QUESTIONNAIRE

BTU Engineering, Inc.
3727 Western Ave. S.
Brookings, SD 57006

www.BTU-Engineering.com
BTU@BTU-Engineering.com
Phone: 888.288.2126
FAX: 888.288.2139

GEOTHERMAL TECHNICAL REPORT QUESTIONNAIRE
(Projects under $200,000)

Please respond to the following questions and requests for information and/or statements. The level of detail and pace at which these items are responded will directly affect the speed at which the Technical Report can be successfully completed. It will be necessary to use additional sheets. Note that sample answers have been provided for select questions as a guide.

A) Identify each of the following project service providers (if it does not apply, please explain). For each, authoritative evidence that project team service providers have the necessary professional credentials or relevant experience to perform the required services MUST be provided. Include the following:

- Contact Information (name, address, e-mail, website, etc.)
- Qualifications - Describe, in detail, their qualifications (include relevant certifications)
- References - List of the same or similarly engineered projects designed, installed, or supplied (include contact information for each)

(1) Equipment Supplier(s) of Major Components

- **Contact Information:**
- **Qualifications:**
- **References:**

(2) Construction Contractor/Installer and Service Provider

- **Contact Information:**

Green Construction
1000 Main Ave.
Brookings, SD 57006
Email: green@green.com
Representative: John Green
Phone: 605.888.8888

- **Qualifications:**

The completion of the project will be accomplished by Green Construction. Green Construction has been in business since 2000 in Brookings, SD and is a full service heating, ventilation, and cooling contractor specializing in energy efficient system installation and service, especially geothermal systems. Green Construction incorporated in 2008 and has grown considerably every year it has been in business due to its strong emphasis on quality customer service and expertise in design and installation of its systems. Green Construction has experience in designing and installing systems from 2 to 30 tons both water to air and water to water configurations.

The president/owner John Green has been in the HVAC industry for over 23 years. During that time Mr. Green has had extensive experience with all sizes of projects, and in all aspects of installation management and design including 3 years working as a design engineer for an engineering firm designing HVAC systems of all sizes, with the majority of the systems being geothermal.

Green Construction employees attend product and system training on a regular basis and are certified to install many manufacturer's equipment and materials. Green Construction has a complete custom sheet metal fabricating shop and custom fabricates its sheet metal ducting systems. Green Construction also uses the most current technology and equipment during the installation and servicing of its systems including AutoCad 20080LT drafting software, Design2Fab sheet metal layout software, WrightSoft Manual J load calculation and design software, CNC operated sheet metal layout table, and many industry specific diagnostic tools and equipment for excellent installation and diagnosis of HVAC systems.

Green Construction is a member of the Brookings Area Home Builder's Association, National Federation of Independent Businesses, South Dakota Retailer's Association, and National Write Your Congressman.

- **References:**

Brown Properties
P.O. Box 1111
Brookings, SD 57007
Ph: 605.000.0001

Chris Smith
88888 888th St.
Aberdeen, SD 57401
Ph: 605.000.0002

(3) Project Manager/Applicant

- **Contact Information:**
- **Qualifications:**
- **References:**

B) Have you identified all environmental issues, including environmental compliance issues, associated with the project on Form RD 1940-20? "Request for Environmental Information"? Contact your local USDA Representative for more information.

C) Describe, in detail, the geothermal heat pump loop field. Where is it located? How many boreholes are required? What is the nominal borehole depth? How much area is needed (ft^2)? How much area is available (ft^2)?

Sufficient area is available for installation of the geothermal heat pump loop field. At the designed capacity of the system, approximately 1,800 ft^2 of loop field is required for the 10 boreholes at a nominal borehole depth of 200 ft. Discussion with the applicant has indicated that approximately 6,000 ft^2 of area is available adjacent to the proposed site for the loopfield. This provides ample ground mass required to obtain the available renewable resource.

D) Provide a detailed drawing of the proposed building. Include all exterior dimensions including building width, length, and height. In addition, provide locations of windows and doors. If available, provide digital photographs of the proposed building.

E) Please provide a picture (digital or otherwise) of the existing building and/or proposed site.

F) Provide wall, roof, window, and door construction details for the proposed building. At a minimum, provide R and/or U-values.

Roof Construction	Wood Framed w/ R-38 Insulation
Wall Construction	Wood Framed w/ R-19 Insulation
Window Construction	U = 0.48 Btu/h-ft2-°F / SHGC = 0.56

G) Identify all suppliers, manufacturers, and model numbers for all major pieces of equipment.

Hydron Module:
H-Series Water to Water Heat Pump - Model H062-11-IWS

York:
Modular Variable Speed Air Handler - MV20DN21

H) Provide performance specifications (specification sheets) for all major pieces of equipment.

I) Provide a detailed project schedule. Identify each significant task including its beginning and end dates. Include such items as: system and site design, permits and agreements, equipment procurement and system installation from site preparation through startup and shakedown

among others. Identify specific issues associated with installation, including details regarding the scheduling of major installation equipment.

Project initiation is to begin by researching all necessary permits and agreements for the project. These were obtained by May 8, 2009. All equipment was selected and ordered to coincide with a May 25, 2009 starting date. Site preparation will be completed as necessary for any drilling or equipment to meet the start date. Electrical work was completed as outlined by the bid on an as needed basis by May 22, 2009. Installation of necessary duct work will begin May 25, followed by installation of equipment, and well drilling to follow as weather permits. The project will be completed no later than September 30, 2009.

J) If this is a retrofit project, provide 12 months of utility bills (electric and fuel). In addition, provide a detailed description of the existing heating and cooling system.

K) Provide a summary (quotes) of all eligible costs.

L) Provide a summary of any other investment incentives. This might include rebates from your utility provider and/or a reduced geothermal electrical rate.

Several investment incentives are available from the utility provider. First, a rebate of $700 is available for the installation of geothermal equipment with an EER of 14.5 or greater. This rebate is reflected in the eligible cost summary. Second, a geothermal electric rate of $0.041/kWh is available versus the standard rate of $0.075/kWh.

M) Provide a summary of design life for all equipment.

The expected design life of the well-field will be indefinitely.
The expected design life of the fan coils will be 15-20 years.
The expected design life of the pumps will be 10 years.
The expected design life of the piping will be indefinitely.
The expected design life of the heat pumps will be 15-20 years.

N) Provide information regarding component warranties for all equipment.

Green Equipment Supply indicated that the Hydron geothermal heat pumps have a 2 year warranty on parts and labor and 5 year warranty on the compressor. The York air handling unit has a 5 year warranty on parts and a one year warranty on labor. All warranties are covered by the manufacturer except for labor which is covered by Green Equipment Supply.

O) Review and sign the following statement.

Technical Requirements Certifications

WHEREAS, _____ herein call the "Grantee", intends to obtain assistance from the United States of America, acting through the U.S. Department of Agriculture, herein called the "Government", acting under the provisions of the Renewable Energy Systems and Energy Efficiency Improvements Program, 4280-B regulations.

NOW THEREFORE, the Grantee hereby certifies the following technical requirements have been or will be met:

1. The proposed project will be installed according to applicable federal, state, and local codes and regulations.

2. The applicant will comply with all necessary agreements and permits for the energy efficiency improvement(s).

3. For the project, "open and free" competition will be used for the procurement of components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

4. Equipment installation will be made in accordance with all applicable safety and work rules. Additionally, the Grantee agrees that upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

5. Project components will be dismantled or disposed of as appropriate or if necessary to ensure public safety at the end of their useful lives.

6. Project developer will hold appropriate liability insurance.

7. The project will be completed within two years from date of the approval.

IN WITNESS WHEREOF, I have executed this _____ day of _____, 20____.

_____
Grantee

_____
Grantee