4.1.1 Feasibility of EGS Development at Brady's Hot Springs, Nevada

Presentation Number: 006
Investigator: Krieger, Zvi (ORMAT Nevada, Inc.)
Objectives: To stimulate permeability in tight well 15-12 and improve connection to the rest of the field; improve overall productivity or injectivity.
Average Overall Score: 2.7/4.0

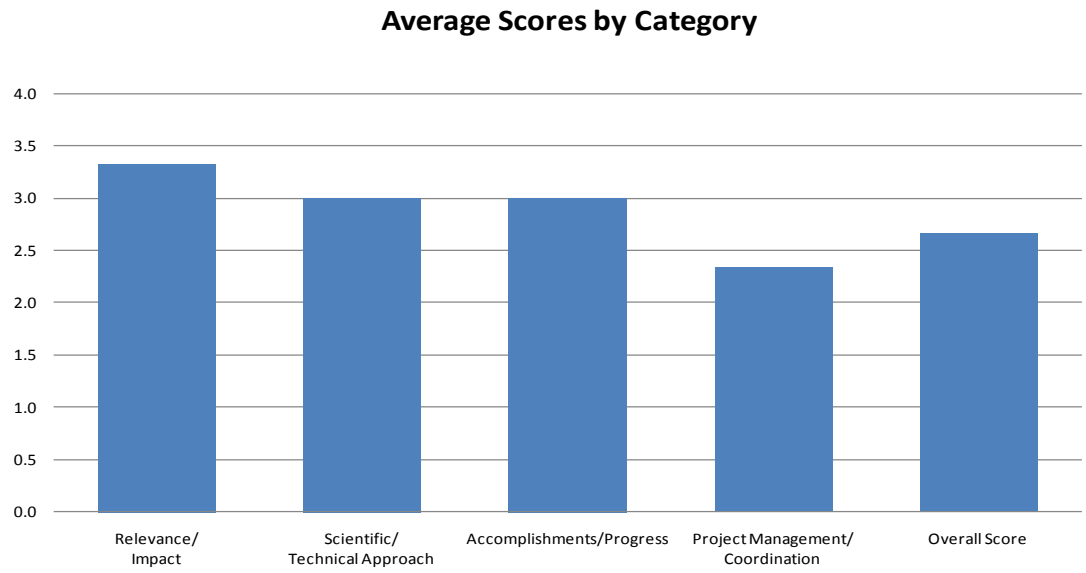

Figure 5: Feasibility of EGS Development at Brady's Hot Springs, Nevada

4.1.1.1 Relevance/Impact of the Research

Ratings of Three-member Peer Review Panel: Good (3), Outstanding (4), Good (3)

Supporting comments:

- The project is only 10% complete, however the objectives of the project seem in line with the Program's need to demonstrate the ability to develop EGS projects as well as improve the needed scientific base.

- This important project, if successful, would develop and demonstrate EGS technology to create permeability in tight rocks in the vicinity of an operating hydrothermal system.

- The Brady's EGS demonstration project's goal is to enhance permeability in 15-12 ST1 to increase generation at the Brady's Power plant by 2-3 MW. If successful, this project will make an important contribution to the Geothermal Program mission. The project activities could solve known technical barriers such as stimulating permeability in tight wells and improving connectivity and overall productivity or injectivity. If this project is successfully completed, this reviewer is confident that

the EGS program will benefit greatly and that the results will surely add to the EGS technology knowledge base and toolbox.

4.1.1.2 Scientific/Technical Approach

Ratings of Three-member Peer Review Panel: Outstanding (4), Good (3), Fair (2)

Supporting comments:

- Well laid out project that, if executed, addresses numerous scientific issues.
- The technical approach appears to be sound and was designed by a team having extensive geothermal energy experience.
- The overall technical approach is uninspired. This work is not state-of-the-art R&D but rather applied technology, which is appropriate for a demonstration project. There are adequate resources but insufficient information was presented to assess the scientific rigor of the work elements, procedures and methods. It is not clear to this reviewer that the project will achieve the objectives. The design of the project is straightforward but the technical approach is inadequately described and not clearly laid-out in the tasks provided and project timeline. It is recommended that a task timeline be developed that will assist in managing the schedule and costs.

4.1.1.3 Accomplishments, Expected Outcomes and Progress

Ratings of Three-member Peer Review Panel: Good (3), Good (3), Good (3)

Supporting comments:

- Very strong team of researchers, but being only 10% complete the project needs to be focused to make sure it is completed by June 2012.
- The project started in June of 2009, and a year later is 10% complete. In view of the overall project, this is probably adequate progress. The team assembled for the project is very capable.
- The overall quality of the research team, equipment and facilities is good. The reviewer does not know the PI but some of the researchers on this team are known to this reviewer and are of the highest caliber. Relevant experience and the balance of appropriate skills of the research team are of excellent quality. However, the project is behind schedule with schedule variance at roughly -24% based on a supplied 10% scope complete in 34% of the total project time. Project cost variance was not calculated since current costing was not supplied.

4.1.1.4 Project Management/Coordination

Ratings of Three-member Peer Review Panel: Good (3), Good (3) , Fair (1)

Supporting comments:

- The ability to effectively manage and coordinate the project participants is a concern given the schedule slips associated with the Desert Peak project that has a similar project team.

- No decision points are called out, and the project has not proceeded far enough to judge the quality of the management accurately.

- The technical, policy, business, and spend plans for the project were not presented and therefore this reviewer was not able to assess them adequately. In addition, there are no decisions points presented in the schedule.

4.1.1.5 Overall

Ratings of Three-member Peer Review Panel: Good (3), Good (3), Fair (2)

Supporting comments:

- Like all of the demonstration projects, there is the possibility of good science and understanding that will come from it. However, it is necessary that the project stay focused on the need to demonstrate EGS development. Why was a written summary not submitted?

- Overall, this project can be expected to generate a great deal of useful information on EGS technology.

- Overall, this is a fair project and this reviewer recommends that the project be put on hold until more detailed review can be made. The project is seriously behind schedule, which should be further investigated by the Program Manager and the information presented was not sufficient in order to assess project schedule and cost variance or evaluate the project plans. It is recommended that Program Manager request the PI to submit a detailed project plan with tasks and fully-loaded with costs.

4.1.1.6 PI Response

No response.