FACT SHEET

(pursuant to NAC 445A.236)

Applicant: Patua Project LLC, 9670 Gateway Dr Suite 200, Reno, NV 89521

Permit Number: UNEV2013203

Project Name: Patua Geothermal – Phase 1

Facility Location: Hazen, Churchill and Lyon counties, Nevada

Permitted Injection Wells (#): Sixteen (16)

General: Patua Project LLC proposes to construct, operate, and maintain the Patua Geothermal Development Project in Churchill and Lyon counties, Nevada. The project is located on private and public lands administered by the Bureau of Reclamation and Bureau of Land Management.

Initially, Phase 1 of the geothermal project includes the construction and operation of the following: a 30 megawatt (MW) (gross), binary, air-cooled geothermal power plant; 4-6 geothermal production and 5-6 injection well pads and wells; geothermal production and injection pipelines; and ancillary facilities. Ormat anticipates construction of the facility will be completed by August 2013, and startup of the plant will begin shortly thereafter. If the geothermal resource is found to be sufficient, the facility may be expanded in the future to include a second phase that would be similar in capacity to the first phase.

The power plant will be based on the Rankine Cycle binary system, in which an organic motive fluid (R-134a) absorbs heat from the geothermal water (brine), causing the motive to vaporize. Brine will be pumped from the wells, through the heat exchanger and then back into the subsurface reservoir on the opposite side of the field. Brine will not be exposed to the atmosphere or directly to the generating equipment.

Injection Characteristics: Initially, up to six (6) injection wells will be used for injection at the Patua project under phase 1. Individual injection wells are expected to receive a range of approximately 15,000 gallons per minute (gpm) of 150°F geothermal fluid. The Patua facility will be air-cooled and no cooling tower water blow down will be produced or require discharge. The production and injection wells have shown to be similar in geothermal temperature and chemistry. Analysis of the production zone indicates that the injectate will have the following average constituent ranges: TDS – 2,500-2,800 mg/L, boron – 7.5-8.5 mg/L, fluoride – 4-4.5 mg/L, arsenic - 0.1-0.13 mg/L, and chloride – 1000-1200 mg/L. The injectate will contain minor quantities of both lubricating fluids from production well pumps, and scale inhibitors used to prevent deposits from restricting the output of the binary heat transfer in the heat exchangers. The addition of lubricating fluids and scale inhibitors are standard practices for this type of facility and has been approved by the division.

Receiving Water Characteristics: The production wells are in a direct hydraulic connection with the injection wells located one mile away. The geothermal reservoir consists of a large area of high permeability and temperatures above 250°F. Analysis of the receiving zone indicates the following average constituent values: TDS – 2,200-3,000 mg/L, boron - 8.3-8.9 mg/L, fluoride – 3.0

-6.0 mg/L, arsenic - 0.06-0.12 mg/L, and chloride – 1,100-1,400 mg/L.

Regional Shallow Groundwater: shallow groundwater (100-920 feet below ground surface) in the area ranges from TDS – 750-1,700 mg/L, boron - 0.5-3.4 mg/L, fluoride – 0.7 -1.5 mg/L, arsenic - 0.016-0.81 mg/L, and chloride – 49-360 mg/L.

Thermal springs (100-172 degF) on the west side of project area ranges from TDS – 2,100 mg/L, boron - 5.8-6.6 mg/L, fluoride – 3.7 -4.2 mg/L, arsenic - 0.076-0.084 mg/L, and chloride – 810-850 mg/L.

Schedule of Compliance: The Permittee shall implement and comply with the provisions of the Schedule of Compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications that the Administrator may make in approving the Schedule of Compliance.

Rationale for Permit Requirements: The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime. Routine mechanical integrity testing (MIT) will be required on all injection wells to ensure geothermal water does not leak into shallow aquifers.

Procedures for Public Comment: The Notice of the Division's intent to issue a permit authorizing the facility to inject into the groundwaters of the State of Nevada subject to the conditions contained within the permit is being sent to the **Reno Gazette Journal** for publication. The notice is also being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **5:00 PM, August 7, 2013.**

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to issue the proposed permit for a period of five (5) years.

Prepared by: Russ Land
Bureau of Water Pollution Control
May 2013