

**DECISION RECORD
COYOTE CANYON SOUTH GEOTHERMAL EXPLORATION
CHURCHILL COUNTY, NEVADA**

**Environmental Assessment
DOI-BLM-NV-C010-2012-0051-EA**

1. BACKGROUND

In 2011, Terra-Gen Power Dixie Development Company (TGP) submitted to the (US) Department of Interior, Bureau of Land Management (BLM) Stillwater Field Office, an operations plan to drill and test up to 15 explorations wells at the Project Area and to extract gravel from three gravel pits to facilitate access road and well pad construction. TGP proposes to expand a previously approved geothermal exploration area, originally called “Coyote Canyon”. This new proposal is to explore the geothermal resource potential of lands directly to the south of Coyote Canyon in three additional federal geothermal leases, referred to here as the Coyote Canyon South (CCS) lease area (Lease Area). The Lease Area is located within Churchill County, Nevada on federal lands managed by the US Department of the Interior, BLM in Dixie Valley.

The BLM prepared Environmental Assessment (EA) DOI-BLM-NV-C010-2012-0051-EA Coyote Canyon South Geothermal Exploration to analyze potential impacts on the human and natural environment that may result from geothermal exploration activities within CCS Lease Area, construction of a temporary personnel camp and from the extraction of gravel from three gravel pits.

The Lease Area consists of approximately 7,588 acres in Churchill County, Nevada. TGP proposes to conduct geothermal exploration in a portion of the Lease Area called the Project Area. The main Project Area consists of 3,530 acres. TGP is proposing exploration activities at up to 15 potential well locations. Specific well locations, potentially including up to three wells at a single drill pad, would be determined during field activities based on observations during drilling. In addition to drilling and testing geothermal exploration wells, the Proposed Action involves the construction of access roads and drilling pads. Supporting facilities would also be constructed to support well drilling and testing. Well installation and road construction would disturb approximately 68 acres. These facilities are described in Sections 2.1.3, Site Access and Road Improvements, and 2.1.5, Site Preparation Activities of the EA.

The exploration wells and access roads would be located wholly on land administered by the BLM and leased for exploration activities to TGP. Highway 121 passes through the Lease Area, therefore no new access roads outside the Lease Area would be needed.

Exploration activities in the area, just north of the proposed project were previously evaluated in the Coyote Canyon and Dixie Meadows Geothermal Exploration EA (EA #DOI-BLM-NV-C010-2011-0001-EA). A Finding of No Significant Impact and Decision Record were signed on March 7, 2011. Geothermal exploration activities authorized by BLM are current and ongoing in the Project Area. Through these exploration activities, TGP has acquired new information about the geothermal resource and is currently seeking authorization for four new exploration wells

The purpose of the geothermal exploration is to confirm that sufficient reservoir capacity is available to allow long-term production. The EA analyzed potential impacts from the proposed exploration and testing activities, extraction of gravel from nearby gravel pits and associated access roads.

Individual geothermal drilling permits would be issued separately from this document.

2. DECISION

Based on the analysis in the TGP's Coyote Canyon South Geothermal Exploration EA# DOI-BLM-NV-C010-2012-0050-EA, it is my decision to implement the Proposed Action as described in the EA with all applicable mitigation measures identified in the document. This decision is contingent on meeting all stipulations and conditions of the geothermal leases/drilling permits and rights-of-way (ROW). The Conditions of Approval (COAs) are attached to this Decision Record.

3. AUTHORITY

The Proposed Action and COAs meet the criteria described in the Federal Land Policy and Management Act of 1976 (FLPMA) to prevent undue and unnecessary degradation of public land and with the 43 Code of Federal Regulations (CFR) 3200, 3250 and 3260 regulations.

Title V of the FLPMA, 43 USC 1761-1771, authorized the BLM, acting on behalf of the Secretary of the Interior to issue a ROW grant on, over, under, and through the public lands for systems for generation, transmission, and distribution of electric energy. The BLMs implementation of its statutory direction for Rights of Way (ROW) authorizations is detailed in 43 CFR Part 2800. The Authorized Officer administers the ROW authorization and ensures compliance with the terms and conditions of the ROW grant. The Authorized Officer means any employee of the Department of the Interior to whom has been delegated the authority to perform the duties described in 43 CFR Part 2800. In respect to the specific ROW grant(s), this authority has been delegated to the BLM Stillwater Field Office Manager.

The Proposed Action is in conformance with the Carson City Field Office Consolidated Resource Management Plan (2001) which states that the BLMs desired outcome is to 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. The action must comply with the conditions of permit for the Nevada Division of Minerals Geothermal Resource Development Permit Application and with applicable rules and regulation of other local, state, and federal agencies.

4. PUBLIC INVOLVEMENT

The EA was sent out on September 24, 2012 for a 30-day public comment period. The BLM received 6 individual comment submissions. These comments were submitted by different federal and state agencies. Their comments and BLMs responses are found in Appendix D of the EA. The agencies that commented were the Nevada Department of Transportation; the Nevada Division of Environmental Protection – Bureau of Water Pollution Control; the U.S. Environmental Protection Agency; the Nevada Department of Wildlife, the Nevada Division of

State Lands and the State Land Use Planning Agency and the Nevada State Historic Preservation Office. No additional comments from the public were received. Minor changes were made to the EA based on these comments, however nothing that substantially changes the analysis.

5. RATIONALE

Upon analyzing the impacts of the Proposed Action Alternative and following issuance of the EA for public review, I have determined that implementing the Proposed Action will not have a significant impact to the human environment and that an environmental impact statement is not required. Refer to the attached Finding of No Significant Impact.

6. APPROVAL

The Terra-Gen Power Dixie Development Company's Coyote Canyon South Geothermal Exploration Project, DOI-BLM-NV-C010-2012-0051-EA is approved for implementation. This decision is effective upon issuance of this decision in accordance with the 43 CFR 3200, 3250, and 3260.



Teresa J. Knutson
Field Manager
Stillwater Field Office



Date

APPEAL PROVISIONS

If you wish to appeal this decision, it may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with 43 CFR Part 4. If you appeal, your appeal must also be filed with the Bureau of Land Management at the following address:

Teresa J. Knutson, Stillwater Field Manager
BLM, Carson City District Office
5665 Morgan Mill Road
Carson City, NV 89701

Your appeal must be filed within thirty (30) days from receipt or issuance of this decision. The appellant has the burden of showing that the decision appealed from is in error.

Copies of the notice of appeal and petition for a stay must also be submitted to:

Interior Board of Land Appeals
Dockets Attorney
801 N. Quincy Street, Suite 300
Arlington, VA 22203

A copy must also be sent to the appropriate office of the Solicitor at the same time the original documents are filed with the above office.

U.S. Department of the Interior
Office of the Regional Solicitor
Pacific Southwest Region
2800 Cottage Way, Room E-1712
Sacramento, CA 95825

If you request a stay, you have the burden of proof to demonstrate that a stay should be granted. A petition for a stay is required to show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied,
2. The likelihood of the appellant's success on the merits,
3. The likelihood of immediate and irreparable harm if the stay is not granted, and
4. Whether the public interest favors granting the stay.

The Office of Hearings and Appeals regulations do not provide for electronic filing of appeals, therefore they will not be accepted.

Exhibit B

December 2012

TGP Dixie Development Company, LLC, Coyote Canyon South Geothermal Exploration Project

CONDITIONS OF APPROVAL (COAs)

Pre-Construction

1. All access roads will be constructed and maintained to BLM road standards (BLM Manual Section 9113).
2. Roads to be constructed, improved or reclaimed as part of the Project would be reviewed by the BLM and required to conform to the requirements of BLM Manual 9113 and the "Gold Book", as applicable to the intended Project Use.
3. Off road travel is not permitted without prior approval by the authorized officer.
4. Proposed surface disturbance and vehicular travel will be limited to the approved well location and access route.
5. Any changes in well location, facility location, and access or site expansion must be approved by the authorized BLM officer in advance.
6. Inform Fallon Naval Air Station regarding drilling dates, locations, and mast heights.
7. The underside of all heavy equipment will be cleaned by water before entering public lands to do work. Driving through or parking on noxious weed infestations will be avoided.
8. An onsite kickoff meeting with BLM will be held prior to any construction activities. Representatives from Terra-Gen as well as any of their contractors that will work on this site must be present at this meeting.
9. Prior to the kickoff meeting, the Archeological Monitor will be provided a confidential copy of the Cultural Report and the shape files of the maps contained therein.

Well Pad and Facility Construction

1. A site diagram depicting the location of production facilities, recontoured slopes and stabilization measures shall be approved by an authorized BLM

officer prior to installation of production facilities.

2. The design of all facilities, including well pads, roads, pumps, and pipelines, shall be approved by the authorized BLM officer prior to construction to avoid unnecessary conflicts with visual resources management objectives.
3. The reserve pit shall be constructed such that no pit wall shall be steeper than 2:1 horizontal to vertical. Wildlife escape ramps that are at a slope equal to or greater than 3:1 horizontal to vertical shall be constructed at corners and/or as necessary such that there is no more than 100 feet between escape ramps.
4. The reserve pit shall be fenced in conformance with the Gold Book. Additional small diameter (<2 inches diameter) fence shall be installed around the perimeter of the reserve pit to the height of the second strand.
5. Drainage from disturbed areas will be confined or directed so that erosion of undisturbed areas is not increased. In addition, no runoff water (including that from roads) will be allowed to flow into intermittent or perennial waterways without first passing through a sediment-trapping mechanism. Erosion control structures may include: waterbars, berms, drainage ditches, sediment ponds, or other devices.
6. Access road construction for exploratory wells shall be planned such that a permanent road can later be constructed in the event of field development.
7. Construction of access roads on steep hillsides and near watercourses will be avoided where alternate routes provide adequate access.
8. Access roads requiring construction with cut and fill will be designed to minimize surface disturbance and take into account the character of the landform, natural contours, cut material, depth of cut, where the fill material will be deposited, resource concerns and visual contrast.
9. Fill material will not be cast over hilltops or into drainages. Cut slopes should normally be no steeper than 3:1 and fill slopes no steeper than 2:1.
10. As required, fill slopes surrounding culverts will be rip-rapped with a well graded mixture of rock sizes containing no material greater than two feet or smaller than three inches. The ratio of maximum to minimum dimension of any rock shall not exceed 6:1.
11. Water turnouts needed to provide additional drainage will be constructed not to exceed two percent slope to minimize soil erosion.

12. Well site layout shall take into account the character of the topography and landform. Deep vertical cuts and steep long fill slopes shall be avoided. All cut and fill slopes should be constructed to the least percent slope practical.
13. Totally enclosed containment shall be provided for all solid construction waste including trash, garbage, petroleum products and related litter will be removed to an authorized sanitary landfill approved for the disposal of these classes of waste.
14. No drilling or storage facilities will be allowed within 650 feet of any pond, reservoir, canal, spring or stream. Other protective areas near water will be required to protect riparian habitat and T&E species.
15. Springs and water developments on public lands shall be used only with the prior written approval of the authorized BLM officer or the water rights holder.
16. To maintain esthetics values, all semi-permanent and permanent facilities will be painted to blend with the natural surroundings. The Standard Environmental Colors will be used for color selection.
17. Fences shall not be cut without prior approval of the authorized BLM officer. Before cutting through any fences, the operator shall firmly brace the fence on both sides of the cut; a temporary gate will be installed for use during the course of operations, unless the fence is immediately repaired. Upon completion of operations, fences shall be restored to at least their original condition.
18. As directed by the authorized BLM officer, cattle guards will be installed whenever access roads are through pasture gates or fences. These cattle guards shall be maintained. This includes cleaning out under cattle guard bases when needed.
19. The depth of surface soil material to be removed and stockpiled will be specified by the authorized BLM officer. If topsoil is stockpiled for more than one year, the stockpile shall be seeded or otherwise protected from wind and water erosion. The stockpile shall be marked or segregated to avoid loss or mixing with other subsurface materials. Any trees removed will be separated from soils and stockpiled separately.
20. Mud, separation pits and other containments used during the exploration or operation of the lease for the storage of oil and other hazardous materials shall be adequately fenced, posted or covered.

21. Lessee/operator shall comply with all regulatory requirements for storage and handling of hazardous materials and wastes.
22. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized BLM officer. Within five working days the authorized BLM officer will inform the operator as to:
 - a. whether the materials appear eligible for the National Register of Historic Places;
 - b. the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
 - c. a time frame for the authorized BLM officer to complete an expedited review under 36 CFR 800.11 or other applicable Programmatic Agreement, to confirm, through the State Historic Preservation Officer, that the findings of the authorized BLM officer are correct and that mitigation is appropriate.
23. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with the process described in item 20 above for inadvertent discovery of cultural resources, the authorized BLM officer will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The authorized BLM officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the authorized BLM officer that the required mitigation has been completed, the operator will then be allowed to resume construction.
24. No surface use will be permitted within 0.6 miles of occupied raptor aeries (nests) during the nesting and fledging period.
25. Fences shall be flagged with bright colored flagging at least every rod from visibility to wild horses. All fences should be constructed using green steel posts with white or silver tops to increase visibility. Fences should also avoid obvious horse migration routes (deep trails, stud piles) if at all possible.

Field Operation

1. Operations shall be done in a manner which prevents damage, interference, or disruption of water flows and improvements associated with all springs, wells, or impoundments. It is the operator's responsibility to enact the precautions necessary to prevent damage, interference, or disruptions.
2. Unauthorized use or failure to lock gates during specified time frames by the lessee or its subcontractors would be considered a violation of the terms of the GPD or associated grants.
3. The operator shall regularly maintain all roads used for access to and within the lease units. A Maintenance and Dust Management Plan may be required. A regular maintenance program may include, but not be limited to: BLM authorized upgrading of existing roads, blading, ditching, culvert, drainage installation, and graveling or capping of the roadbed.
4. Management actions within riparian areas will be designed to maintain or, where possible, improve riparian habitat condition.
5. Noxious weeds which may be introduced due to soil disturbance and reclamation will be treated by methods to be approved by the authorized BLM officer. These methods may include biological, mechanical, or chemical. Should chemical methods be approved, the lessee must submit a Pesticide Use Proposal to the authorized BLM officer 60 days prior to the planned application date.
6. The lessee will institute and pay for a hydrologic evaluation program, which will be site specific and its intensity will be commensurate with the level of developmental drilling. The lessee will develop this evaluation program working with the BLM Carson City Stillwater Field Office Hydrogeologist and with BLM consent will implement. The number of aquifers encountered, their properties, their quality, and their saturated thickness may be documented. This type of information will be submitted to the BLM and would support future NEPA documentation as development progresses and may be useful to determine adverse impacts on surface water expressions of the geothermal reservoir (hot springs). The evaluation program may include the quality, quantity, and temperature of any hot springs or other water resource within the project area.
7. TGP Dixie Development Company will inventory and monitor other existing and newly constructed and developed wells in the geothermal lease units. Existing wells in the lease units will be evaluated to determine their suitability for use as monitor wells. Where necessary, monitor wells will be installed at appropriate locations and depths to monitor geothermal exploration drilling and development.

8. TGP Dixie Development Company will collect standard aquifer test data during and after well testing from completed cased geothermal explorations wells. Data collection will include but not be limited to static water levels, well drawdown, and other data that characterizes the aquifer(s) and that can be used to predict future scenarios as well as determine boundary affects. The data collection applies to both unconfined and confined aquifers.
9. TGP Dixie Development Company will collect baseline hydrologic data from the geothermal lease unit. Data will include ground and surface water temperature, chemistry, groundwater elevations, and surface water flows (springs). Data will be collected to support and expand upon the required hydrologic monitoring program.
10. All drill rig and well test facility lights will be limited to those required to safely conduct the operations, and will be shielded and/or directed in a manner which focuses direct light to the immediate work area.
11. If previously unrecorded cultural resources are encountered during grading or other surface-disturbing activities, all grading or other surface-disturbing activities at the location of the discovery will cease within 100 meters/330 feet of the discovery, and the BLM would be notified. No surface disturbing activities will be allowed until the BLM Authorized Officer issues a Notice to Proceed (NTP) based upon the evaluation, mitigation, as necessary, and the acceptance of a summary description of the fieldwork performed for the discovery situation.
12. The locations of the historic properties will be provided to TGP Dixie Development Company and flagged for avoidance. If avoidance of currently documented historic properties is not possible a resolution of adverse effects will be followed as defined in 36 CFR 800.6.
13. An archaeological monitor shall be present during any ground disturbing activities. Prior to construction, the monitor shall coordinate with the BLM archaeologist. The monitor shall also provide BLM with brief updates during the construction period and file a post construction report with BLM, which will provide the information the BLM archaeologist requests. They shall have the authority to halt all earth moving activities in the area of the discovery if prehistoric or historic artifacts are discovered until the find can be assessed. In the event of an inadvertent discovery all construction will cease within 100 meters/330 feet of the discovery.
14. Petroleum products such as gasoline, diesel fuel, helicopter fuel, crankcase oil, lubricants, and cleaning solvents used to fuel, lubricate, and clean vehicles and equipment will be containerized in approved containers.

15. Containment structures sufficiently impervious to prevent a discharge to waters of the United States, such as containment dikes, containment wall, drip pans, or equivalent protection actions are to be constructed and maintained around all qualifying bulk oil and liquid hydrocarbon tanks. The containment structure must have sufficient volume to contain, at a minimum, the content of the largest storage tank containing liquid hydrocarbons within the facility and sufficient freeboard to contain precipitation, unless more stringent protective requirements are deemed necessary by the authorized officer. Drip pans should be routinely checked and cleaned of petroleum or chemical discharges and designed to prevent access by wildlife and livestock. Containment dikes are NOT to be constructed with topsoil or coarse, insufficiently impervious spoil material. Chemicals should be placed within secondary containment and stored so that the containers are not in contact with soil or standing water and product and hazards labels are not exposed to weathering.
16. Hazardous material shall be properly stored in separate containers to prevent mixing, drainage or accidents. Hazardous materials shall not be drained onto the ground or into streams or drainage areas.
17. Totally enclosed containment shall be provided for all solid construction waste including trash, garbage, petroleum products and related litter will be removed to an authorized sanitary landfill approved for the disposal of these classes of waste.
18. All construction, operation, and maintenance activities shall comply with all applicable federal, state, and local laws and regulations regarding the use of hazardous substances and the protection of air and water quality.
19. In construction areas where recontouring is not required, vegetation will be left in place wherever possible and the original contour will be maintained to avoid excessive root damage and allow for resprouting.
20. Watering facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced if they are damaged or destroyed by construction activities to its pre-disturbed condition as required by the authorized BLM officer.

Drilling Plan—The drilling plan of the Geothermal Drilling Permit will be supplemented as follows:

1. If hydrogen sulfide is encountered the amounts must be reported to the BLM.
2. The operator shall obtain and maintain all necessary State of Nevada and local permits applicable to the drilling of this well on site.

3. For Air/Aerated drilling operations, the following equipment shall be utilized: banjo box (or equivalent); a staked down blooie line directed to a blooie pit a minimum of 100 ft. downwind of the wellhead.
4. Daily drilling and completion progress reports shall be submitted to the Nevada State Office Petroleum Engineer (PE) on a weekly basis, and shall include both daily mud reports and directional survey data.

Pressure Control

1. The results of the BOPE test shall be reported to the Nevada State Office Petroleum Engineer PE or PET.
2. All tests are required to be recorded on a calibrated test chart/graph and submitted to the Nevada State Office Petroleum Engineer PE or PET.
3. The results of the BOPE test shall be reported to the appropriate BLM office.

Reclamation and Abandonment

1. Interim reclamation will begin within 30 days of completion of the well. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations. The portions of the cleared well site not needed for operational and safety purposes are recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Sufficient level area remains for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum reclamation.
2. The operator or contractor will contact the authorized BLM officer 48 hours prior to reclamation work.
3. Restoration work may not begin on the well site until the reserve pits are completely dry.
4. Disturbed areas will be recontoured to blend as nearly as possible with the natural topography prior to revegetation with a BLM approved seed mix. This includes removing all berms and refilling all cuts. Compacted portions of the pad will be ripped to a depth of 12 inches unless in solid rock.

5. Site preparation for reclamation may include contour furrowing, terracing, and reduction of steep cut and fill slopes, installation of water bars, etc.
6. All portions of the access roads not needed for other uses as determined by the authorized BLM officer will be reclaimed.
7. The stockpiled topsoil will be spread evenly over the disturbed area.
8. The operator will be required to construct waterbars and re-open drainages on abandoned access roads and pipeline routes to minimize erosion as required. Water bars will be spaced appropriately dependant upon topography and slope. Pipeline routes shall be water-barred perpendicular to the fall-line of the slope.
9. The area is considered to be satisfactorily reclaimed when all disturbed areas have been recontoured to blend with the natural topography, erosion stabilized and an acceptable vegetative cover has been established.
10. Rehabilitation shall be planned on the sites of both producing and abandoned wells. The entire site or portion thereof not required for the continued operation of the well should be restored as nearly as practical to its original condition. Final grading of back-filled and cut slopes will be done to prevent erosion and encourage establishment of vegetation.
11. When sites are abandoned, they will be inventoried for the presence of noxious weeds and treated if noxious weeds are present.
12. Seed and mulch used to reclaim disturbed areas must be weed free. Mulching of the seedbed following seeding will be required under certain conditions (i.e., expected severe erosion), as determined by the authorized BLM officer.
13. Seed will be broadcast between December 1 and March 1 using a site-specific seed mixture and depth of planting as determined by the authorized BLM officer. Seed may be applied with a rangeland drill at half the rate of broadcast seeding. All seeding application rates will be in pounds of pure live seed per acre. Seed should be adapted varieties.