

**CONDITIONS OF APPROVAL  
GEOTHERMAL DRILLING PERMITS**

**Lease Number(s):**

**Well Number(s):**

**Location:**

USGS Quads:

**Operator:** TGP Dixie Development Company, LLC

**Approval Date:**

A COPY OF THESE CONDITIONS OF APPROVAL MUST BE FURNISHED TO YOUR FIELD  
REPRESENTATIVE TO INSURE COMPLIANCE

**Agency Contacts**

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## Conditions of Approval (COAs)

### Air Quality

- Surface access roads with aggregate materials, wherever appropriate.
- Post and enforce speed limits to reduce fugitive dust (speed limit of 15 miles per hour, as necessary).
- Apply dust abatement techniques to earthmoving, excavating, trenching, and grading activities (such as watering, requiring loader buckets to be emptied slowly, minimizing drop heights, etc.).
- Minimize equipment and vehicle idling times during construction activities.

### Cultural & Native American Religious Concerns

- TGP will provide training to all onsite employees on the importance of protecting cultural resources and the consequences of any violations.
- Crews will be required to stay within the project site as needed to perform their duties. This will not preclude crew members from travelling to and from the project site.
- Signage will be posted throughout the Project Area to indicate that access roads are “no through traffic”.
- No overland travel will be allowed outside the approved disturbance areas which are limited to roads and pads.
- The specific locations for well pads and access roads will be identified in individual Geothermal Drilling Permits (GDPs), which will be submitted for review by the BLM to ensure compliance with BLM stipulations prior to construction. No new NEPA documents will be required for actions proposed inside the Project Area.
- Construction and drilling will be prohibited in the southern leases (N-86890, N-76300, N-76299) during the pine nut harvesting season, September and October. If the pine nut season extends into November, drilling and construction will be prohibited. Each year, through consultation with the tribes and users of the TCP, the BLM will determine if pine nut season extends into November.
- All non-emergency drilling and construction activities will be prohibited during the pine nut season (September, October and possibly November) in the southernmost leases (N-86890, N-76300, N-76299). Emergency work will require approval of the Authorized Officer.
- Construction of well pads will remain at least 50 meters away from CrNV-02-9535 and CrNV-02-9577. Any new construction crossing CrNV-02-9577 will be done only with permission by the BLM and at locations designated by the BLM.
- TGP will not restrict access for the Native Americans to CrNV-02-9535 and CrNV-02-9577, nor put any impediments along these two routes that will prohibit travel by the Native Americans. Native Americans will be allowed access to TCPs and sacred sites.

- If the traffic counter installed along CrNV-02-9577 to monitor people driving into the TCP yields rising numbers, the BLM will evaluate the need for a gate to be installed at the road leading into the project area.
- For the restoration of the ecological health of the TCPs, TGP will fund tamarisk/salt-cedar removal from the Dave Canyon TCP. This project will be completed by the third year of the drilling project. Details will be resolved between TGP, the BLM and the users of Dave Canyon TCP. Depending on the methodology used to remove the tamarisk/salt-cedar, temporary jobs may be available to Native Americans assisting the BLM in plant removal.
- Project traffic will be restricted from utilization of traditional routes CrNV-02-9535 and CrNV-02-9577.

#### Fire Resources

- All construction and operating equipment will be equipped with applicable exhaust spark arresters.
- Personnel will be trained in fire prevention and initial response, and fire extinguishers will be available at each drill site.
- Water that is used for construction and dust control will be available for fire suppression.
- Personnel will be allowed to smoke only in designated areas and will be required to follow applicable BLM regulations regarding smoking.
- All flammable materials will be stored in accordance with the appropriate Federal, State and local statutes.

#### Interim and Final Reclamation

- Disturbed areas in the southern polygon of the Project Area (associated with leases N-86890, N-76300 and N-76299) will undergo interim reclamation within 6 months of completion of flow testing of each well. Disturbed areas in the central polygon of the Project Area (associated with leases N-76299, N-76298 and N-76301) and in the northern polygon of the Project area (associated with leases N-76301 and N-86893) that are not needed for active support of operations will undergo interim reclamation within 3 years of completion of flow testing for each well.
- Interim reclamation, shaping, recontouring, and placement of growth medium will occur upon completion of drilling and well flow testing for disturbed areas, except for the access roads and reserve basins so that existing disturbances are reduced and blend into the natural landscape.
- Seeding will be completed along with interim or final reclamation or during the next growing season (October through December).
- Surface facilities remaining on site for observation wells will have matte finishes.
- The BLM Winnemucca District Office, Humboldt River Field Office will be notified in writing when reclamation operations commence and are completed.

- If any well that is not needed for active support of operations sits idle for longer than one year, the well will be plugged and abandoned to comply with all Federal and State of Nevada regulations, and final reclamation of disturbed areas will be completed within 6 months from the date of proper plugging and abandonment of the observation well.
- All exploratory drilling will be completed within 3 years of the Decision Record date. A reclamation plan will be submitted to the BLM for approval prior to commencement of final reclamation. Wells will be plugged and abandoned, and well pads recontoured and successfully re-seeded with a weed-free BLM approved seed mix.
- Gravel depth measuring in excess of 8 to 10 inches will be reduced or removed from constructed well pads. The remaining gravel will be topsoiled, ripped and seeded and/or the gravel will be buried deep in the recontoured cut to prevent excess surface exposure. Reserve pits and central sump will be backfilled after they are dry and free of waste and graded to conform to the surrounding terrain.

#### Invasive Non-Native Species

- Avoid or treat existing weed infestations prior to disturbance.
- Map and treat areas that become infested during construction.
- Use certified weed-free seed and mulching materials.

#### Lands and Realty

- Applicant shall contact right-of-way holder for location on underground utilities.
- General Terms and Conditions will be made part of the ROW grant (see Appendix B).

#### Migratory Birds

- To minimize impacts to migratory birds and other wildlife, wells and roads will be recontoured and reseeded following completion of the Proposed Action as described in Section 2.1.8. Erosion-control measures will be implemented as described in section 4.16.2. Topsoil will be salvaged and reused whenever possible and in a timely manner as described in section 2.1.9.

#### Paleontological Resources

- Subsurface disturbance will not occur in stock pile areas or as a result of overland travel routes.

#### Range Resources

- TGP will fence pits in conformance with the Gold Book pages 17-18 (BLM 2007).

#### Soils

- BMPs, including development of a SPCC plan, will be implemented to prevent the release of hazardous materials to the environment which shall affect soil resources.
- Proposed facilities will not be constructed in areas with steeper slopes.

- Excavation into native soil during construction of well pad reserve pits and central sump will be minimized to the maximum extent possible.
- Topsoil will be salvaged and reused whenever possible and in a timely manner.
- Temporarily disturbed areas will be reseeded where previously vegetated using a BLM approved seed mixture.
- Erosion control measures, including but not limited to silt fencing, diversion ditches, water bars, temporary mulching and seeding, and application of gravel or rip rap, will be installed, where necessary, immediately after completion of construction activities to avoid erosion and runoff.
- Access roads will follow existing contours to the maximum extent possible. In areas where new access roads must be constructed across slopes, erosion control measures will be installed as necessary, in accordance with Gold Book standards (BLM, 2007).
- An average of 6 inches of gravel will be used as road surface because roads will be used during all seasons. Up to 3 feet of gravel may be used on some sections of road and no gravel will be used on road sections where the natural surface is adequate.
- Additional gravel will be laid down when ground conditions are wet enough to cause rutting or other noticeable surface deformation and severe compaction. As a general rule, if vehicles or other project equipment create ruts in excess of 4 inches deep when traveling cross-country over wet soils, the soil shall be deemed too wet for vehicle use, without the application of a gravel surface.
- If construction occurs in areas of very soft soils, up to 3 feet of aggregate will be used.
- An NDEP BAPC Surface Area Disturbance (SAD) permit documenting the best practical management practices to be used, will be required for the project because the surface disturbed by the project will be greater than 5 acres.

#### Surface Water and Groundwater Monitoring Plan

- Development of a construction Storm water Pollution Prevention Plan (SWPPP) and spill prevention, control, and countermeasures (SPCC) plan.
- Erosion-control measures will be implemented.
- From springs to be identified in consultation with the BLM: Representative temperature and flow rate – once immediately prior to the commencement of drilling and once immediately following the completion of drilling; and once per year until all wells have been abandoned.
- During drilling or flow testing of selected observation wells, to be identified in consultation with the BLM: Representative temperature once each week until drilling, flow testing or water extracting is completed.
- When permanent new access roads must cross ephemeral washes, rolling dips will be installed. The rolling dips will be designed to accommodate flows from at least a 25-year storm event. Culverts may be used wherever rolling dips are not feasible.

- Excavation into native soil during construction of the well pad reserve pit and central sump will be minimized to the maximum extent possible.
- Settled bentonite clay from drilling mud will accumulate on the bottom of the drill pad reserve pits and central sump to act as an unconsolidated clay liner, reducing the potential for drilling fluid to percolate to groundwater.
- A BLM-approved grouting and casing program for construction of observation wells will be implemented to prevent water quality effects on groundwater during or after well installation.
- Borehole geophysics analyses (cement bond logs) will be conducted to document that well casing grouting activities provide an effective seal isolating the geothermal aquifer from shallow alluvial aquifers, therefore minimizing potential impacts on surface springs or streams.
- The project will use BMPs to ensure that any geothermal fluid encountered during the drilling does not flow uncontrolled to the surface. These include the use of “blow-out” prevention equipment during drilling and the installation of well casing cemented into the ground.
- TGP will obtain necessary working in waters and/or groundwater discharge permits and provide a Notice of Intent to NDEP prior to well pad construction.
- TGP will submit a GDP application, including detailed drilling and casing procedures, to BLM for approval prior to initiating geothermal drilling.
- Water will be monitored from the seasonal creeks emanating from Hughes Canyon, Dave Canyon, New York Canyon, Logan Canyon, and Big Ben Canyon.
- TGP will not utilize any water from the stock pond, nor the seasonal creeks in any of their operations. TGP will avoid doing any modifications to the stock pond that will destroy its integrity.
- TGP will obtain necessary working in waters and/or groundwater discharge permits and provide a Notice of Intent to NDEP and a sundry notice to BLM prior to well pad construction.

#### Vegetation

- The BLM-approved seed mixtures as shown in Table 12 will be used.

**TABLE 12**  
Proposed Seed Mix

| Species           | PLS lbs./acre | Bulk lbs./acre | PLS/sq. ft. |
|-------------------|---------------|----------------|-------------|
| Fourwing saltbush | 3.00          | 5.00           | 4           |
| Shadscale         | 3.00          | 5.00           | 4           |
| Indian ricegrass  | 1.00          | 1.25           | 4           |
| Forage kochia     | 0.50          | 0.75           | 5           |
| <b>Totals</b>     | <b>7.50</b>   | <b>12.00</b>   | <b>17</b>   |

Note: PLS = Pure Live Seeds

- TGP will consult with BLM regarding the timing of reseeding, specific seed mixtures, and application rates to be used to improve the success of reseeding.
- Disturbed areas will be re-contoured to blend with the surrounding topography. Topsoil will be salvaged whenever possible and reused in a timely manner.
- Impacts to vegetation will be minimized by reseeding all areas of access roads and well pads not required for subsequent energy production using weed-free and BLM-approved seed mixtures.

#### Visual Resources

- Well heads will be painted a color that blends with the surrounding area, as approved by the BLM.
- 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 that focuses direct light to the immediate work area.

#### Wastes, Hazardous or Solid

- Small quantities of solid wastes (paper, plastic, and other garbage) generated by the Proposed Action will be transported offsite to an appropriate landfill facility.
- Portable chemical toilet wastes will be removed by a local contractor.
- The hazardous material spill and disposal contingency plan will be submitted to and approved by the BLM and made readily available on site before operations begin.
- Secondary containment structures will be provided for all chemical and petroleum/oil storage areas during drilling operations. Additionally, absorbent pads or sheets will be placed under likely spill sources and spill kits will be maintained on site during construction and drilling activities to provide prompt response to accidental leaks or spills of chemicals and petroleum products.
- Handling, storage, and disposal of hazardous materials, hazardous wastes, and solid wastes will be conducted in conformance with federal and state regulations to prevent soil,

groundwater, or surface water contamination and associated adverse effects on the environment or worker health and safety.

#### Water Quality (Surface and Ground) and Water Quantity

- In order to prevent a release of geothermal fluids to surface water features, drilling muds and geothermal fluids will be contained in the well pad reserve pit; or piped or trucked to the large central sump when quantities dictate.
- To avoid communication between the geothermal aquifer and the shallow groundwater aquifer, BMPs for well installation and testing will be implemented as described in section 4.8.2.
- A monitoring plan will be put in place to assess whether impacts to quality, quantity, or temperature of surface water occurred as a result of observation well installation and testing.
- Project-related water will be obtained from a non-potable water well to be installed with an estimated depth of up to 500 feet and permitted under an Oil and Gas Waiver by the Nevada Division of Water Resources.