

FINAL REPORT FOR GRANT R021597

DOE12072012

Amendment M005 was received during this report period dated 9/29/2008 and was signed by the Director of the Nevada State Office of Energy on 10/09/2008. This amendment extended the grant until 03/10/2010. This report will cover the time from July 1, 2008 through March 31, 2011 and cover the activities of the whole grant. Drawdowns took place as follows: 9-27-2004, \$40,000; March 3, 2005, \$54,339; June 13, 2006, \$33,000; February 22, 2007, \$11,981.25; May 8, 2007, \$518.75; August 14, 2007, \$42.46. This came to a total of \$106,881.46 with a match of \$39,147.76 that was in kind salaries and fringe. The program was under the supervision of the Nevada State Office of Energy (NSOE) with sub-contractors being the Nevada Division of Minerals (NDOM), the Great Basin Center for Geothermal Energy (GBCGE) and the Renewable Energy and Energy Conservation Taskforce (REET). The NDOM grant was for \$40,560 to develop a trade mission for Nevada Native American tribes. The trade mission was a two day workshop and field trip held on October 11 & 12, 2005 with 44 in attendance representing 12 tribes. Per-diem allowances were made so the tribal groups could attend the workshop. The format followed similar trade missions done for Alaska, Idaho and Colorado. In addition to the trade mission, funding was used to allow 3 members of the geothermal working group to attend the Geothermal Research Council annual meeting and the Geopowering the West states meeting that followed. The NDOM also published a bi-monthly news letter on geothermal activities in the state. Actual expenditures on this contract were \$30,982.

The GBCGE grant was for \$38,708 was for geothermal outreach and education. This group had a workshop based on recent advances and discoveries in geothermal systems during which a new map of geothermal resources and wells drilled in the state was shown. This was on November 5, 2004 with 125 in attendance along with Senator Reid. Actual expenditures on the grant were \$38,708.

The REET grant of \$28,385 was for geothermal public policy outreach and education workshop. To prepare for the workshop, telephone interviews were held with electric utilities, renewable energy developers, financial entities, state regulators and others familiar with the Nevada renewable portfolio standard (RPS) to identify specific barriers and identify legislative or regulative changes necessary to promote geothermal activities. The workshop presented the preliminary results of the interviews and explored the issues brought up with a broader audience of state, county and city officials, utility regulators, project developers, land owners and economists. 164 people were invited and 60 were in attendance. The conference was on November 4, 2004 and the final report was issued on December 20, 2004. Actual expenditures on this grant was \$28,385.

Grant administration charges were \$8,806.46. The total for the expenditures was \$106,881.46 leaving \$20,457.54. There are two options that the funding could be used for. First, the \$20,000 could be used to support the geothermal academy in the 2012 fiscal year for scholarships as funding for scholarships is not available for the summer of 2012. This would not be a duplication of funding for the event. All the funding would be used for scholarships with 10% held back for administrative costs. Second, activities that the funds may be used for would be \$10,343 to the Division of Minerals to send 4 state employees

(2 from the Division of Minerals, 1 from the Commission on Mineral Resources and 1 from the Energy Office) to the Geothermal Resources Council annual meeting in San Diego in October. The funds would be used for the meeting registration, an exhibit booth, hotel expense, per diem, a rental car and air fare. The remaining funds would be used to update video equipment at the Renewable Energy Center (geothermal) at the Redfield Campus of UNR.

The selected method of spending the funding was to support the Geothermal Academy that was created under seed funding from the DOE. The University of Nevada, Reno (UNR) developed an 8 week course in geothermal development which included the following modules:

- Introduction to Geothermal Energy Utilization
- Geothermal Geology and Geochemistry
- Field Trips
- Geothermal Geophysics
- Drilling Engineering
- Reservoir Engineering
- Reservoir Engineering
- Power Plant Design and Construction
- Environmental Policy, Business Principles and Development
- Group and Independent Projects

The NSOE provided tuition support for some attendees to the 8 week summer 2012 Academy. Ten attendees were supported including 4 graduate students, 4 undergraduate students and an engineering student and geoscience student that attended for 3 weeks. The NSOE attended the closing ceremony that was held on August 10, 2012 and included 21 students that were recognized and 12 poster presentations. The funding for the Academy was \$19,000 and the remaining funds of \$1,457.54 were utilized by the NSOE for close out and monitoring of the Academy.