PATUA PROJECT LLC

February 7, 2012

Ms. Carla James
Bureau of Land Management
5665 Morgan Mill Road
Carson City, NV 89701

RE: Environmental Commitments for the Patua Phase II Geothermal Project

Dear Ms. James,

Attached is a list of environmental protection measures that have been incorporated into the project description of the Patua Phase II Geothermal Project Environmental Assessment (EA). Gradient Resources, Inc (GRI) agrees to implement all of these measures during implementation of the project. The measures have been incorporated into the project description of the EA prepared by RMT as part of the proposed action.

This letter serves to document the concurrence of GRI to conduct the attached environmental protection measures as part of the project. If you have any questions, please contact me at (775) 284-8842.

Very Respectfully,

Kenneth Bonin, Sr.
Director of Permitting

Enclosure

9670 Gateway Drive, Suite 200, Reno, NV 89521 Phone: 775-284-8842 FAX: 775-284-8846

Environmental Protection Measures for the Patua II Geothermal Project

Land Use and ROWs

- Pipeline segments would be constructed under unpaved roads to ensure access along existing roadways.
- A Traffic Management Plan would be prepared, approved by Lyon and/or Churchill Counties, as appropriate, and would be submitted to BLM and Reclamation prior to construction. The plan would then be implemented to minimize construction and operational impacts on other land uses such as mining activities and maintenance of the various irrigation facilities in the project area.
- The location of the well pads in Section 30 have been sited in coordination with Reclamation. GRI may also undertake a gravel exploration program that would be discussed with Reclamation if GRI were to need to move the pads and pipelines. Pads and roads would be sited within areas surveyed for cultural and biological resources.
- GRI would coordinate with NDOT and Union Pacific Railroad to obtain the appropriate approvals (if necessary) to construct the pipeline crossing under Alt 50 and under the railroad as well as the transmission line crossing over the highway and over the railroad, if a power plant is built in Section 29.
- GRI would coordinate with Kinder Morgan prior to any ground disturbance in Section 28 to ensure that the gas pipeline is properly marked and avoided.
- GRI would coordinate with LADWP prior to constructing pipeline crossings across the corridor of the high-voltage DC transmission line in Sections 30 and 32.
- GRI would coordinate with Reclamation and TCID for all Newlands Project feature crossings and would have a Reclamation Inspector onsite during Truckee Canal crossing construction. Crossing methods and procedures would be approved by Reclamation.

Water Resources

- Reserve pits would be constructed to prevent seepage of testing fluids into the underlying groundwater.
- Containment berms would be constructed around all hazardous material or potentially hazardous material storage areas. Off-pad stormwater is directed away from the well pads.
- BOPE would be maintained at the wellhead during drilling or work over operations to allow well shutdown if an uncontrolled flow of fluid or gas occurs.
- A cement and casing program for construction of any wells would be implemented to prevent water quality effects on groundwater during or after well installation. Borehole geophysics analyses (cement bond logs) would be conducted to document that well-casing cementing activities provide an effective seal, isolating the geothermal aquifer from shallow alluvial aquifers.
- GRI would obtain necessary permits for work in waters and/or groundwater discharge permits and would provide a Notice of Intent to NDEP prior to well pad construction.

- A hydrologic evaluation program will be implemented, which would be site specific and its intensity would be commensurate with the level of development drilling.
- When permanent new access roads must cross ephemeral washes, rolling dips would be installed. The rolling dips would be designed to accommodate flows from at least a 25-year storm event. Culverts may be used wherever rolling dips are not feasible
- Site-specific designs for use of jack and bore or horizontal directional drilling methods (e.g., entry and exit sites, subsurface profiles) would be developed based on geotechnical surveys of local soils conditions at the proposed canal crossing. These designs would be prepared to identify how entry and exit points would be sited, depths of drilling, and how inadvertent releases of drilling fluids would be contained. Jack and bore or horizontal directional drilling progress would be continuously monitored by trained personnel.
- If trenching is used to cross the laterals, the trenching would be performed when there is no water is in the laterals. BMPs would be implemented to minimize any potential for runoff or contamination of the laterals and all debris would be cleaned from the lateral after construction, before water flows in the laterals. The area of trenching would be stabilized, as appropriate, to prevent sedimentation once water begins to flow within the lateral.

- BMPs to prevent release of fuels or other construction materials would be implemented, including GRI's Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure (SPCC) Plan, which would be prepared and submitted to the BLM and Reclamation for approval prior to construction.

Vegetation

- Reclamation of well pads and access roads would occur when it is determined that they would no longer be used for exploration, utilization, or any other purposes. During operations, interim reclamation would be conducted for the well pad areas no longer needed for operation or maintenance. All reclamation would be performed in accordance with the Gold Book (BLM 2007 and USFS 2007).
- Reclamation would be performed in accordance with lease stipulations. Reclamation would include re-contouring of disturbed areas to blend in with the surrounding topography and use of appropriate methods to seed with a diverse perennial seed mix. The seed mix used to reclaim disturbed areas would be certified weed free. The seed mix would be developed by an experienced botanist in coordination with the BLM, Reclamation, and/or NDOW and would be based on seed availability and quality. Reseeding would not be undertaken in areas where soil conditions are inappropriate or where the adjacent undisturbed land surface has little or no vegetation, as determined in coordination with a qualified biologist and BLM and Reclamation. Native soil material and organic matter (topsoil) salvaged from the site preparation operations would be reused as a top-dressing on berms and other areas requiring revegetation to the extent practical.

Invasive, Non-Native, and Noxious Species

- The potential to increase the spread of invasive, non-native, and noxious species would be minimized through the implementation of the Noxious Weed Abatement

Plan, included in Appendix G to this EA for project construction, operation, and decommissioning.

Wildlife

- Willows and roosting habitat would be avoided to the greatest extent feasible. If willows or rock outcrops have to be removed, the vegetation would be inspected by a qualified biologist for bats just prior to removal. If a bat is found, the habitat would not be removed until the bat has left the area.
- Reserve pits will be appropriately fenced on three sides during active drilling and on all four sides when not in use to restrict access by people, wildlife and livestock.

Migratory Birds

- Anti-perch spikes would be installed on the top of cross-arms of the proposed transmission line alignment, if the option is exercised.
- Transmission structures would be designed with sufficient phase spacing to make it improbable that the wing span of the typical raptor can contact two phases, thus avoiding electrocution.
- If vegetation must be removed during the migratory bird nesting season (May 1 through September 15) in riparian habitat (along laterals in Section 32 and wetland areas in Section 29), surveys for nesting birds would be conducted by a qualified wildlife biologist within three weeks of the vegetation removal for any nesting habitat within 300 feet of the area of disturbance. If active nests are located within the area, GRI will consult with BLM/Reclamation to develop appropriate protection measures for the nests. Such measures may include the establishment of buffers around the nest until the young have fledged or the nest has failed.
- To minimize impacts to migratory birds and other wildlife through habitat alteration well pads and roads would be recontoured and reseeded following completion of construction. Reseeding would not be undertaken in areas where soil conditions are inappropriate or where the adjacent undisturbed land surface has little or no vegetation, as determined in coordination with a qualified biologist.
- Topsoil would be salvaged and reused whenever possible and in a timely manner.
- During drilling, if the reserve pit contains oil-based contaminants (such as from runoff or drilling muds) the pits would be fitted with exclusion devises such as netting or floating balls, in accordance with lease stipulations.

Cultural Resources

- GRI would avoid cultural resource sites that are known to be eligible or potentially eligible for inclusion in the National Register of Historic Places through design, construction, and operation of the project, to the greatest extent feasible.
- An approximately 100-foot buffer zone would be established from the boundary of cultural sites and will be identified by placing flagging around eligible and potentially eligible cultural resource sites to help provide protection to the sites. Project equipment and facilities would not encroach into the established 100-foot buffer zone to the greatest extent feasible. Fencing would not be required where

construction would need to occur within the 100 foot buffer; however, the following measure would be implemented to ensure protection of cultural resources:

  - Where the installation of project facilities could impact eligible or potentially eligible cultural sites(s), or must occur within the 100 foot buffer, GRI would retain a qualified archaeologist to serve as a cultural monitor during construction of the facility in order to avoid potential effects to the cultural site(s). The BLM would decide when cultural monitors would be necessary.

- The project facilities would be operated in a manner consistent with the engineered design to prevent problems associated with the run-off that could affect adjacent cultural sites. This includes the use of BMPs to minimize off-site erosion and sedimentation.
- GRI would limit vehicle and equipment travel to existing and proposed access roads, well pads, construction areas, and gravel source areas and allowable travel areas would be clearly flagged and staff would be informed (before project commencement) to stay within the identified areas.
- Any unplanned discovery of cultural resources, items of cultural patrimony, sacred objects, or funerary items would require that all activity in the vicinity of the find ceases, and the Field Manager, Stillwater Field Office, 5665 Morgan Mill Road, Carson City, 952 Nevada 89701, be notified immediately by phone (775-885-6000) with written confirmation to follow. The location of the find would not be publicly disclosed, and any human remains must be secured and preserved in the place until a Notice to Proceed is issued by the authorized officer.

Native American Religious Concerns

- If human remains are identified during construction of any of the components of the proposed project, work within 300 feet of the discovery would be stopped and the remains would be protected from further exposure or damage. The coroner and Reclamation, NDOW, or SHPO (depending on land ownership) would be contacted. If the remains are determined to be Native American, the agencies would follow the procedures set forth in 43 Code of Federal Regulations (CFR) Part 10, Native American Graves Protection and Repatriation Regulations. Procedures for handling the discovery of human remains would follow Reclamation Manual Directives and Standards LND 07-01 (Inadvertent Discovery of Human Remains on Reclamation Lands) if remains are located on Reclamation-managed lands. If remains are found on private land, NRS 383 would be implemented with SHPO as the lead agency.

Minerals Resources

- Fill materials would be obtained from the permitted mine located east of Black Butte, in Section 24, T20N, R26E (assigned serial number N-86320) or purchased from commercial sources.
- GRI would coordinate with NDOT to obtain approval to construct the pipeline through the mine area in Section 32 in order to minimize effects to the existing operations.
- During the life of the geothermal facilities, all disturbed areas not needed for active support of production operations would undergo “interim” reclamation to minimize the environmental impacts of development on other resources and uses

Soils

- Any suitable topsoil will be stockpiled onsite for later use during restoration. Access roads would follow existing routes to the extent possible. In areas where new access roads must be constructed across slopes, erosion control measures would be installed as necessary, in accordance with Gold Book standards (BLM 2007 and USFS 2007).
- 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, would be installed where necessary immediately after completion of construction activities to avoid erosion and runoff. Only certified weed-free BMPs would be used.
- Additional gravel would be laid down when ground conditions are wet enough to cause rutting or other noticeable surface deformation and severe compaction.
- An NDEP Bureau of Air Pollution Control SAD permit would be obtained and the BMPs identified in the permit would be implemented.
- Vehicle travel on unpaved roads would be limited to 30 mph.
- Any topsoil stockpiles will be located on previously disturbed areas, such as portions of well pads, and will be situated so that wind and water erosion of the piles are minimized and the reclamation potential of the soil is maintained. Other erosion control measures may include surface seeding and moisture conditioning.
- All new access roads would comply with the site drainage and runoff management plan to minimize erosion and off-site sedimentation.

Wastes, Hazardous or Solid

- Containment berms would be constructed around all hazardous material or potentially hazardous material storage. Off-pad stormwater would be directed away from the well pads.
- An emergency response plan would be implemented that includes contingencies for hazardous materials spills and disposals.
- GRI would adhere to general geothermal lease stipulations for geothermal developers to address the potential impacts involved with transport, use, and disposal of hazardous materials, including the development and implementation of an emergency response plan.
- GRI would comply with all local, state, and federal regulations regarding the use, transport, storage, and disposal of hazardous materials and wastes. Wastes considered hazardous by the State of Nevada would be transported and disposed of according to applicable federal, state, and local regulations.
- GRI would prepare and implement a Hazardous Material Spill Prevention Plan to minimize impacts to the environment from hazardous materials.
- Fueling and routine maintenance of equipment and vehicles would be performed off site or within designated areas with appropriate spill controls to minimize effects.
- Drilling mud and fluid would be directed to reserve pits. At the conclusion of drilling and testing, the liquid portions of the containment basin contents would be evaporated, pumped back down the well, or removed and disposed of off-site in a facility authorized to receive such wastes. The remaining contents, typically consisting of non-toxic drilling mud and cuttings, would be tested as required by the

Nevada BWPC. If non-toxic and as authorized by the BWPC, these materials would be spread and dried on the well site, mixed with soil and buried in the on-site reserve pit in conformance with the applicable requirements of the BWPC, Reclamation, and the BLM. Testing results and location of buried waste would be provided to Reclamation and BLM.

- A blow-out prevention plan and BOPE would be implemented.

Operation of the geothermal facilities would comply with all local, state, and federal regulations regarding the use, transport, storage, and disposal of hazardous materials and wastes and therefore minimize impacts to the environment.

Air Quality

- A SAD Air Quality Operating Permit would be obtained for the project and a plan for fugitive dust control would be implemented. The Fugitive Dust Control Plan would include dust suppression processes (e.g., watering access roads and well pads) to minimize localized increases in particulate matter concentrations. The plan would include the following measures.

  Fugitive Dust Source Controls:

  - During grading use water, as necessary, on disturbed areas in construction sites to control visible plumes
  - Vehicle speeds would be minimized on exposed soils to 10 to 30 mph to reduce fugitive dust generation from vehicle traffic.
  - Use effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's SWPPP.
  - Use wind erosion control techniques (such as windbreaks, water, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas

  Mobile and Stationary Source Controls

  - Best available emissions control technologies would be used where available and practical.
  - Plan construction scheduling to minimize vehicle trips

- Dust emissions from venting steam would be reduced by injecting water into the blooie line.
- Diesel generators over 37 kW (50 horse power) shall be diesel-fired units that are certified to meet the US Environmental Protection Agency's (EPA) Tier II Emission Standards and are equipped with an exhaust particulate filter system.
- H_2S emissions would be minimized through the use of properly weighted drilling mud which is expected to keep the well from flowing during drilling. Data collection devices would be installed and operated during all phases of drilling and testing. An H_2S abatement plan would be developed and implemented during long-term flow-testing if it becomes apparent during drilling operations that H_2S abatement is necessary to minimize potential nuisance odors. Measures to reduce H_2S, if necessary, could include but are not limited to:

  - Reducing the number of wells venting simultaneously, as applicable
  - Implementing additional wellhead abatement measures, such as caustic injection between the flash tank and the portable silencer
  - All drill rigs would be equipped with alarms to detect unsafe levels of non-condensable gases (NCGs).

Visual Resources

- The power plant and pipeline would be painted a muted color to blend in with the existing landscape to the greatest extent feasible.