

## Blue Mountain “Faulkner 1” 49.5 MW Geothermal Power Plant, Humboldt County, Nevada – A Canadian Story

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### Summary

Blue Mountain Power Company (“BMPC”) acquired federal and private geothermal leases at Blue Mountain in northern Nevada in 1993. Gold exploration by others had encountered heat over a wide area. BMPC measured the first definitive temperature gradients outlining a heat anomaly over four square miles. UURI performed electrical resistivity and self-potential surveys.

In 2001, Nevada Geothermal Power Inc. (“NGP”), acquired development rights from Blue Mountain Power. NGP drilled two deep slim test wells cost-shared with DOE. Well DB-2 drilled to over 1500 meters encountering temperatures up to 168 °C and fluid samples obtained predicted 180 °C reservoir temperatures using Na-K- Ca and SiO<sub>2</sub> geothermometers.

The discovery well 26A-14, completed in August 2006, was rated at 10MW capacity. Five additional production wells and six injection wells completed the well field. Multi-well flow tests were conducted to establish long-term reservoir predictions along with a numerical reservoir model.

Plant construction under an EPC contract by Ormat commenced in February 2008. The Faulkner-1 Power Plant was in October 2009 on time and on budget.

### Method / Workflow

BLM and private Atchison, Topeka and Santa Fe Railroad geothermal leases were acquired by Blue Mountain Power Company in 1993, at a time when the geothermal industry was dormant and when federal lands could be leased directly from BLM. Extensive prior gold exploration encountered heat and occasional hot water over a wide area, and outlined a buried gold deposit at the range front.

Between the 1995 – 1999, eight widely-spaced exploration holes in the flats west of the range front and 3 holes east of the known gold deposit measured the first definitive temperature gradients at Blue Mountain, outlining a heat anomaly over four square miles. Early exploration was enhanced by collaborated with UURI integrating geology, temperature gradient studies, with electrical resistivity and self-potential surveys.

In 2001, Nevada Geothermal Power Inc. (“NGP”), acquired development rights from Blue Mountain Power. NGP drilled two deep slim test wells cost shared with DOE. DB-2 drilled in 2005 to 1522 meters maximum temperatures of 168 °C in a zone between 200-600 metres was flowed to recover well fluid samples which predicted +180 °C reservoir temperature at depth using Na-K- Ca and SiO<sub>2</sub> geothermometers.

The discovery well 26A-14, completed in August 2006, was rated at 10MW capacity. After the first two wells, production drilling with 12 -inch completions went very smoothly for a total of six production and six injection wells. Geothermex conducted 60 day multi-well flow tests utilizing all available wells to establish well interference and long-term reservoir drawdown predictions along with a numerical reservoir model.

## Results

Non resource milestones on the road to the “Faulkner 1’ power plant service date included the Power Purchase Agreement with the Nevada state power utility (Sierra Power, October 2006), EPC plant supply and construction contract (Ormat, February 2008), Construction Financing closed (August 2008), Production and Injection wells completed (March 2009), Power Plant Construction complete (August 2009), Faulkner 1 Power Plant commissioning on time and within budget (October 2009).