal species and their habitats. The ESA directs federal agencies to conserve listed species and imposes an affirmative duty on these agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or adversely modify its designated critical habitat.

Critical habitat is defined in the ESA as “the specific areas within the geographical area occupied by the species, ..., on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and... specific areas outside the geographical area occupied by the species... upon a determination by the Secretary [of the Interior] that such areas are essential for the conservation of the species” [16 USC 1532(5)(A)].

#### ***BLM Manual 6840 – Special Status Species Management***

BLM Manual 6840 provides management policy for federally listed species and BLM-designated sensitive species. Species classified as BLM-designated sensitive must be native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range; or
2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

BLM protects and manages habitat for the enhancement and protection of the species future existence.

#### ***Bald and Golden Eagle Protection Act***

The Bald and Golden Eagle Protection Act (1940 as amended 1959, 1962, 1972, 1978) prohibits the take or possession of bald and golden eagles with limited exceptions. Take, as defined in the Act, includes “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb”. “Disturb” means “to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior.”

An important eagle-use area is defined in the Act as an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles.

BLM requires consideration and NEPA analysis of golden eagles and their habitat for all renewable energy projects (BLM IM No. 2010-156). The BLM IM on Golden Eagles provides direction for complying with the Act, including its implementing regulations (i.e., Eagle Rule, 50 CFR parts 13 and 22) for golden eagles, and to identify steps that may be necessary within the habitat of golden eagles to ensure environmentally responsible authorization and development of renewable energy resources. The IM primarily addresses golden eagles because a process to acquire take permits for bald eagles already exists. The IM is applicable until the USFWS establishes criteria for programmatic golden eagle permits.

## **4.2 SPECIAL STATUS SPECIES**

BLM Sensitive species with the potential to occur within the project area are presented in **Table 4-1**, BLM Sensitive Species Potentially Occurring within the Project Area. No federally listed endangered or threatened species have the potential to occur within the project area (USFWS 2011). In addition, no critical habitat for any federally endangered or threatened species has been designated

**Table 4-1**  
**BLM Sensitive Species Potentially Occurring within the Project Area**

<b>Species</b>	<b>Habitat</b>	<b>Potential for Occurrence</b>
<b>Plants</b>		
Nevada dune beardtongue <i>Penstemon arenarius</i>	Deep, volcanic, sandy soils; common associates include fourwing saltbush, littleleaf horsebrush, and greasewood	Potential to occur, though not observed during surveys.
Lahontan beardtongue <i>Penstemon palmeri</i> var. <i>macranthus</i>	Along washes, roadsides, and canyon floors, particularly on carbonate-containing substrates, usually where subsurface moisture is available throughout most of the summer.	Potential to occur, though not observed during surveys.
<b>Invertebrates</b>		
Pallid wood nymph <i>Cercyonis oetus pallescens</i>	Alkaline flats	Potential to occur.
Carson valley wood nymph <i>Cercyonis pegala carsonensis</i>	Wet meadows	Potential to occur.
Great Basin small blue <i>Philotiella speciosa septentrionalis</i>	Unknown	Unknown.
<b>Birds</b>		
Golden eagle <i>Aquila chrysaetos</i>	Variety of open and semi-open landscapes with sufficient mammalian prey base and cliff sites for nesting	Confirmed.
Ferruginous hawk <i>Buteo regalis</i>	Grasslands and semi-desert shrublands; nest in isolated trees, on rock outcrops, or ground	Potential to occur.
Prairie falcon <i>Falco mexicanus</i>	Nests on cliffs; forages over a variety of shrub habitats, agricultural crops, and native perennial grasses. Avoids dense cheatgrass	Potential to occur. Ample cliffs for nesting and shrublands for foraging.
Swainson's hawk <i>Buteo swainsoni</i>	Usually occurs close to riparian or other wet habitats; forages over agricultural fields, wet meadows, or open shrublands	Confirmed. Observed within project area during surveys.
Burrowing owl <i>Athene cucularia</i>	Treeless areas with low vegetation and burrows	Potential to occur.
Loggerhead shrike <i>Lanius ludovicianus</i>	Open country with scattered trees and shrubs, desert scrub; nests in shrubs or small trees	Confirmed. Observed within project area during surveys.
Vesper sparrow <i>Poocetes gramineus</i>	Plains, prairie, dry shrublands, savanna, weedy pastures, fields, sagebrush, arid scrub, and woodland clearings	Potential to occur.
Gray vireo <i>Vireo vicinior</i>	Hot, semi-arid, shrubby habitats	Potential to occur.
Snowy plover <i>Charadrius alexandrinus</i>	Alkali flat, mudflat, or flat beach adjacent to permanent or seasonal surface water	Potential to occur.
Long-billed curlew <i>Numenius americanus</i>	Grasslands and irrigated agricultural fields	Potential to occur.

**Table 4-1**  
**BLM Sensitive Species Potentially Occurring within the Project Area**

Species	Habitat	Potential for Occurrence
<b>Mammals</b>		
Western pipistrelle bat <i>Pipistrellus hesperus</i>	Deserts and lowlands, desert mountain ranges, desert scrub flats, and rocky canyons	Potential foraging habitat.
Pallid bat <i>Antrozous pallidus</i>	Arid deserts and grasslands, often near rocky outcrops and water	Potential foraging habitat.
Spotted bat <i>Euderma maculatum</i>	Various habitats from desert to montane, including canyon bottoms, and open pastures	Potential foraging habitat.
Silver-haired bat <i>Lasionycteris noctivagans</i>	Prefers forested areas adjacent to lakes, ponds, and streams	Potential foraging habitat.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Maternity and hibernation colonies typically in caves and mine tunnels	Potential foraging habitat.
Big brown bat <i>Eptesicus fuscus</i>	Various wooded and semi-open habitats including cities	Potential foraging habitat.
Hoary bat <i>Lasiurus cinereus</i>	Prefers deciduous and coniferous forests and woodlands	Potential foraging habitat.
Brazilian free-tailed bat <i>Tadarida brasiliensis</i>	Roosts primarily in caves	Potential foraging habitat.
Long-eared myotis <i>Myotis evotis</i>	Mostly forested areas; also shrubland, along wooded streams, over reservoirs	Potential foraging habitat.
Fringed myotis <i>Myotis thysanodes</i>	Desert, grassland, and wooded habitats	Potential foraging habitat.
California myotis <i>Myotis californicus</i>	Western lowlands; canyons, riparian woodlands, desert scrub, and grasslands	Potential foraging habitat.
Small-footed myotis <i>Myotis ciliolabrum</i>	Desert, badland, and semi-arid habitats	Potential foraging habitat.
Little brown myotis <i>Myotis lucifugus</i>	Adapted to using human-made structures; also uses caves and hollow trees	Potential foraging habitat.
Long-legged myotis <i>Myotis volans</i>	Primarily in montane coniferous forests; also in riparian and desert habitats	Potential foraging habitat.
Desert bighorn sheep <i>Ovis canadensis nelsoni</i>	Steep slopes on or near mountains with a clear view of surrounding area	Suitable habitat within the Stillwater Range adjacent to project area.

Source: CH2M HILL 2009; GBBO 2010; NatureServe 2011; Wildlife Action Plan Team 2006

within the project area. The USFWS noted that a candidate for ESA listing, greater sage-grouse, could occur in the project area (USFWS 2011), although this is unlikely given the lack of sagebrush habitat. The NNHP does not have any recorded special status species within a five kilometer radius around the project area (NNHP 2011). In addition, the following BLM Sensitive species are considered unlikely to occur based on lack of suitable habitat: northern leopard frog (*Rana pipiens*), northern goshawk, peregrine falcon, long-eared owl (*Asio*

otus), flammulated owl, Lewis's woodpecker, red-naped sapsucker, juniper titmouse (*Baeolophus griseus*), pinyon jay, black rosy finch (*Leucosticte atrata*), mountain quail (*Oreortyx pictus*), greater sage-grouse, sandhill crane (*Grus canadensis*), black tern (*Chlidonias niger*), least bittern (*Ixobrychus exilis*), California wolverine (*Gulo gulo*), river otter (*Lontra canadensis*), western white-tailed jackrabbit (*Lepus townsendii*), pygmy rabbit (*Brachylagus idahoensis*), California floater (*Anodonta californiensis*), Hardy's aegialian scarab (*Aegialia hardyi*), Sand Mountain aphodius scarab (*Aphodius* sp.), Sand Mountain serican scarab (*Serica psammobunus*), Sand Mountain blue (*Euphilotes pallescens arena montana*), wind-loving buckwheat (*Eriogonum anemophilum*), and oryctes (*Oryctes nevadensis*).

### **Plants**

Two BLM Sensitive plant species could potentially occur within the Coyote Canyon Extension project area based on literature reviews and habitat assessment. Generally, the habitats within the project area are not sandy enough for the Nevada dune beardtongue, but based on the habitat associations for this species, the species could occur. Neither species was observed during the field survey; in fact, no *Penstemon* species were observed. The NNHP indicated that potential habitat exists for Candelaria blazingstar (*Mentzelia candelariae*), which is not a BLM Sensitive species, but is considered at-risk by the NNHP. This species has not been recorded within the project area (NNHP 2011).

### **Invertebrates**

Three BLM Sensitive invertebrate species could potentially occur within the Coyote Canyon Extension project area based on literature reviews and habitat assessment. Little published literature is available regarding the ecology of these species, which makes the likelihood of occurrence determination uncertain.

### **Raptors**

#### *Golden Eagle*

Stick nests or whitewash were not observed during the ground survey, but were noted in the aerial survey data (Appendix D). Details are shown in **Table 4-2**, Golden Eagle Observations within the Survey Area and Appendix D. Suitable nesting habitat for golden eagles occurs throughout the Stillwater Range bounding Dixie Valley, as this range has rock outcrops with expansive views of the surrounding territory. Three active and eight inactive nests were recorded in the Stillwater Range in the vicinity of the project. The Dixie Valley provides habitat for golden eagle prey, such as rabbits, hares (e.g. jack rabbits), and ground squirrels. In addition, golden eagles have been reported at the existing TGP Dixie Valley power plant about 3 miles north of the Coyote Canyon Extension project area.

**Table 4-2**  
**Golden Eagle Observations within the Vicinity of the Survey Area**

<b>Sighting</b>	<b>Location</b>	<b>Coordinates<sup>1</sup></b>	<b>Description</b>
<b>Ground Survey Sightings</b>			
5/9/11 13:00	Within 2-mile survey buffer	39.56577 -117.56811	Seen flying over survey area. Not recorded in GPS unit but mapped
5/10/11 08:25	Approximately 6 miles south of survey buffer on State Route 121	39.79522177 -118.0763681	Flushed golden eagle feeding on road-killed jack rabbit
5/11/11 08:56	Approximately 3 miles north of survey buffer	39.97867364 -117.8559038	Just north of existing power plant; golden eagle flushed from perch on edge of ditch
<b>Aerial Survey Sightings</b>			
6/22/11 15:22	Within 4 miles of south portion of survey area	39.89093564 -118.0428401	Active, occupied nest, new nest with lots of greenery, one young ready to fledge. Small tight nest. 1 young in nest
6/22/11 15:52	Within 2-mile survey buffer	39.90774781 -118.0118078	Active, occupied nest, one young ready to fledge. Small tight nest. 1 young in nest
6/22/11 16:24	Within 2-mile survey buffer	39.9459154 -117.9913924	Inactive, two nests
6/22/11 16:30	Within 2-mile survey buffer	39.94489733 -117.9724046	Inactive nest
6/23/11 08:08	Within 2 miles of northern Coyote Canyon Unit boundary	39.99760173 -117.9028502	Inactive nest
6/23/11 09:09	Within 2 miles of northern Coyote Canyon Unit boundary	39.9831598 -117.8892667	Inactive nest
6/23/11 09:18	Within 2 miles of northern Coyote Canyon Unit boundary	39.98701128 -117.8669786	Inactive, two nests
6/23/11 09:23	Within 2 miles of northern Coyote Canyon Unit boundary	39.98853436 -117.8654806	Active nest, moderate whitewash. One inactive nest. No young seen but two adults flying nearby. 2 eagles
6/23/11 09:26	Within 2 miles of northern Coyote Canyon Unit boundary	40.0030643 -117.8670884	Inactive nest, very old

<sup>1</sup> NAD 83, UTM Zone 11

<sup>2</sup> See Appendix D for further details

*Burrowing owl*

Burrowing owls rely on other species to construct burrows for shelter and nesting. Within the project area, limited suitable burrow opportunities were observed, although some coyote dens and other burrows were noted during field surveys. No burrow examined had characteristic scat or pellets usually found with burrowing owl use.

*Swainson's hawk*

Swainson's hawk was observed foraging within the project area, although suitable nesting habitat is not present.

*Other raptors*

Ferruginous hawk and prairie falcon could occur within the project area, as there are suitable rock outcrops for nesting in the Stillwater Range, and shrublands for foraging. These species were not observed during field surveys.

**Other Avian Species**

Loggerhead shrike was observed within the project area during surveys, and potential nesting habitat is present. Other potentially occurring species include vesper sparrow, gray vireo, snowy plover, and long-billed curlew.

**Mammals***Bats*

Potential foraging habitat exists throughout the project area for the fourteen BLM Sensitive bat species listed in Table 4-1. No bats were observed during the field survey, and no potential maternity or hibernation habitats were observed within the project area. Some bats (e.g. pallid bat, California myotis, and small-footed myotis) may use rock outcrops within the nearby Stillwater Range. There are also some caves and adits within the Stillwater Range that could be used by bats.

*Bighorn sheep*

Bighorn sheep have been recorded within the Stillwater Range (BLM 2010) and thus could utilize the project area for foraging on grass, forbs, and shrubs and connection to the Tobin Range, which is also occupied habitat. Water is available at Dixie Meadows to the south of the project area. Bighorn sheep were not observed during the field survey.

# CHAPTER 5

## SUMMARY AND CONCLUSIONS

---

Vegetation and wildlife within the Coyote Canyon Extension project area are typical of habitats found within the Great Basin. The most common vegetation communities are Inter-Mountain Basins Mixed Salt Desert Scrub and Inter-Mountain Basins Playa.

A number of migratory bird species, including USFWS Birds of Conservation Concern and Game Birds Below Desired Condition, could occur within the project area based on field observations and habitat assessment. Three big game species could occur within the project area.

Three BLM Sensitive species were observed during the field survey: golden eagle, Swainson's hawk, and loggerhead shrike. Golden eagle nest or roost locations were not identified during these surveys, although golden eagles were seen daily during the survey period. Golden eagles use the project area, likely for hunting or for scavenging along State Route 121. Golden eagle nests were subsequently observed during aerial surveys conducted for two nearby projects. Three active and eight inactive golden eagle nests were recorded in the vicinity of the project area. EMPSi has begun coordinating with the USFWS to determine whether any avoidance or mitigation measures will be necessary for the project.

A number of other BLM Sensitive species have the potential to occur, including two plant species, three invertebrates, seven additional bird species, fourteen bat species, and one other mammal species.

## CHAPTER 6

# REFERENCES

---

- BLM (Bureau of Land Management). 2010. Winnemucca District Office Draft Resource Management Plan and Environmental Impact Statement. May 2010.
- CH2M HILL. 2009. Final biological survey report for the Coyote Canyon and Dixie Meadows geothermal facilities. Prepared for TGP Dixie Development Company, LLC. October 30, 2009.
- GBBO (Great Basin Bird Observatory). 2010. Draft Comprehensive Bird Conservation Plan for Nevada. [http://www.gbbo.org/projects\\_bcp.html](http://www.gbbo.org/projects_bcp.html). Site accessed June 2011.
- NatureServe. 2011. NatureServe Explorer species accounts. Internet Web site: <http://www.natureserve.org/explorer/>. Accessed June 2011.
- Nevada Department of Agriculture. 2008. Noxious weed list. Internet Web site: [http://agri.nv.gov/nwac/PLANT\\_NoXWeedList.htm](http://agri.nv.gov/nwac/PLANT_NoXWeedList.htm). Accessed June 2011.
- NNHP (Nevada Natural Heritage Program). 2011. Data query for Coyote Canyon Extension Project. June 9, 2011.
- Pagel, JE, DM Whittington, and GT Allen. 2010. Interim Golden Eagle technical guidance: inventory and monitoring protocols; and other recommendations in support of eagle management and permit issuance. Division of Migratory Bird Management, US Fish and Wildlife Service.
- USFWS (US Fish and Wildlife Service). 2011. Letter of potentially occurring listed species. June 18, 2011.
- USGS National Gap Analysis Program. 2004. Provisional Digital Land Cover Map for the Southwestern United States. Version 1.0. RS/GIS Laboratory, College of Natural Resources, Utah State University.
- \_\_\_\_\_. 2005. Southwest Regional GAP Analysis Project—Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University.
- Wildlife Action Plan Team. 2006. Nevada Wildlife Action Plan. Nevada Department of Wildlife, Reno, Nevada.

---

# Appendix A

## Agency Correspondence



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office  
1340 Financial Blvd., Suite 234  
Reno, Nevada 89502

Ph: (775) 861-6300 ~ Fax: (775) 861-6301

June 18, 2011

File No. 2011-SL-0308

Ms. Meredith Zaccherio  
EMPS, Inc.  
26 O'Farrell Street, 7<sup>th</sup> Floor  
San Francisco, California 94108

Dear Ms. Zaccherio:

Subject: Species List Request for the Coyote Canyon Extension Geothermal Project,  
Churchill County, Nevada

This responds to your letter received on June 14, 2011, requesting a species list for the Coyote Canyon Extension Geothermal Project in Churchill County, Nevada. To the best of our knowledge, no listed or proposed species occur in the subject project area; however, the following is a list of candidate species which may occur in the subject project area:

- Greater sage-grouse (*Centrocercus urophasianus*), candidate

This list fulfills the requirement of the Fish and Wildlife Service (Service) to provide information on listed species pursuant to section 7(c) of the Endangered Species Act of 1973 (ESA), as amended, for projects that are authorized, funded, or carried out by a Federal agency. Candidate species receive no legal protection under the ESA, but could be proposed for listing in the near future. Consideration of these species during project planning may assist species conservation efforts and may prevent the need for future listing actions.

Greater sage-grouse are known to occur within and/or near the project area; therefore, we recommend that you analyze potential impacts from this project on the species to ensure that the proposed action does not exacerbate further decline of the species. On March 23, 2010, the Service's 12-month status review finding for the species was published in the Federal Register (75 FR 13910). We determined that the greater sage-grouse warrants the protection of the ESA but that listing the species at this time is precluded by the need to address higher priority species

TAKE PRIDE  
IN AMERICA 

first. The greater sage-grouse has been placed on the candidate list for future action, meaning the species does not receive statutory protection under the ESA, and States will continue to be responsible for managing the species. The Western States Sage and Columbian Sharp-tailed Grouse Technical Committee, under direction of the Western Association of Fish and Wildlife Agencies, has developed and published guidelines to manage and protect greater sage-grouse and their habitats in the Wildlife Society Bulletin (Connelly *et al.* 2000). We ask that you consider incorporating these guidelines

(<http://www.ndow.org/wild/conservation/sg/resources/guidelines.pdf>) into the proposed project. On a more local level, the Sage Grouse Conservation Plan for Nevada and Portions of Eastern California was completed in June 2004. The Plan is available online at: <http://www.ndow.org/wild/conservation/sg/plan/SGPlan063004.pdf>. We encourage you to adopt all appropriate management guidance from this Plan as you analyze and implement your proposed action and to engage your local State and Federal wildlife biologists early in the project planning process.

On September 30, 2010, the Service published the 12-month finding for the pygmy rabbit (*Brachylagus idahoensis*) in the Federal Register (75 FR 60516) announcing that the species did not warrant protection under the ESA. We request that you submit any new information concerning threats to the species or its habitat to the Nevada Fish and Wildlife Office. This information will help us monitor the pygmy rabbit and encourage its conservation.

The Nevada Fish and Wildlife Office no longer provides species of concern lists. Most of these species for which we have concern are also on the Animal and Plant At-Risk Tracking List for Nevada (At-Risk list) maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we adopted Heritage's At-Risk list and are partnering with them to provide distribution data and information on the conservation needs for at-risk species to agencies or project proponents. As you may know, the mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. In addition, in order to avoid future conflicts, we ask that you consider these at-risk species early in your project planning and explore management alternatives that provide for their long-term conservation.

For a list of at-risk species by county, visit Heritage's website (<http://heritage.nv.gov>). For a specific list of at-risk species that may occur in the project area, you can obtain a data request form from the website (<http://heritage.nv.gov/forms.htm>) or by contacting the Administrator of Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the ESA. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (<http://www.leg.state.nv.us/NAC/NAC-503.html>). You must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife to take, or possess any parts of protected wildlife species. Please visit <http://www.ndow.org> or contact the Nevada Department of Wildlife at (775) 688-1500.

If bald eagles (*Haliaeetus leucocephalus*) and/or golden eagles (*Aquila chrysaetos*) occur in the project area or within 10 miles of the proposed project area boundary, we recommend you analyze project impacts to the affected individuals, their habitats, and regional populations. While the bald eagle has been removed from the Federal list of threatened and endangered species (August 8, 2007; 72 FR 37346), it remains classified as endangered by the States of Nevada and California. Further, the bald eagle along with the golden eagle continues to be protected under the Bald and Golden Eagle Protection Act (BGEPA) of 1940, as amended (16 U.S.C. 668-668d) and the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). Both the BGEPA and the MBTA prohibit take as defined as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or otherwise harm eagles, their nests, or their eggs. Under the BGEPA, “disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: 1) injury to an eagle, 2) decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. On September 11, 2009 (74 FR 46836), the Service set in place rules establishing two new permit types: 1) take of bald and golden eagles that is associated with, but not the purpose of, the activity; and 2) purposeful take of eagle nests that pose a threat to human or eagle safety. We recommend you coordinate with State and Federal wildlife officials early in the planning process to ensure compliance with State and Federal regulations and to develop a survey protocol to evaluate the potential risk and the likelihood of take of eagles. If take is reasonably anticipated to occur, we recommend you develop an Avian Protection Plan (APP) in coordination with State wildlife agencies and the Service. An APP is intended to avoid, minimize, or mitigate impacts to these species.

Based on the Service’s conservation responsibilities and management authority for migratory birds under the MBTA, we are concerned about potential impacts the proposed project may have on migratory birds in the area. Given these concerns, we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Because wetlands, springs, or streams are present in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (ACOE) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the ACOE’s Regulatory Section [300 Booth Street, Room 3060, Reno, Nevada 89509, (775) 784-5304] regarding the possible need for a permit.

Ms. Meredith Zaccherio

File No. 2011-SL-0308

Please reference File No. 2011-SL-0308 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact me or James Harter at (775) 861-6300.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jill A. Ralston".

 Jill A. Ralston  
Acting State Supervisor

---

# Appendix B

Photo Log



Salt grass meadow with line of dead tamarisk (Section 31).



Greasewood flat habitat with Stillwater Range in background.



Mixed salt desert scrub habitat with playa and Clan Alpine range in background.



Line of dead and alive tamarisk closer to playa (Section 28).



Playa habitat with salt accumulation on surface and salt grass.



Cheatgrass dominated portion of lease area, with sparse greasewood. Playa visible in background.

---

# Appendix C

## List of Species Observed

# APPENDIX C

## LIST OF SPECIES OBSERVED

---

Table C-I displays the species observed within the project area during the biological field survey.

**Table C-I**  
**Species Observed within Project Area**

Common Name	Scientific Name
<b>Birds</b>	
Barn swallow	<i>Hirundo rustica</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Common raven	<i>Corvus corax</i>
Flycatcher	<i>Empidonax sp.</i>
Golden eagle <sup>2</sup>	<i>Aquila chrysaetos</i>
Horned lark	<i>Eremophila alpestris</i>
Killdeer	<i>Charadrius vociferus</i>
Lark sparrow	<i>Chondestes grammacus</i>
Loggerhead shrike <sup>2</sup>	<i>Lanius ludovicianus</i>
Northern harrier	<i>Circus cyaneus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rock wren	<i>Salpinctes obsoletus</i>
Swainson's hawk <sup>2</sup>	<i>Buteo swainsoni</i>
Western kingbird	<i>Tyrannus verticalis</i>
Western meadowlark	<i>Sturnella neglecta</i>
White-crowned sparrow <sup>1</sup>	<i>Zonotrichia leucophrys</i>
<b>Mammals</b>	
Black-tailed jackrabbit	<i>Lepus californicus</i>
Cottontail rabbit	<i>Sylvilagus nuttallii</i>
Coyote	<i>Canis latrans</i>
Kit fox	<i>Vulpes macrotis</i>
Mule deer	<i>Odocoileus hemionus</i>

**Table C-1**  
**Species Observed within Project Area**

<b>Common Name</b>	<b>Scientific Name</b>
Pronghorn antelope	<i>Antilocapra americana</i>
White-tailed antelope squirrel	<i>Ammospermophilus leucurus</i>
<b>Reptiles</b>	
Desert horned lizard	<i>Phrynosoma platyrhinos</i>
Side-blotched lizard	<i>Uta stansburiana</i>
Western whiptail	<i>Aspidoscelis tigris</i>
<b>Invertebrates</b>	
Brine fly	<i>Ephydra</i> sp.
Fritillary	<i>Speyeria</i> sp.
Sulphur	<i>Colias</i> sp.
<b>Plants</b>	
Alkali sacaton	<i>Sporobolus airoides</i>
Alyssum	<i>Alyssum desertorum</i>
Anderson's larkspur	<i>Delphinium andersonii</i>
Annual wheatgrass	<i>Eremopyrum triticeum</i>
Arrowgrass	<i>Triglochin maritima</i>
Baltic rush	<i>Juncus balticus</i>
Bailey greasewood	<i>Sarcobatus baileyi</i>
Bassia	<i>Bassia hyssopifolia</i>
Big greasewood	<i>Sarcobatus vermiculatus</i>
Big saltbush	<i>Atriplex lentiformis</i>
Broad-leafed cattail	<i>Typha latifolia</i>
Buckwheat, desert trumpet	<i>Eriogonum inflatum</i>
Budsage	<i>Artemisia spinescens</i>
Bur buttercup	<i>Ceratocephala testiculata</i>
Canary reedgrass	<i>Phragmites australis</i>
Cheatgrass	<i>Bromus tectorum</i>
Clasping pepperweed	<i>Lepidium perfoliatum</i>
Cotton catclaw horsebrush	<i>Tetradymia axillaris</i>
Crossflower	<i>Chorispora tenella</i>
Desert 4 O'clock	<i>Mirabilis bigelovii</i>
Desert dandelion	<i>Malacothrix</i> sp.
Ditch polypogon	<i>Polypogon interruptus</i>
Fiddleneck	<i>Amsinckia tessellata</i>
Flixweed	<i>Descurainia sophia</i>
Foxtail barley	<i>Hordeum jubatum</i>
Globemallow	<i>Sphaeralcea ambigua</i>
Great Basin popcornflower	<i>Plagiobothrys kingii</i> var. <i>harknessii</i>
Green rabbitbrush	<i>Chrysothamnus viscidiflorus</i>
Halogeton <sup>3</sup>	<i>Halogeton glomeratus</i>
Hardstem bullrush	<i>Scirpus acutus</i>
Hawksbeard	<i>Crepis</i> sp.
Inland saltgrass	<i>Distichlis spicata</i>

**Table C-1**  
**Species Observed within Project Area**

<b>Common Name</b>	<b>Scientific Name</b>
Intermediate wheatgrass	<i>Thinopyrum intermedium</i>
Iodine bush	<i>Allenrolfea occidentalis</i>
Lesser-panicled sedge	<i>Carex diandra</i>
Littleleaf horsebrush	<i>Tetradymia glabrata</i>
Low goosefoot	<i>Chenopodium chenopodioides</i>
Lomatium	<i>Lomatium</i> spp.
Meadow hawksbeard	<i>Crepis runcinata</i> var. <i>imbricata</i>
Milkvetch	<i>Astragalus</i> sp.
Nevada ephedra	<i>Ephedra nevadensis</i>
Olney three square	<i>Scirpus americanus</i>
Perennial pepperweed <sup>3</sup>	<i>Lepidium latifolium</i>
Pigweed, lamb's quarters	<i>Chenopodium</i> sp.
Poverty weed	<i>Iva axillaris</i>
Prince's plume	<i>Stanleya pinnata</i>
Primrose	<i>Camissonia</i> sp.
Rabbit's foot grass	<i>Polypogon monspeliensis</i>
Red brome	<i>Bromus rubens</i>
Rubber rabbitbrush	<i>Chrysothamnus nauseosus</i>
Russian thistle <sup>3</sup>	<i>Salsola tragus</i>
Sagebrush, basin big	<i>Artemisia tridentata</i> var. <i>veseyana</i>
Salt heliotrope	<i>Heliotropium curassavicum</i>
Shadscale	<i>Atriplex confertifolia</i>
Short-spine horsebrush	<i>Tetradymia spinosa</i>
Slender arrowgrass	<i>Triglochin concinna</i> var. <i>debilis</i>
Slender wheatgrass	<i>Elymus trachycaulum</i> var. <i>trachycaulum</i>
Small wirelettuce	<i>Stephanomeria exigua</i>
Snakeweed	<i>Gutierrezia sarothrae</i>
Spiny hopsage	<i>Grayia spinosa</i>
Stork's bill	<i>Erodium cicutarium</i>
Tamarisk/ Salt cedar <sup>3</sup>	<i>Tamarix ramosissima</i>
Tansy mustard	<i>Descurania pinnata</i>
Thick-stemmed cabbage	<i>Caulanthus crassicaulis</i>
Western wheatgrass	<i>Pascopyrum smithii</i>
Winged 4 O'clock	<i>Mirabilis alipes</i>
Yellow peppergrass	<i>Lepidium flavum</i> var. <i>flavum</i>

<sup>1</sup> Presumed migrant

<sup>2</sup> BLM Sensitive species or USFWS species of conservation concern

<sup>3</sup> Invasive species

This page intentionally left blank.