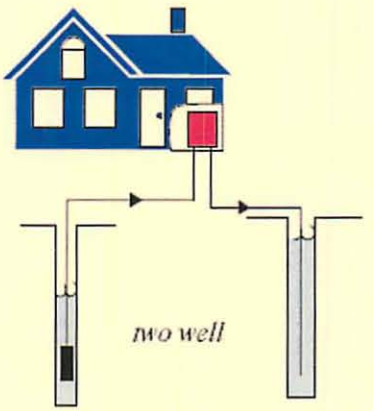
5464-02

Hart Dairy Heating and Cooling Energy Efficiency Improvement

A Proposal Prepared for the United States Department Of Agriculture
2002 Farm bill Initiative: The Renewable Energy And Energy Efficiency Program
USDA Farm Bill Section 9006

For Purchase and Installation of a Geothermal Heat Pump Well-to-Well Energy Efficient System at the Hart Dairy Farm in Shelly, Idaho



This template has been prepared as a guide to allow users to see the type of information required to receive grant funding from the USDA Section 9006 program. This template uses fictitious names, dollar values and project descriptions. It was prepared as an example of what a complete proposal submitted to the USDA under the Renewable Energy Systems guidelines might look like. This template was not prepared by and has not been approved or scored by the USDA.

The project described in this proposal is for purchasing and installing an Energy Efficiency Improvement system (Ground Source Heat Pump).

August 2006

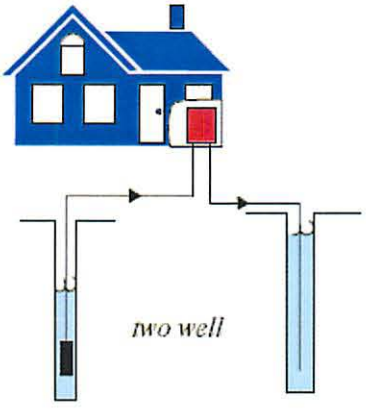
Prepared by:
Idaho National Lab and Geo-Heat Center

DISCLAIMER

Hart Dairy Heating and Cooling Energy Efficiency Improvement

A Proposal Prepared for the United States Department Of Agriculture
2002 Farm bill Initiative: The Renewable Energy And Energy Efficiency Program
USDA Farm Bill Section 9006

For Purchase and Installation of a Geothermal Heat Pump Well-to-Well Energy Efficient System at the Hart Dairy Farm in Shelly, Idaho



This template has been prepared as a guide to allow users to see the type of information required to receive grant funding from the USDA Section 9006 program. This template uses fictitious names, dollar values and project descriptions. It was prepared as an example of what a complete proposal submitted to the USDA under the Renewable Energy Systems guidelines might look like. This template was not prepared by and has not been approved or scored by the USDA.

The project described in this proposal is for purchasing and installing an Energy Efficiency Improvement system (Ground Source Heat Pump).

August 2006

Table of Contents

I. Forms, Certifications and Organizational Documents

This section contains the following forms and certifications required by the USDA 9006 program.

Form SF-424 "Application for Federal Assistance"

FormSF-424C "Budget Information – Construction Programs"

Form SF-424D "Assurances – Construction Programs"

Form RD 1940-20 "Request for Environmental Information"

AD-1049 "Certification Regarding Drug-Free Workplace Requirements (Grants) Alternative 1-For Grantees Other than Individuals"

AD-1048 "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tiered Covered Transactions"

Exhibit A-1 of RD Instruction 1940-Q "Certification for Contracts Grants and Loans"

Form SF-LLL "Disclosure of Lobbying Activities"

AD-1047 "Certification Regarding Debarment, Suspension, and Other Responsibility Matters – Primary Covered Transactions"

Form RD 400-1 "Equal Opportunity Agreement

Form RD 400-4 "Assurance Agreement"

APPLICATION FOR FEDERAL ASSISTANCE Version 7/03

		2. DATE SUBMITTED 29 September 2006	Applicant Identifier
1. TYPE OF SUBMISSION: Application ☑ Construction ☐ Non-Construction	Pre-application ☐ Construction ☐ Non-Construction	**3. DATE RECEIVED BY STATE**	State Application Identifier
		4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

5. APPLICANT INFORMATION

Legal Name: Lee Hart		Organizational Unit: Department:	
Organizational DUNS:		Division:	
Address: Street: P.O. Box 6748		Name and telephone number of person to be contacted on matters involving this application (give area code) Prefix: 208 -526-1000	First Name:
City: Shelly		Middle Name	
County: Bingham		Last Name	
State: Idaho	Zip Code 83402	Suffix:	
Country:		Email:	
6. EMPLOYER IDENTIFICATION NUMBER *(EIN)*: x x – x x x x x x x		Phone Number (give area code)	Fax Number (give area code)

8. TYPE OF APPLICATION: ☑ New ☐ Continuation ☐ Revision If Revision, enter appropriate letter(s) in box(es) (See back of form for description of letters.) ☐ ☐ Other (specify)	**7. TYPE OF APPLICANT:** (See back of form for Application Types) L Other (specify)
	9. NAME OF FEDERAL AGENCY: United States Department of Agriculture
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: ☐☐-☐☐☐ TITLE (Name of Program):	**11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:** Use of Geothermal Resources for Heating and Processing At a Dairy
12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.)*:	

13. PROPOSED PROJECT		**14. CONGRESSIONAL DISTRICTS OF:**	
Start Date: 31 October 2006	Ending Date: 7 March 2007	a. Applicant Mike Simpson - Idaho 2nd	b. Project Mike Simpson - Idaho 2nd

15. ESTIMATED FUNDING:		**16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?**	
a. Federal	$ 21,895	a. Yes. ☐ THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON DATE:	
b. Applicant	$ 65,685		
c. State	$		
d. Local	$ 0	b. No. ☐ PROGRAM IS NOT COVERED BY E. O. 12372	
e. Other	$ 0	☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW	
f. Program Income	$ 0	**17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?**	
g. TOTAL	$ 87,580	☐ Yes If "Yes" attach an explanation.	☑ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Authorized Representative

Prefix Mr.	First Name Lee	Middle Name
Last Name Hart		Suffix
b. Title		c. Telephone Number (give area code) 208-526-1000
d. Signature of Authorized Representative		e. Date Signed 29 September 2006

Previous Edition Usable
Authorized for Local Reproduction

Standard Form 424 (Rev.9-2003)
Prescribed by OMB Circular A-102

Reset Form

INSTRUCTIONS FOR THE SF-424

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0043), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form used by applicants as a required face sheet for pre-applications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

Item:	Entry:	Item:	Entry:
1.	Select Type of Submission.	11.	Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project.
2.	Date application submitted to Federal agency (or State if applicable) and applicant's control number (if applicable).	12.	List only the largest political entities affected (e.g., State, counties, cities).
3.	State use only (if applicable).	13	Enter the proposed start date and end date of the project.
4.	Enter Date Received by Federal Agency Federal identifier number: If this application is a continuation or revision to an existing award, enter the present Federal identifier number. If for a new project, leave blank.	14.	List the applicant's Congressional District and any District(s) affected by the program or project
5.	Enter legal name of applicant, name of primary organizational unit (including division, if applicable), which will undertake the assistance activity, enter the organization's DUNS number (received from Dun and Bradstreet), enter the complete address of the applicant (including country), and name, telephone number, e-mail and fax of the person to contact on matters related to this application.	15	Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate only the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15.
6.	Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service.	16.	Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process.
7.	Select the appropriate letter in the space provided. A. State B. County C. Municipal D. Township E. Interstate F. Intermunicipal G. Special District H. Independent School District I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify) O. Not for Profit Organization	17.	This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes.
8.	Select the type from the following list: • "New" means a new assistance award. • "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date. • "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation. If a revision enter the appropriate letter: A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration	18	To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.)
9.	Name of Federal agency from which assistance is being requested with this application.		
10.	Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested.		

SF-424 (Rev. 7-97) Back

OMB Approval No. 0348-0041

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	$ 0.00	$ 0.00	$ 0.00
2. Land, structures, rights-of-way, appraisals, etc.	$ 0.00	$ 0.00	$ 0.00
3. Relocation expenses and payments	$ 0.00	$ 0.00	$ 0.00
4. Architectural and engineering fees	$ 16,260.00	$ 0.00	$ 16,260.00
5. Other architectural and engineering fees	$ .00	$ 0.00	$ 0.00
6. Project inspection fees	$ .00	$ 0.00	$ 0.00
7. Site work	$ .00	$ 0.00	$ 0.00
8. Demolition and removal	$ 0.00	$ 0.00	$ 0.00
9. Construction	$ 21,000.00	$ 0.00	$ 21,000.00
10. Equipment	$ 50,320.00	$ 0.00	$ 50,320.00
11. Miscellaneous	$ .00	$ 0.00	$ 0.00
12. SUBTOTAL *(sum of lines 1-11)*	$ 87,580.00	$ 0.00	$ 87,580.00
13. Contingencies	$ .00	$ 0.00	$ 0.00
14. SUBTOTAL	$ 87,580.00	$ 0.00	$ 87,580.00
15. Project (program) income	$ 0.00	$ 0.00	$ 0.00
16. TOTAL PROJECT CCSTS *(subtract #15 from #14)*	$ 87,580.00	$ 0.00	$ 87,580.00
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible costs from line 16c Multiply X 25.00 % To autocalculate, press TAB key after entering percent. These instructions will not print.		$ 21,895.00

Previous Edition Usable

Authorized for Local Reproduction

Standard Form 424C (Rev. 7-97)
Prescribed by OMB Circular A-102

INSTRUCTIONS FOR THE SF-424C

Public reporting burden for this collection of information is estimated to average 180 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0041), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This sheet is to be used for the following types of applications: (1) "New" (means a new [previously unfunded] assistance award); (2) "Continuation" (means funding in a succeeding budget period which stemmed from a prior agreement to fund); and (3) "Revised" (means any changes in the Federal Government's financial obligations or contingent liability from an existing obligation). If there is no change in the award amount, there is no need to complete this form. Certain Federal agencies may require only an explanatory letter to effect minor (no cost) changes. If you have questions, please contact the Federal agency.

Column a. - If this is an application for a "New" project, enter the total estimated cost of each of the items listed on lines 1 through 16 (as applicable) under "COST CLASSIFICATION."

If this application entails a change to an existing award, enter the eligible amounts *approved under the previous award* for the items under "COST CLASSIFICATION."

Column b. - If this is an application for a "New" project, enter that portion of the cost of each item in Column a. which is *not* allowable for Federal assistance. Contact the Federal agency for assistance in determining the allowability of specific costs.

If this application entails a change to an existing award, enter the adjustment [+ or (-)] to the previously approved costs (from column a.) reflected in this application.

Column. - This is the net of lines 1 through 16 in columns "a." and "b."

Line 1 - Enter estimated amounts needed to cover administrative expenses. Do not include costs which are related to the normal functions of government. Allowable legal costs are generally only those associated with the purchases of land which is allowable for Federal participation and certain services in support of construction of the project.

Line 2 - Enter estimated site and right(s)-of-way acquisition costs (this includes purchase, lease, and/or easements).

Line 3 - Enter estimated costs related to relocation advisory assistance, replacement housing, relocation payments to displaced persons and businesses, etc.

Line 4 - Enter estimated basic engineering fees related to construction (this includes start-up services and preparation of project performance work plan).

Line 5 - Enter estimated engineering costs, such as surveys, tests, soil borings, etc.

Line 6 - Enter estimated engineering inspection costs.

Line 7 - Enter estimated costs of site preparation and restoration which are not included in the basic construction contract.

Line 9 - Enter estimated cost of the construction contract.

Line 10 - Enter estimated cost of office, shop, laboratory, safety equipment, etc. to be used at the facility, if such costs are not included in the construction contract.

Line 11 - Enter estimated miscellaneous costs.

Line 12 - Total of items 1 through 11.

Line 13 - Enter estimated contingency costs. (Consult the Federal agency for the percentage of the estimated construction cost to use.)

Line 14 - Enter the total of lines 12 and 13.

Line 15 - Enter estimated program income to be earned during the grant period, e.g., salvaged materials, etc.

Line 16 - Subtract line 15 from line 14.

Line 17 - This block is for the computation of the Federal share. Multiply the total allowable project costs from line 16, column "c." by the Federal percentage share (this may be up to 100 percent; consult Federal agency for Federal percentage share) and enter the product on line 17.

OMB Approval No. 0348-0042

ASSURANCES - CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property aquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.

4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.

5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.

6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).

9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.

14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE Owner
APPLICANT ORGANIZATION Hart Dairy	DATE SUBMITTED September 7, 2006

SF-424D (Rev. 7-97) Back

USDA
Form RD 1940-20
(Rev. 6-99)

Position 3

FORM APPROVED
OMB No. 0575-0094

REQUEST FOR ENVIRONMENTAL INFORMATION

Name of Project

Location

Item 1a. Has a Federal, State, or Local Environmental Impact Statement or Analysis been prepared for this project?
☐ Yes ☐ No ☐ Copy attached as EXHIBIT I-A.

1b. If "No." provide the information requested in Instructions as EXHIBIT I.

Item 2. The State Historic Preservation Officer (SHOP) has been provided a detailed project description and has been requested to submit comments to the appropriate Rural Development Office. ☐ Yes ☐ No Date description submitted to SHPO _____

Item 3. Are any of the following land uses or environmental resources either to be affected by the proposal or located within or adjacent to the project site(s)? *(Check appropriate box for every item of the following checklist).*

	Yes	No	Unknown		Yes	No	Unknown
1. Industrial	☐	☐	☐	19. Dunes	☐	☐	☐
2. Commercial	☐	☐	☐	20. Estuary	☐	☐	☐
3. Residential	☐	☐	☐	21. Wetlands	☐	☐	☐
4. Agricultural	☐	☐	☐	22. Floodplain	☐	☐	☐
5. Grazing	☐	☐	☐	23. Wilderness *(designated or proposed under the Wilderness Act)*	☐	☐	☐
6. Mining, Quarrying	☐	☐	☐				
7. Forests	☐	☐	☐	24. Wild or Scenic River *(proposed or designated under the Wild and Scenic Rivers Act)*	☐	☐	☐
8. Recreational	☐	☐	☐				
9. Transportation	☐	☐	☐	25. Historical, Archeological Sites *(Listed on the National Register of Historic Places or which may be eligible for listing)*	☐	☐	☐
10. Parks	☐	☐	☐				
11. Hospital	☐	☐	☐	26. Critical Habitats *(endangered /threatened species)*	☐	☐	☐
12. Schools	☐	☐	☐				
13. Open spaces	☐	☐	☐	27. Wildlife	☐	☐	☐
14. Aquifer Recharge Area	☐	☐	☐	28. Air Quality	☐	☐	☐
15. Steep Slopes	☐	☐	☐	29. Solid Waste Management	☐	☐	☐
16. Wildlife Refuge	☐	☐	☐	30. Energy Supplies	☐	☐	☐
17. Shoreline	☐	☐	☐	31. Natural Landmark *(Listed on National Registry of Natural Landmarks)*	☐	☐	☐
18. Beaches	☐	☐	☐	32. Coastal Barrier Resources System	☐	☐	☐

Item 4. Are any facilities under your ownership, lease, or supervision to be utilized in the accomplishment of this project, either listed or under consideration for listing on the Environmental Protection Agency's List of Violating Facilities? ☐ Yes ☐ No

_____ *(Date)*

Signed: _____ *(Applicant)*

_____ *(Title)*

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collections is 0575-0094. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

INSTRUCTIONS FOR PREPARING FORM RD 1940-20

Federal agencies are required by law to independently assess the expected environmental impacts associated with proposed Federal actions. It is extremely important that the information provided be in sufficient detail to permit Rural Department to perform its evaluation. Failure to provide sufficient data will delay agency review and a decision on the processing of your application.

This information request is designed to obtain an understanding of the area's present environmental condition and the project's elements that will affect the environment. Should you believe that an item does not need to be addressed for your project, consult with the RD office from which you received this Form before responding. In all cases when it is believed that an item is not applicable, explain the reasons for this belief.

It is important to understand the comprehensive nature of the information requested. Information must be provided for a) the site(s) where the project facilities will be constructed and the surrounding areas to be directly and indirectly affected by its operation and b) the areas affected by any primary beneficiaries of the project. The amount of detail should be commensurate with the complexity and size of the project, and the magnitude of the expected impact. Some examples:

A small community center project may not require detailed information on air emissions, meteorological conditions and solid waste management.

A water resource, industrial development, or housing development project will require detailed information.

Item 1a - Compare the Environmental Impact Statement or Analysis that was previously prepared with the information requested in the instructions for Item 1b below to be sure that every point in the information request is covered in the Environmental Impact Statement or Analysis. If any of the requested information is not covered, attach to the Environmental Impact Statement or Analysis a supplemental document that corrects any deficiencies or omissions.

Item 1b - Provide responses to the following items in the order listed and attach as EXHIBIT I. In order to understand the full scope of the land uses and environmental factors that need to be considered in responding to these items, it may be helpful to complete Item 3 of the Form before completing these narrative responses. If your application is for a project that Rural Development has classified as a Class I action, complete only parts (1), (2), (13), (15), (16), and (17) of this Item. The Rural Development office from which you received this Form can tell you if your application falls within the Class I category.

(1) Primary Beneficiaries

Identify any existing businesses or major developments that will benefit from the proposal, and those which will expand or locate in the area because of the project. These businesses or major developments hereafter will be referred to as primary beneficiaries.

(2) Area Description

(a) Describe the size, terrain, and present land uses as well as the adjacent land uses of the areas to be affected. These areas include the site(s) of construction or project activities, adjacent areas, and areas affected by the primary beneficiaries.

(b) For each box checked "Yes" in item 3, describe the nature of the effect on the resource. If one or more of boxes 17 through 22 is checked "Yes" or "Unknown," contact Rural Development for instructions relating to the requirements imposed by the Floodplain Management and Wetland Protection Executive Orders.

(c) Attach as Exhibit II the following: 1) a U.S. Geological Survey "15 minute" ("7 1/2 minute" if available) topographic map which clearly delineates the area and the location of the project elements; 2) the Federal Emergency Management Administration's floodplain map(s) for the project area; 3) site photos; 4) if completed, a standard soil survey for the project area; and 5) if available, an aerial photograph of the site. If a floodplain map is not available, contact Rural Development for additional instructions relating to the requirements imposed by the Floodplain Management Executive Order.

(3) Air Quality

(a) Provide available air quality data from the monitoring station(s) either within the project area or, if none exist nearest the project area.

(b) Indicate the types and quantities of air emissions to be produced by the project facilities and its primary beneficiaries. If odors will occur, indicate who will be affected.

(c) Indicate if topographical or meteorological conditions hinder the dispersal of air emissions.

(d) Indicate the measures to be taken to control air emissions.

(4) Water Quality

(a) Provide available data on the water quality of surface or underground water in or near the project area.

(b) Indicate the source, quality, and available supply of raw water and the amount of water which the project is designed to utilize.

(c) Describe all of the effluents or discharges associated with the project facilities and its primary beneficiaries. Indicate the expected composition and quantities of these discharges prior to any treatment processes that they undergo and also prior to their release into the environment.

(d) Describe any treatment systems which will be used for these effluents and indicate their capacities and their adequacy in terms of the degree and type of treatment provided. Indicate all discharges which will not be treated. Describe the receiving waters and their uses (e.g., recreational) for any sources of treated and untreated discharge.

(e) If the treatment systems are or will be inadequate or overloaded, describe the steps being taken for necessary improvements and their completion dates.

(f) Describe how surface runoff will be handled if not discussed in (d) above.

(5) Solid Waste Management

(a) Indicate the types and quantities of solid wastes to be produced by the project facilities and its primary beneficiaries.

(b) Describe the methods for disposing of these solid wastes plus the useful life of such methods.

(c) Indicate if recycling or resource recovery programs are or will be used.

(6) Transportation

(a) Briefly describe the available transportation facilities serving the project area.

(b) Describe any new transportation patterns which will arise because of the project.

(c) Indicate if any land uses, such as residential, hospitals, schools or recreational, will be affected by these new patterns.

(d) Indicate if any existing capacities of these transportation facilities will be exceeded. If so, indicate the increased loads which the project will place upon these facilities, particularly in terms of car and truck traffic.

(7) Noise

(a) Indicate the major sources of noise associated with the project facilities and its primary beneficiaries.

(b) Indicate the land uses to be affected by this noise.

(8) Historic/Archeological Properties

(a) Identify any known historic/archeological resources within the project area that are either listed on the National Register of Historic Places or considered to be of local and state significance and perhaps eligible for listing in the National Register.

(b) Attach as EXHIBIT III any historical/archeological survey that has been conducted for the project area.

(9) Wildlife and Endangered Species

(a) Identify any known wildlife resources located in the project area or its immediate vicinity.

(b) Indicate whether to your knowledge any endangered or threatened species or critical habitat have been identified in the project area or its immediate vicinity.

(10) Energy

(a) Describe the energy supplies available to the project facilities and the primary beneficiaries.

(b) Indicate what portion of the remaining capacities of these supplies will be utilized.

(11) Construction

Describe the methods which will be employed to reduce adverse impacts from construction, such as noise, soil erosion and siltation.

(12) Toxic Substances

(a) Describe any toxic, hazardous, or radioactive substances which will be utilized or produced by the project facilities and its primary beneficiaries.

(b) Describe the manner in which these substances will be stored, used, and disposed.

(13) Public Reaction

(a) Describe any objections which have been made to the project.

(b) If a public hearing has been held, attach a copy of the transcript as EXHIBIT IV. If not, certify that a hearing was not held.

(c) Indicate any other evidence of the community's awareness of the project such as through newspaper articles or public notification.

(14) Alternatives to the Proposed Project

Provide a description of any of the following types of alternatives which were considered:

(a) Alternative locations.

(b) Alternative designs.

(c) Alternative projects having similar benefits.

(15) Mitigation Measures

Describe any measures which will be taken to avoid or mitigate any adverse environmental impacts associated with the project.

(16) Permits

(a) Identify any permits of an environmental nature which are needed for the project.

(b) Indicate the status of obtaining each such permit and attach as EXHIBIT V any that have been received.

(17) Other Federal Actions

Identify other federal programs or actions which are either related to this project or located in the same geographical area and for which you are filing an application, have recently received approval, or have in the planning stages.

Item 2 - All applicants are required to provide the State Historic Preservation Officer (SHPO) with (a) a narrative description of the project's elements and its location, (b) a map of the area surrounding theproject which identifies the project site, adjacent streets and other identifiable objects, (c) line drawings or sketches of the project and (d) photographs of the affected properties if building demolition or renovation is involved. This material must be submitted to the SHPO no later than submission of this Form to Rural Development . Additionally, the SHPO must be requested to submit comments on the proposed project to the Rural Development office processing your application.

Item 3 - Self-explanatory.

Item 4 - Self-explanatory.

UNITED STATES DEPARTMENT OF AGRICULTURE
CERTIFICATION REGARDING
DRUG-FREE WORKPLACE REQUIREMENTS (GRANTS)
ALTERNATIVE I - FOR GRANTEES OTHER THAN INDIVIDUALS

This certification is required by the regulations implementing Sections 5151-5160 of the Drug-Free Workplace Act of 1988 (Pub. L. 100-690, Title V, Subtitle D; 41 U.S.C. 701 *et seq.*), 7 CFR Part 3017, Subpart F, Section 3017.600, Purpose. The January 31, 1989, regulations were amended and published as Part II of the May 25, 1990 Federal Register (pages 21681-21691). Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the grant.

(Before completing Certification, read instructions on page 2)

Alternative I

A. The grantee certifies that it will or will continue to provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing an ongoing drug-free awareness program to inform employees about --

(1) The dangers of drug abuse in the workplace;

(2) The grantee's policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --

(1) Abide by the terms of the statement; and

(2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

(e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

(f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --

(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, State, zip code)

_____

_____

_____

Check ☐ if there are workplaces on file that are not identified here.

_____
Organization Name

_____
Award Number or Project Name

_____
Name and Title of Authorized Representative

_____
Signature Date

INSTRUCTIONS FOR CERTIFICATION

1. By signing and submitting this form, the grantee is providing the certification set out on pages 1 and 2.

2. The certification set out on pages 1 and 2 is a material representation of fact upon which reliance is placed when the agency awards the grant. If it is later determined that the grantee knowingly rendered a false certification, or otherwise violates the requirements of the Drug-Free Workplace Act, the agency, in addition to any other remedies available to the Federal Government, may take action authorized under the Drug-Free Workplace Act.

3. Workplaces under grants, for grantees other than individuals, need not be identified on the certification. If known, they may be identified in the grant application. If the grantee does not identify the workplaces at the time of application, or upon award, if there is no application, the grantee must keep the identity of the workplace(s) on file in its office and make the information available for Federal inspection. Failure to identify all known workplaces constitutes a violation of the grantee's drug-free workplace requirements.

4. Workplace identifications must include the actual address of buildings (or parts of buildings) or other sites where work under the grant takes place. Categorical descriptions may be used (e.g., all vehicles of a mass transit authority or State highway department while in operation, State employees in each local unemployment office, performers in concert halls or radio studios).

5. If the workplace identified to the agency changes during the performance of the grant, the grantee shall inform the agency of the change(s), if it previously identified the workplaces in question (see paragraph three).

6. Definitions of terms in the Nonprocurement Suspension and Debarment common rule and Drug-Free Workplace common rule apply to this certification. Grantees' attention is called, in particular, to the following definitions from these rules:

   "Controlled" substance means a controlled substance in Schedules I through V of the Controlled Substances Act (21 U.S.C. 812) and as further defined by regulation (21 CFR 1308.11 through 1308.15);

   "Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes;

   "Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, use, or possession of any controlled substance;

   "Employee" means the employee of a grantee directly engaged in the performance of work under a grant, including: (i) all "direct charge" employees; (ii) all "indirect charge" employees unless their impact or involvement is insignificant to the performance of the grant; and, (iii) temporary personnel and consultants who are directly engaged in the performance of work under the grant and who are on the grantee's payroll. This definition does not include workers not on the payroll of the grantee (e.g., volunteers, even if used to meet a matching requirement; consultants or independent contractors not on the grantee's payroll; or employees of subrecipients or subcontractors in covered workplaces).

U.S. DEPARTMENT OF AGRICULTURE

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR Part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989, Federal Register (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency with which this transaction originated.

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name | PR/Award Number or Project Name

Name(s) and Title(s) of Authorized Representative(s)

Signature(s) | Date

Form AD-1048 (1/92)

Instructions for Certification

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out on the reverse side in accordance with these instructions.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Form AD-1048 (1/92)

•U. S.GPO: 1996-767-776/201 07

CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant or Federal loan, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant or loan.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant or loan, the undersigned shall complete and submit Standard Form - LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including contracts, subcontracts, and subgrants under grants and loans) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

_____

Lee Hart 29 September 2006

_____

Owner, Hart Dairy

oOo

(08-21-91) PN 171

DISCLOSURE OF LOBBYING ACTIVITIES

Approved by OMB
0348-0046

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure.)

1. Type of Federal Action:	2. Status of Federal Action:	3. Report Type:
[b] a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	[a] a. bid/offer/application b. initial award c. post-award	[a] a. initial filing b. material change **For Material Change Only:** year _____ quarter _____ date of last report _____

4. Name and Address of Reporting Entity:	5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:
[x] Prime [ ] Subawardee Tier _____, *if known*: **Congressional District**, *if known*: 4c 2nd	**Congressional District**, *if known*:
6. Federal Department/Agency: US Department of Agriculture	**7. Federal Program Name/Description:** Renewable Energy and Energy Efficiency Program USDA CFDA Number, *if applicable*: _____
8. Federal Action Number, *if known*:	**9. Award Amount**, *if known*: $
10. a. Name and Address of Lobbying Registrant (*if individual, last name, first name, MI*): Hart, Lee P.O. Box 6748 Shelly Idaho 83402	**b. Individuals Performing Services** (*including address if different from No. 10a*) (*last name, first name, MI*):
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	Signature: _____ Print Name: Lee Hart Title: _____ Telephone No.: 208-526-1000 Date: 9/29/06
Federal Use Only:	Authorized for Local Reproduction Standard Form LLL (Rev. 7-97)

PRINT

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.

2. Identify the status of the covered Federal action.

3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.

4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.

5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.

6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."

9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.

10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

    (b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).

11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

U.S. DEPARTMENT OF AGRICULTURE

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR Part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989 Federal Register (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction.

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) have not within a three-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Hart Dairy

Organization Name | PR/Award Number or Project Name

Lee Hart, Owner

Name(s) and Title(s) of Authorized Representative(s)

29 September 2006

Signature(s) | Date

Clear Form

Form AD-1047 (1/92)

Instructions for Certification

1. By signing and submitting this form, the prospective primary participant is providing the certification set out on the reverse side in accordance with these instructions.

2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out on this form. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.

3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

4. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

6. The prospective primary participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

7. The prospective primary participant further agrees by submitting this form that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

10. Except for transactions authorized under paragraph 6 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

Form RD 400-1
(Rev 5-00)

UNITED STATES DEPARTMENT OF AGRICULTURE

FORM APPROVED
OMB No. 0575-0018

EQUAL OPPORTUNITY AGREEMENT

This agreement, dated September 29, 2006 between September 29, 2006 (herein called "Recipient" whether one or more) and United States Department of Agriculture (USDA), pursuant to the rules and regulations of the Secretary of Labor (herein called the 'Secretary') issued under the authority of Executive Order 11246 as amended, witnesseth:

In consideration of financial assistance (whether by a loan, grant, loan guaranty, or other form of financial assistance) made or to be made by the USDA to Recipient, Recipient hereby agrees, if the cash cost of construction work performed by Recipient or a construction contract financed with such financial assistance exceeds $10,000 - unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965.

1. To incorporate or cause to be incorporated into any contract for construction work, or modification thereof, subject to the relevant rules, regulations, and orders of the Secretary or of any prior authority that remain in effect, which is paid for in whole or in part with the aid of such financial assistance, the following "Equal Opportunity Clause":

During the performance of this contract, the contractor agrees as follows:

(a) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited, to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the USDA setting forth the provisions of this nondiscrimination clause.

(b) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

(c) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the USDA, advising the said labor union or workers' representative of the contractor's commitments under this agreement and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of all rules, regulations and relevant orders of the Secretary of Labor.

(e) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, rules, regulations, and orders, or pursuant thereto, and will permit access to his books, records, and accounts by the USDA Civil Rights Office, and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by Law.

(g) The contractor will include the provisions of paragraph 1 and paragraph (a) through (g) in every subcontract or purchase order, unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the USDA may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the USDA, the contractor may request the United States to enter into such litigation to protect the interest of the United States.

2. To be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if the organization so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.
3. To notify all prospective contractors to file the required 'Compliance Statement', Form RD 400-6, with their bids.
4. Form AD-425, Instructions to Contractors, will accompany the notice of award of the contract. Bid conditions for all nonexempt federal and federally assisted construction contracts require inclusion of the appropriate "Hometown" or "Imposed" plan affirmative action and equal employment opportunity requirements. All bidders must comply with the bid conditions contained in the invitation to be considered responsible bidders and hence eligible for the award.
5. To assist and cooperate actively with USDA and the Secretary in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary, that it will furnish USDA and the Secretary such information such as, but not limited to, Form AD 560, Certification of Nonsegregated Facilities, to submit the Monthly Employment Utilization Report, Form CC-257, as they may require for the supervision of such compliance, and that it will otherwise assist USDA in the discharge of USDA's primary responsibility for securing compliance.
6. To refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by USDA or the Secretary of Labor pursuant to Part II, Subpart D, of the Executive Order.
7. That if the recipient fails or refuses to comply with these undertakings, the USDA may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the organization under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such organization; and refer the case to the Department of Justice for appropriate legal proceedings.

Signed by the Recipient on the date first written above.

_____
Recipient

_____
Recipient

(CORPORATE SEAL)

_____
Name of Corporate Recipient

Attest:

By Lee Hart
President

_____
Secretary

Position 3

USDA
Form RD 400-4
(Rev. 3-97)

ASSURANCE AGREEMENT
(Under Title VI, Civil Rights Act of 1964)

FORM APPROVED
OMB No. 0575-0018

The Lee Hart
(name of recipient)

P.O. Box 6748 Shelly, Idaho 83402
(address)

("Recipient" herein) hereby assures the U. S. Department of Agriculture that Recipient is in compliance with and will continue to comply with Title VI of the Civil Rights Act of 1964 (42 USC 2000d et. seq.), 7 CFR Part 15, and Rural Housing Service, Rural Business-Cooperative Service, Rural Utilities Service, or the Farm Service Agency, (hereafter known as the " Agency") regulations promulgated thereunder, 7 C.F.R. §1901.202. In accordance with that Act and the regulations referred to above, Recipient agrees that in connection with any program or activity for which Recipient receives Federal financial assistance (as such term is defined in 7 C.F.R. §14.2) no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination.

1. Recipient agrees that any transfer of any aided facility, other than personal property, by sale, lease or other conveyance of contract, shall be, and shall be made expressly, subject to the obligations of this agreement and transferee's assumption thereof.
2. Recipient shall:

   (a) Keep such records and submit to the Government such timely, complete, and accurate information as the Government may determine to be necessary to ascertain our/my compliance with this agreement and the regulations.

   (b) Permit access by authorized employees of the Agency or the U.S. Department of Agriculture during normal business hours to such books, records, accounts and other sources of information and its facilities as may be pertinent to ascertaining such compliance.

   (c) Make available to users, participants, beneficiaries and other interested persons such information regarding the provisions of this agreement and the regulations, and in such manner as the Agency or the U.S. Department of Agriculture finds necessary to inform such persons of the protection assured them against discrimination.
3. The obligations of this agreement shall continue:

   (a) As to any real property, including any structure, acquired or improved with the aid of the Federal financial assistance, so long as such real property is used for the purpose for which the Federal financial assistance is made or for another purpose which affords similar services or benefits, or for as long as the Recipient retains ownership or possession of the property, whichever is longer.

   (b) As to any personal property acquired or improved with the aid of the Federal financial assistance, so long as Recipient retains ownership or possession of the property.

   (c) As to any other aided facility or activity, until the last advance of funds under the loan or grant has been made.
4. Upon any breach or violation this agreement the Government may, at its option:

   (a) Terminate or refuse to render or continue financial assistance for the aid of the property, facility, project, service or activity.

   (b) Enforce this agreement by suit for specific performance or by any other available remedy under the laws of the United States or the State in which the breach or violation occurs.

Rights and remedies provided for under this agreement shall be cumulative.

In witness whereof, Lee Hart on this
(name of recipient)

date has caused this agreement to be executed by its duly authorized officers and its seal affixed hereto, or, if a natural person, has hereunto executed this agreement.

(SEAL)

Recipient

9/29/06
Date

Attest: _____
Title

Title

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0570-0018. The time required to complete this information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

II. Project Summary

This project, entitled Hart Dairy Heating and Cooling Energy Efficiency Improvement, seeks to decrease some of the Hart Dairy's high-energy costs by using ground source heat pump technology on the farm located in southeast Idaho about 3 miles from the town of Shelley (population 3,813) in Bingham County, Idaho. The project is for the purchase of a renewable energy system and geothermal components necessary to supply hot water for our dairy operations.

Satellite Image of Shelly Idaho from Google Earth.com

We believe that we will experience significant financial savings by using the geothermal resource via a ground source heat pump in our dairy operations. Recognizing the potential cost savings involved with the use of geothermal energy we plan to use the geothermal resource for:

1. Cleaning our facilities, and processing equipment.
2. Space heating and cooling all the buildings on our dairy operation.

The engineering study indicates that the annual energy required to heat and cool the buildings is 552 million BTU's (426M heating and 126M cooling) which is 5,520 therms. Today we are purchasing gas from Intermountain Gas Company at the rate of 1.255 $/therm this project would reduce the Hart Dairy Farm natural gas bill by approximately $6,927 a year. Given the rising cost of natural gas, these savings are expected to increase in years to come. The local natural gas supplier, Intermountain Gas, has applied to the Idaho Public Utilities Commission for permission to raise natural gas prices 28%. If this rate increase is approved, this project would result in $8,866 in annual savings.

This project will be designed and engineered to meet the intended purpose of providing heat and chilling capacity to the facility, and it will meet all applicable public safety regulations and laws.

Total project cost is estimated to be $87,580. The implementation of this project hinges on receiving a grant in the amount of $21,895 (25% of the total project cost) from the USDA's Renewable Energy/Energy Efficiency Improvements Program (Section 9006). The estimated timeframe for project completion is approximately 5 months from the date Mr. Hart signs the grant agreement and the funds are obligated. A detailed project timeline which covers planning, permitting, construction and startup is included with the technical section (Section V) of this application. The anticipated operational date for the geothermal system is February 2007.

Eligibility

Applicant Eligibility

Lee Hart and his wife Elle function as the sole owners of Hart Dairy Farm. The Hart's two sons, Charles and John Hart, assist with daily operations and maintenance of the dairy. Hart Dairy Farm exists as a sole proprietorship. No parent, subsidiary or affiliate organizations involved with Hart Dairy affect this project. Hart Dairy is a small dairy that milks 260 cows twice a day. A milk distributor comes twice daily and picks up milk at our dairy farm and transfers it to a dairy producer. Mr. Lee Hart, owner of Hart Dairy Farms exists as an eligible applicant for the USDA Rural Development Farm Bill section 9006, "Renewable Energy Systems and Energy Efficiency Improvements Program" based on the following:

- Hart Dairy Farm operates as an agricultural producer engaged in the production and handling of dairy products
- Mr. Hart earns over 90% of his income from this dairy operation
- Hart Dairy exists as a sole proprietorship
- The sole owner of Hart Dairy, Mr. Lee Hart, is a citizen of the United States, as are his wife Elle and two sons Charles and John
- Mr. Hart does not have any outstanding judgments obtained by the United States in Federal Court, and is not delinquent in the payment of Federal income taxes or Federal debt
- Mr. Hart demonstrates financial need. Financial analysis shows Mr. Hart would not be able to maintain his cash flow and income over the long term without this grant assistance. A letter from Hart's lending institution has been included in this application (Appendix C). The project will not be attempted without grant assistance.
- Mr. Hart has never applied for nor received a grant or loan from USDA or any other Federal Agency

Project Eligibility

Hart Dairy is an eligible project based on the following reasons:

- The Hart Dairy project will increase the efficiency of our dairy operations by utilizing the renewable geothermal energy source abundantly available on our property
- The project is for the purchase of a renewable energy system, geothermal components necessary to supply hot water for our dairy operations.
- The components proposed for this project are all commercially available, with proven operating histories, established designs and installation procedures.
- This project is located in a rural area near Shelly, Idaho. Shelly is located in Bingham county (pop. 41,735) approximately 12 miles south of the town of Idaho Falls. Shelly is not considered an urbanized area adjacent to any city or town with a population over 50,000.
- Lee Hart, owner and operator of the dairy, has no plans to sell the dairy in the foreseeable future and fully expects to own and control the proposed project for the

period required to pay off the debt incurred by the system. Once trained by the system installers on the operations and maintenance of the system, Mr. Hart will be responsible for the operations and maintenance of the system.

- The annual revenue from Mr. Hart's farming and dairy operation and the fuel savings from the project are sufficient to provide for the operation, management, and debt service for the life of the project
- This project will alleviate approximately 85% of Mr. Hart's annual natural gas utility bill.
- He will perform the routine maintenance himself and, therefore, will not have to pay for this service.

Operation Description

The Hart Dairy operations are located on approximately 30 acres of the 360 total acres owned and operated by Lee and Elle Hart. Lee and Elle Hart have operated the dairy for 19 years. However, the dairy has actually been in operation for over 30 years. Prior to Mr. Lee Hart's management, the dairy was owned and operated by his father, John Hart Sr.

Aerial view of the Hart Dairy. Photo from Google Earth

The operation currently has approximately 400 cows, 2 enclosed buildings for milking and processing the milk, 3 silos for storing feed and multiple covered stalls and feeding areas for the livestock. Some but not all of the feed used in the dairy operation is grown at the Hart farm which has approximately 320 acres of farmable land irrigated with a center pivot irrigation system. Standard farm equipment for planting, harvesting, storing and moving hay and grain crops are part of this farming operation. The proposed heating system will heat approximately 1800 ft^2 of enclosed space used for milking and milk processing, and supply energy for the milk processing chilling needs for the dairy.

This is a family run dairy with occasional part time and seasonal labor help. The future plans are to turn the operation over to Lee Hart's son Charles, when Lee Hart retires. This dairy operation will be controlled by the Hart family for the life of the project.

Financial Information

Hart Dairy is a small family operated dairy that is not a subsidiary of any parent company or corporation, and does not have any subsidiary or affiliates at other locations. In 2005, the last full accounting year, the dairy had total income of $856,500 and total expenses of $795,925 with a net income of $60,575. The gross market value for agricultural products sold is $756,000 for milk products, $19,000 for calves, and $63,000 for cattle sold. Mr. Hart and his wife Elle have no nonfarm income. A copy of the Hart's Federal Income Tax Return for 2005 is included in Appendix D of this application. A current year Profit and Loss Statement is included in Appendix E of this application. The assumptions used for the financial projections for 2006, 2007 and 2008 are:

- The dairy operation will remain the same size with no increase in livestock or milk production
- Labor rates will increase 1% per year
- Payroll Taxes will increase 1.5% in year 1, 1.5% in year 2 and 1.5% in year 3
- Operating Interest dollars will increase by 18.2% in year 1 and remain steady at $22K for the next 3 years
- Feed costs will decrease from $327K to $320K and remain steady for the next 3 years
- Property taxes will not change in the next 3 years
- Natural Gas costs will decrease from approximately $5,300 to zero
- Other utility cost will remain constant at about $25K

III. Matching Funds

Funding for this geothermal project will come from Hart Dairy operating Funds, a loan from Idaho Farm Credit Services, and a grant from the USDA for a purchase and installation of a Renewable Energy System. The details of the funding are presented below.

Source of Funding	$ Amount	Status	Contact Information
Hart Dairy Operating Funds	4,000	Available from Savings Account	Lee Hart P.O. Box 6748, Shelly ID (208) 526-1000
Idaho Farm Credit Services	61,685	Approved Loan	Mr. Patrick Lanley, Sr Business Analyst, Idaho Farm Credit Services, P.O. Box 1625, Idaho Falls, ID (208) 526-1000
USDA 9006 Grant	21,895	Pending Award of USDA Grant	Mr. John Farmer, Business Program Specialist, USDA Rural Development, 725 Jensen Grove Drive, Blackfoot, ID 83221 (208) 785-5840

Total Project Cost 87,580

Project Cost

The proposed modification and upgrade to the Hart Dairy, to take advantage of the geothermal heat pump efficiencies is estimated to cost $87,580. This grant proposal is requesting the maximum 25% of that total, or $21,895. Project cost details are presented below.

Hart Dairy Well to Well GSHP Project - Estimated Cost

Planning and Permitting	Quantity	Units	Unit Cost $'s	Total
Engineering Consultant - Detailed Design	48	hours	120	$5,760
Drilling Surety bond	1	lump	5,000	$5,000
Drilling Permit - Production Well	1	lump	200	$200
Drilling Permit - Injection Well	1	lump	200	$200
Injection Well Permit	1	lump	300	$300
Engineering Consultant - Construction & Installation	40	hours	120	$4,800
			Planning & Permitting Subtotal	***$16,260***

Well Construction	Quantity	Units	Unit Cost $'s	Total
Production Well				
Drilling & Materials	250	feet	30	$7,500
Well pump, pressure tank, controls	1	lump	2,000	$2,000
Injection Well				
Drilling & Materials	250	feet	30	$7,500
Distribution Piping				
PVC pipe, trench & backfill, pipe bending, associated fittings & valves	200	feet	20	$4,000
			Well Construction Subtotal	***$21,000***
Geothermal Energy Utilization				
Main Heat Exchanger (plate type)	12	ton	50	$600
Space Heating Load 1 - Milk Barn (retrofit from existing boiler)				
Wall cut, piping, fittings	1	lump	1,750	$1,750
Heat Pump (water-to-water)	6	ton	1,500	$9,000
Circulating pump, controls	2	lump	500	$1,000
Space Heating Load 2 Bulk Tank Room (retrofit from existing boiler)				
Wall cut, piping, fittings	1	lump	1,750	$1,750
Heat Pump (water-to-water)	3	ton	1,500	$4,500
Circulating pump, controls	2	lump	500	$1,000
Hot Water Load 1 - Cow Washing				
Wall cut, piping, fittings	1	lump	1,750	$1,750
Heat Pump (water-to-water)	3.5	ton	1,500	$5,250
Hot water storage tank (w/backup)	300	gallon	12	$3,600
Circulating pump, controls	2	lump	500	$1,000
Hot Water Load 2 - Floors, Udders				
Wall cut, piping, fittings	1	lump	1,750	$1,750
Heat Pump (water-to-water)	3	ton	1,500	$4,500
Hot water storage tank (w/backup)	260	gallon	12	$3,120
Circulating pump, controls	2	lump	500	$1,000
Milk Chilling				
Wall cut, piping, fittings	1	lump	1,750	$1,750
Heat Pump (water-to-water)	4	ton	1,500	$6,000
Storage tank (assume existing tank)	0	gallon	0	$0
Circulating pump, controls	2	lump	500	$1,000
			Geothermal Energy Utilization Subtotal	***$50,320***
			Total Estimated Project Cost	***$87,580***

IV. Self Evaluation Scores

* 7 CFR 4280.112	Scoring Summary *			
	Awarded Points	Category		Maximum Possible Points
(e)(1)(i)	15	Energy Replacement Total Points (15 point maximum)		15
(e)(1)(ii)	15	Energy Savings Total Points (20 point maximum - 15 + 5 point bonus)		15
(e)(1)(ii)	5	Energy Savings Professional Energy Audit Bonus (5 point maximum)		5
(e)(1)(iii)	0	Energy Generation Total Points (10 point maximum)		10
(e)(2)	0	Environmental Benefits Total Points (10 point maximum)		10
(e)(3)	10	Commercial Availability Total Points (10 points maximum)		10
(e)(4)	35	Technical Merit Total Points (35 point maximum)		35
(e)(5)	15	Readiness Total Points (15 point maximum)		15
(e)(6)	5	Small Ag Producer / Very Small Business Total Points (10 point maximum)		10
(e)(7)	5	Simplified Application/Low Cost Project Total Points (5 point maximum)		5
(e)(8)	5	Previous Grantees and Borrowers Total Points (5 point maximum)		5
(e)(9)	2	Return on Investment Total Points (10 point maximum)		10
	112	**Total Score (out of 145 possible)**	77%	145

(e)(1) **Quantity of energy replaced, produced or saved**

(e)(1)(i) *Energy Replacement*

If the proposed renewable energy system is intended primarily for self-use by the agricultural producer or rural small business and will provide energy replacement of:
(A) greater than zero, but equal to or less than 25 percent, **5** points will be awarded;
(B) greater than 25 percent, but equal to or less than 50 percent, **10** points will be awarded;
(C) or greater than 50 percent, **15** points will be awarded

426,000,000 = Estimated quantity of renewable energy (BTU's) to be **generated** over a 12 month period.

426,000,000 = Estimated quantity of energy (BTU's) **consumed** over the same 12 month period during the previous year.

1 = Generation /Consumption

15 Energy Replacement Total Points (**15** point maximum)

(e)(1)(ii) *Energy Savings*

If the estimated energy expected to be saved by the installation of the energy efficiency improvements will be from:
(A) 20 percent up to, but not including 30 percent, **5** points will be awarded;
(B) 30 percent up to, but not including 35 percent, **10** points will be awarded; or,
(C) 35 percent or greater, **15** points will be awarded

Energy savings will be determined by the projections in an energy audit. Projects with total eligible project costs of $50,000 or less that opt to obtain a professional energy audit will be awarded an additional **5** points.

15 Energy Savings Total Points (**20** point maximum - 15 + 5 point bonus)
5 Energy Savings Professional Energy Audit Bonus (**5** point maximum)

(e)(1)(iii) *Energy Generation*

If the proposed renewable energy system is intended primarily for production of energy for sale, 10 points will be awarded.

0 Energy Generation Total Points (10 point maximum)

(e)(2) **Environmental Benefits**

If the purpose of the proposed system contributes to the environmental goals and objectives of other Federal, State, or local programs, **10** points will be awarded.

Points will only be awarded for this paragraph if the applicant is able to provide documentation from an appropriate authority supporting this claim.

0 Environmental Benefits Total Points (**10** point maximum)

(e)(3) **Commercial Availability**

(A) If the proposed system or improvement is currently commercially available and replicable, **5** points will be awarded.

(B) If the proposed system or improvement is commercially available and replicable and is also provided with a 5-year or longer warranty providing the purchaser protection against system degradation or breakdown or component breakdown, **10** points will be awarded.

10 Commercial Availability Total Points (**10** points maximum)

(e)(4) **Technical Merit Score**

(e)(4)(i) Each subparagraph has its own maximum possible score and will be scored according to the following criteria:

- a If the description in the subparagraph has no significant weaknesses and exceeds the requirements of the subparagraph, 100 percent of the total possible score for the subparagraph will be awarded.
- b If the description has one or more significant strengths and meets the requirements of the subparagraph, 80 percent of the total possible score will be awarded for the subparagraph.
- c If the description meets the basic requirements of the subparagraph, but also has several weaknesses, 60 percent of the points will be awarded.
- d If the description is lacking in one or more critical aspects, key issues have not been addressed, but the description demonstrates some merit or strengths, 40 percent of the total possible score will be awarded.
- e If the description has serious deficiencies, internal inconsistencies, or is missing information, 20 percent of the total possible score will be awarded.
- f If the description has no merit in this area, 0 percent of the total possible score will be awarded.
- g The total possible points for Technical Merit is 35 points

(e)(4)(i)(A) 10 (A) Qualifications of the Project Team (maximum score of **10** points)

The applicant has described the project team service providers, their professional credentials, and relevant experience. The description supports that the project team service, equipment, and installation providers have the necessary professional credentials, licenses, certifications, or relevant experience to develop the proposed project.

(e)(4)(i)(B) 5 (B) Agreements and Permits (maximum score of **5** points)

The applicant has described the necessary agreements and permits required for the project and the schedule for securing those agreements and permits.

(e)(4)(i)(C) 10 (C) Energy or Resource Assessment (maximum score of **10** points)

The applicant has described the quality and availability of a suitable renewable resource or an assessment of expected energy savings for the proposed system.

(e)(4)(i)(D) 30 (D) Design and Engineering (maximum score of **30** points)

The applicant has described the design, engineering, and testing needed for the proposed project. The description supports that the system will be designed, engineered, and tested so as to meet its intended purpose, ensure public safety, and comply with applicable laws, regulations, agreements, permits, codes, and standards.

(•)(4)(i)(E)	5	(E) Project Development Schedule (maximum score of 5 points) The applicant has described the development method, including the key project development activities and the proposed schedule for each activity. The description identifies each significant task, its beginning and end, and its relationship to the time needed to initiate and carry the project through to successful completion. The description addresses grantee or borrower project development cashflow requirements.
(•)(4)(i)(F)	20	(F) Project Economic Assessment (maximum score of 20 points) The applicant has described the financial performance of the proposed project, including the calculation of simple payback. The description addresses project costs and revenues, such as applicable investment and production incentives, and other information to allow the assessment of the project's cost effectiveness.
(•)(4)(i)(G)	5	(G) Equipment Procurement (maximum score of 5 points) The applicant has described the availability of the equipment required by the system. The description supports that the required equipment is available, and can be procured and delivered within the proposed project development schedule.
(•)(4)(i)(H)	5	(H) Equipment Installation (maximum score of 5 points) The applicant has described the plan for site development and system installation.
(•)(4)(i)(I)	5	(I) Operation and Maintenance (maximum score of 5 points) The applicant has described the operations and maintenance requirements of the system necessary for the system to operate as designed over the design life.
(•)(4)(i)(J)	5	(J) Dismantling and Disposal of Project Components (maximum score of 5 points) The applicant has described the requirements for dismantling and disposing of project components at the end of their useful life and associated wastes.
(•)(4)(ii)		Calculation of Technical Merit Score To determine the actual points awarded a project for Technical Merit, the following procedure will be used: The score awarded for paragraphs (A) through (J): Will be added together and then divided by 100, the maximum possible score, to achieve a percentage. This percentage will then be multiplied by the total possible points of 35 to achieve the points awarded for the proposed project for Technical Merit.
	100	Total of Technical Merit A-J
	1	Total of Technical Merit A-J / 100
(•)(4)	35	Technical Merit Total Points (35 point maximum)
(•)(5)	**Readiness**	
		(A) If the applicant has written commitments from the source(s) confirming commitment of 50 percent up to but not including 75 percent of the matching funds prior to the Agency receiving the complete application, 5 points will be awarded.
		(B) If the applicant has written commitments from the source(s) confirming commitment of 75 percent up to but not including 100 percent of the matching funds prior to the Agency receiving the complete application, 10 points will be awarded.
		(C) If the applicant has written commitments from the source(s) of matching funds confirming commitment of 100 percent of the matching funds prior to the Agency receiving the complete application, 15 points will be awarded.
	15	Readiness Total Points (15 point maximum)

(e)(6)	**Small Agricultural Producer / Very Small Business** (A) If the applicant is an agricultural producer producing agricultural products with a gross market value of less than $600,000 in the preceding year, 5 points will be awarded. (B) If the applicant is an agricultural producer producing agricultural products with a gross market value of less than $200,000 in the preceding year or is a very small business 10 points will be awarded. 5 Small Ag Producer / Very Small Business Total Points (10 point maximum)
(e)(7)	**Simplified Application/Low Cost Projects** If the applicant is eligible for and uses the simplified application process or the project has total eligible project costs of $200,000 or less, 5 points will be awarded. 5 Simplified Application/Low Cost Project Total Points (5 point maximum)
(e)(8)	**Previous Grantees and Borrowers** If an applicant has not been awarded a grant or loan under this program within the 2 previous Federal fiscal years, 5 points will be awarded. 5 Previous Grantees and Borrowers Total Points (5 point maximum)
(e)(9)	**Return on Investment** If the proposed project will return the cost of the investment in: (A) less than 4 years, 10 points will be awarded; (B) 4 years up to but not including 8 years, 4 points will be awarded; (C) 8 years up to 11 years, 2 point will be awarded. 2 Return on Investment Total Points (10 point maximum)

* This scoring summary was prepared from information 7 CFR Part 4280 in the Federal Register / Vol. 70, No. 136/ Monday, July 18, 2005 / Rules and Regulations

V. Technical Report – Hart Dairy

Introduction

Idaho has abundant geothermal resources, especially the central and southern parts of the state where the majority of the geothermal wells and springs are found. These resources have been developed over the last 100+ years for recreation, district heating, domestic heating, aquaculture, and greenhouse operations. Some of these geothermal resources are used for direct use heating applications in dairies. Mr. Hart has had discussions with some of those dairy owners. Originally Mr. Hart looked into direct use geothermal heating, but learned that he does not have a high temperature resource in his area. He then considered the next alternative, ground source heat pumps or geoexchange units.

I. Qualifications of Project Team

This project was conceptually planned prior to preparing this USDA Farm Bill Section 9006 application. Lee Hart is somewhat familiar with geothermal direct use and ground source heat pumps or geoexchange applications. Mr. Hart first had an energy audit performed on his dairy operations, and then contacted a licensed Professional Engineer (PE) with significant experience in geoexchange applications, design and construction for preliminary guidance on the project. The overall project will consist of designing, bidding, and building a ground source heat pump or geoexchange heating system for parts of the Hart Dairy.

Project Management - Mr. Lee Hart will serve as the project manager. Prior to taking over the family dairy farm business he received his BS in Mechanical Engineering from the University of New Mexico in Albuquerque, NM. Lee Hart has 25 years of agriculture experience, including 20 years of owning, operating and managing the Hart Dairy in Shelly, Idaho. Lee will be directly responsible for the dairy operations after the project changes have been implemented.

Energy Auditor – Mr. Donald Kilowatt PE., is president of Idaho Energy Associates Inc. in Sun Valley, ID (208-526-7468). He is a registered Professional Engineer in the state of Idaho, and a Certified Energy Manager (CEM) with certification from the Association of Energy Engineers. In addition, he also holds a Bonneville Power Administration "Residential Energy Auditor Certification". Mr. Kilowatt performed an energy audit at Hart Dairy in the spring of 2006. Mr. Kilowatt can be contacted at (208) 526-7468

Design, Engineering & Installation Oversight – Mr. Andrew Chiasson, the project engineer works for the GeoHeat Center at the Oregon Institute of Technology in Klamath Falls, Oregon. He holds Bachelors and Masters Degrees in Geological Engineering and a Masters Degree in Mechanical Engineering. He is a licensed Professional Engineer in Idaho, Washington and Oregon with 10 years of experience in design and installation of geothermal systems. Mr. Chiasson can be contacted at (541) 885-1750

System Installation – Mr. Hart has contacted two SE Idaho drilling companies and two local Heating, Ventilation and Air Conditioning (HVAC) contractors who have expressed interest in bidding on the job. Both drilling companies are licensed in the state of Idaho and have experience in geothermal drilling and ground source heat pump applications. The HVAC companies both have personnel on staff that are certified as Geoexchange Designers through the Association of Energy Engineers and the Geothermal Heat Pump Consortium (GHPC). They are also certified in installation of geoexchange systems through the International Ground Source Heat Pump Association.

Systems Operation - Mr. Hart will be directly responsible for servicing, operating and maintaining the geothermal heating system once installed. As mentioned previously, Mr. Hart has a BS degree in Mechanical Engineering. He will receive training from the equipment manufactures and the project engineer. He will be assisted by his two sons Charles and John, who once trained by the system installer on the operations and maintenance of the systems, will be primarily responsible for the operations and maintenance. The key components and moving parts in the system are primarily pumps and motors, with which Mr. Hart, as a dairy owner and operator, and his sons have extensive installation, maintenance and repair experience. In addition, the heat exchanger equipment is very similar to equipment associated with his milk chilling process.

Equipment Manufacturers - The equipment being installed is comprised of "off-the-shelf" components that can be supplied by a number of manufacturers. None of the components for the proposed system are one-of-a-kind or special order. None of the components require special design and will not be custom manufactured. Bids will be requested from a number of suppliers in order to get the best pricing for all the components.

To the best of our knowledge there currently are no dairies in southeast Idaho that use ground source heat pumps or geoexchange systems to heat their facilities.

II. Agreements and Permits

The Idaho Department of Water Resources (IDWR) and the Department of Environmental Quality (DEQ) are the lead agencies for administering and enforcing the rules and regulations governing water use and quality in Idaho. IDWR is responsible for issuing water rights, well construction permits and underground fluid injection wells.

Water for ground source heat pumps or geoexchange systems, is regulated with the rules governing groundwater appropriation and well drilling regulations in Idaho. Appropriate forms and notifications for drilling are available on the internet. It is anticipated that it will take approximately 3 weeks to get the appropriate permits from the state of Idaho for this project. Rules and regulations governing well construction are in IDAPA 37 Title 3 Chapter 9.

The Hart Dairy Farm does not fall within an IDWR area of drilling concern and no additional well construction requirements are necessary. Hart Dairy farms own all the water rights within a 3-mile radius of the proposed project and currently have a valid water rights permit. The Hart Dairy Farm is not within a designated ground water management areas (GWMAs) or critical ground water areas (CGWAs). We have contacted county planning and health departments to check for any additional regulations or ordinances covering well placement and construction and there are none in this location.

A drilling prospectus will be submitted to IDWR prior to construction. A surety bond or cash bond as required by Idaho code section 42-233 with IDWR. The amount of the bond ranges from $5000, up to $20,000, as determined by the depth and temperature of the well. There will be a drilling permit fee of $200. The well will be drilled by a licensed and bonded well contractor.

The preferred method of disposing of geoexchange fluids is to return them to the ground by way of injection wells. Hart Dairy Farms plans to drill an injection well to dispose of the water after it has passed through their heating systems. IDWR administers the Idaho Waste Disposal and Injection Well program. Geothermal heat wells and closed loop heat pump return wells are both classified in Idaho as Class V injection wells. Injection wells that are more than 18 feet deep must apply for a permit from IDWR prior to construction. This applies to closed-loop heat exchange wells, if they are deeper than 18 feet (5.5 m). Hart Dairy Farms will apply for the $100 permit. There will be a 30-day review period in addition to the normal processing time for this injection will permit. The proposed Hart Dairy Farms project is expected to require less than 50 gpm of fluid, and may be exempt from the permit provisions. This will be determined with consultation with IDWR personnel.

We have contacted the county and inquired about zoning and code requirements and there are none that affect this project.

There are no licenses required to own and operate the type of equipment we are proposing to install.

State health officials have been contacted and they indicated that as long as the temperatures meet the state health code requirements for cleaning and operation, there will be not be any changes in our existing permits and periodic inspections.

Most of the components of the proposed system are piping and valves which come with standard manufacturer warranties. Depending on which manufacture we choose, the warranties for the heat exchangers and controllers will vary but will be what is commonly accepted within the industry.

The entire project will be on Hart Dairy property, and there will be no environmental impacts. The water used in this system is essentially in a closed loop and will be extracted from on well and injected to another well. The process used for washing and cleaning will not change, other than the source of the heat for the water, and thus no environmental impacts.

III. Energy Assessment

We contacted both the local natural gas supplier and electric suppliers to our farm to inquire about an energy audit. Both indicated they did not have the capability to perform they type of audit required by the solicitation. We then contacted Idaho Energy Associates and contracted with them for an energy audit. The complete audit is included in Appendix A. A summary of the final report is presented here:

"Mr. Donald Kilowatt, PE of Idaho Energy Associates Inc. performed this energy audit of the Hart Dairy operations on April 3, 2006. The purpose of the energy audit was to determine if it would be cost effective for Mr. Hart to switch from natural gas to ground source heat pump or geoexchange technology to supply heating and chilling needs for his milking and milk processing operations. While the audit did look at other energy sources and uses such as electricity, no recommendations on those energy uses were included. This audit is not intended to provide detailed specifications for a geoexchange system, as Mr. Hart has hired an engineering firm that specializes in geothermal systems to perform that work. The results of this audit indicate that Mr. Hart could expect to invest approximately $90,000 in wells and equipment and realize a simple project payback in approximately 12 years based on current natural gas prices. If natural gas prices are assumed to increase 5% a year, the simple payback would occur in approximately 10 years. In addition, there are some energy conservation improvements that Mr. Hart could make that would lower his energy consumption, immediately, even if he were to choose not to move forward with conversion to a geoexchange system.. In summary, the milking barn and bulk tank room facilities at Hart Dairy would be ideal candidates for a geoexchange system for facility heating and process heating and cooling."

IV. Design and Engineering

Mr. Hart became interested in using the geothermal resource available on his property after attending a geothermal direct use workshop in Boise, Idaho sponsored by the Department of Energy GeoPowering The West program. The recent increase in fuel cost for operating the dairy led to an in-depth analysis of how the dairy could reduce costs. The geothermal option was selected because he already owns the resource, and it would require minimal disruption of his operations to install a ground source heat pump or geoexchange system.

A preliminary design of this project was prepared by Andrew Chiasson with the assistance of Mr. Hart. The preliminary design and calculations are presented in Appendix B. Mr. Chiasson, from the GeoHeat Center at the Oregon Institute of Technology in Klamath Falls, Oregon., is a licensed Professional Engineer (PE) with 10 years of experience in research and development, design and construction of geothermal direct use projects. The GeoHeat Center, has worked on hundreds of projects both in the U.S. and internationally over the last 20 years. The GeoHeat Center works exclusively on geothermal direct use and geoexchange applications.

This project will be designed by a licensed professional engineer to meet all of the local, state and federal laws, regulations, agreements, permits, codes and standards required for ground source heat pump or geoexchange systems. Well drilling, construction and equipment installation will be done by licensed professionals.

This project consists of: 1) drilling a 250' supply well, 2) installing piping from the supply well to the facilities to be heated, 3) retrofitting the existing boiler and installing heat exchange equipment, 4) drilling and completing a 250' injection well, 5) installing piping from the new heating equipment to the injection well.

This project will require drilling one production and one disposal well, and trenching to install approximately 200 ft of 3-inch pipe. Once the piping is installed there will be no land use impacts. The disposal well will have a footprint of approximately 50 ft^2 when finished. There is ample room

and a number of locations where the injection will can be placed. There will be no impacts to air quality, water quality, and wildlife habitat. There will be no noise pollution, soil degradation or odor associated with this project.

Mr. Hart plans to leave the current natural gas heating systems in place to provide backup heating capability should it ever be necessary.

Hart Dairy Farms and the adjacent 360 acres has been owned and operated by Lee and Elle Hart for 19 years. The dairy has actually been in operation for over 30 years. Prior to Mr. Lee Hart's management, the dairy was owned and operated by his father, Robert Hart. This is a family run dairy, and the future plans are to turn the operation over to Lee Hart's son Charles when Lee Hart retires. This dairy operation will be controlled by the Hart family for the life of the project.

Potential equipment suppliers of the major components (Heat Pump, Chillers, and Piping) are listed below. Other suppliers may be identified by the contractor at the time of bidding.

Heat Pump Equipment

McQuay International 13600 Industrial Park Blvd. Plymouth, MN 55440 Ph: (763) 553-5330 Fax: (763) 553-5177	Trane, Commercial Systems Group 2727 South Ave. La Crosse, WI 54601 Ph: (608) 787-3445	York International Corporation 631-T Richmond Avenue P.O. Box 1592 York, PA 17405-1592 Ph: (717) 771-7890

Chillers, Absorption / Adsorption

Carrier Corporation (ABS) Carrier Parkway Syracuse, NY 13221 Ph: (315) 432-6000	Harris Thermal Transfer Products (ABS) 615 S. Springbrook Rd. Newberg, OR Ph: (503) 538-1260	Aero Tech Mfg. Incorporated (ABS) 395 W. 1100 N North Salt Lake, UT 84054 Ph: (801) 292-0493
KRUM International (ADS) 3314 Walnut Bend Ln. Houston. TX 77042 Ph: (713) 784-0303	The Trane Company (ABS) Commercial Systems Group 2727 South Avenue La Crosse, WI 54601-7599 Ph: (608) 787-3445	Yazaki North America, Inc.(ABS) 6700 Haggery Rd. Canton, MI 48187 Ph: (734) 983-1000 Small Tonnage Lithium Bromide
York International Corporation (ABS) 631 S. Richland Ave. P.O. Box 1592 York, PA 17405 Ph: (717) 771-7890	McQuay International 13600 Industrial Park Blvd. Plymouth, MN 55441 Ph: (763) 553-5330 Fax: (763) 553-5177	

Piping

Polybutylene / Polyethylene Central Plastics Corporation Box 3129 Shawneee, OK 74301 Ph: 1 (800) 645-3872 (405) 273-6302	Plexco 1050 Busse Rd. #200 Bensenville, IL 60106 Ph: (630) 350-3700	Vanguard Industries 901 N. Vanguard Street McPherson, KS 67460 Ph: 1 (800) 775-5039 (316) 241-6369

Plate Heat Exchangers

Alfa-Laval Thermal 5400 International Trade Dr. Richmond, VA 23231 Ph: (804) 222-5300	APV Americas, Heat Transfer 395 Fillmore Avenue Tonawanda Industrial Park Tonawanda, NY 14150 Ph: (716) 692-3000	Graham Manufacturing Company 20 Florence Avenue Batavia, NY 14021 Ph: (716) 343-2216
Bell and Gossett ITT Industries 8200 N. Austin Ave. Morton Grove, IL 60053 Ph: (800) 243-8160 (847) 966-3700	Paul Mueller Company P.O. Box 828 Springfield, MO 65801 Ph: (417) 831-3000	Tranter Inc. Texas Division P.O. Box 2289 Wichita Falls, TX 76307 Ph: (940) 723-7125

V. Project Development Schedule

Significant tasks for this project include preparation of detailed specifications, obtaining required permits, obtaining material and construction bids, ordering materials, construction and startup. A detailed timeline for the project is presented in the Table 1 and the timeline diagram. The entire project is expected to take a little over 5 months from inception to completion. The project will begin as soon as USDA approval is received. The project work and completion is not dependent on seasonal conditions and can begin at any time during the year. The project will be completed within 1 year of the date of approval from USDA.

Table 1 Project Schedule

Task	Duration	Start Date	Finish Date	Resource Name
Prepare Detailed Project Specs : Wells & Equipment	21 days	4/3/06	5/1/06	PE - Consultant
Apply for Loans	3 days	5/1/06	5/3/06	Lee Hart
Obtain Drilling Permits	40 days	5/2/06	6/26/06	Lee Hart
Obtain County Construction Permits	3 days	5/22/06	5/24/06	Lee Hart
Obtain Well Drilling & Completion Bids	21 days	5/29/06	6/26/06	Lee Hart
Obtain Equipment & Materials Bids	21 days	5/29/06	6/26/06	Lee Hart
Obtain Construction & Installation Bids	14 days	6/27/06	7/14/06	Lee Hart
Order Materials	1 day	7/17/06	7/17/06	Lee Hart
Contract Drilling	2 days	6/27/06	6/28/06	Lee Hart
Contract Construction & Installation	20 days	7/17/06	8/11/06	Lee Hart

Supervise Construction & Installation	10 days	8/18/06	8/31/06	PE - Consultant
Drill Production and Injection Wells	2 days	8/17/06	8/18/06	Driller
Install and test well pump	1 day	8/21/06	8/21/06	Driller
Site Preparation - Trenching & leveling	2 days	8/22/06	8/23/06	Lee Hart
Installation of Well House - supply well	1 day	8/24/06	8/24/06	Lee Hart
Install Piping, Heat Exchangers & Controllers	3 days	8/25/06	8/29/06	Contractors
System Testing / Startup	1 day	8/30/06	8/30/06	Lee Hart / PE / Contractors
System Operation Training	1 day	8/31/06	8/31/06	Lee Hart / PE

VI. Project Economic Assessment

The payback costs for this project have been calculated using three methods. The simple payback formula is:

$$\text{Simple Payback Period (in years)} = \frac{TotalEligible\,\text{Pr}\,ojectCost}{AnnualSavingsorIncome}$$

The total eligible project cost is estimated at $87,580. The cost of natural gas saved in 2006 $'s is $6,927.

$$\text{Payback period} = \frac{\$87{,}580}{\$6{,}927/yr}$$ Simple Payback = 12.6 years

However, it's reasonable to assume that the price of natural gas would increase during the life of this system. Two alternative calculations were made, assuming the price of natural gas increased 2.5% a year and 5.0% a year. Using a 2.5% increase in natural gas prices, the payback would be in the 11th year. Using a 5% increase in natural gas prices each year, the payback would be in the 10th year.

Project management - No outside project management cost will be incurred on this project. The small size of this project allows Mr. Hart, the dairy owner to function as the project manager. His education as a mechanical engineer and his experience in designing and managing construction of upgrades to the dairy facilities over the past 20 years qualify him to be the project manager.

Resource Assessment - A detailed resource assessment is not required for this project. The resource (water) has been adequately defined and tested with the existing well. Pump tests, chemical analysis of the water and annual temperature measurements over the life of the existing well confirm that an adequate resource exists.

Project Design - A preliminary design (Appendix B) has been completed by a licensed Professional Engineer with experience in geothermal direct use applications. Approximately 50

hours of additional engineering consultations at approximately $120.00/hr ($6,000 total) will be required to complete the design, installation and startup.

Project Permitting -Project permitting will be performed by Mr. Hart. His time will not be charged to the project. The cost of permits including a drilling permit, injection well permit and bond for the drilling operations are expected to cost less than $600 for the two wells. The drilling bond will be approximately $500.

Site preparation – The proposed location for the two wells are clear of underground and overhead obstructions, and are not encumbered by any easements or legal constraints. No special siting requirements are applicable. All site preparation work will be done by employees of Hart Dairy. The dairy has the necessary equipment and tools for trenching operations and earth moving that would be associated with providing a drilling pad, pipe trenching and leveling. The dairy also has the necessary equipment and skills for any modifications to existing facilities or equipment that are required prior to installation of the new equipment.

Installation – Installation cost are included in the cost estimate in Appendix B.

Financing – Initial discussions have been held with Mr. Hart's financial institution. They have agreed to provide financing based on the information provided in this application assuming the USDA grant covers 25% of the project cost. A copy of their letter of commitment is provided in Appendix C of this proposal. Also included is a copy of Mr. Hart's Federal Tax return for 2005 (Appendix D).

Startup – There will be no special startup costs associated with this project, other than the engineer consultation fee described in the Project Design section above.

Maintenance Costs – Maintenance cost are predicted to be similar to the maintenance cost with the current operation. The new system will add additional circulation pumps and control systems, but these components have low failure rates and minimal maintenance costs associated with them.

Annual Revenue and Expenses - This project is not designed to provide direct revenue to Hart Dairy by selling power. Energy cost savings, by using geothermal resources instead of natural gas is the ultimate goal. The current system for heating the Hart Dairy facilities relied on boilers fired with natural gas. The current price of natural gas is from Intermountain Gas is approximately $1.2555/therm. The estimated annual heating required for Hart Dairy is 547MMBtu or 5,470 therms. With a boiler operating at 80% efficiency, approximately 6,838 therms of natural gas would be required to meet the annual heating demand, which, at today's Intermountain Gas Company rates, would cost about $6,864. Hart Dairy has other gas needs that would not be affected by this project.

Investment, Productivity, Tax, Loan and Grant Incentives – Mr. Hart is exploring the possibility of obtaining a loan through the State of Idaho. The state has a low interest loan program, administered by the Energy Division of the Idaho Department of Water Resources, which makes funds available at a 4% interest rate for energy efficiency projects including geothermal energy projects. Loans are available for retrofit only, with the exception of some renewable resources. In commercial, industrial, agricultural, and public sectors there is a minimum loan amount of $1,000 and a maximum cap of $100,000. Loans are repaid in five years or less. For existing homes or businesses, the savings from reduced usage of conventional fuel must be sufficient to pay for the project's installation cost (e.g. simple payback of 15 years or less). While the program's financing requires repayment within five years, this further stipulation for existing homes and businesses states that the project's cumulative energy savings over a fifteen year period must be great enough to offset the cost of the project.

VII. Equipment Procurement

Equipment Availability – The materials required for this project are standard off the shelf items. With the exception of the heat exchangers and pressure tank, most are available in home and ranch supply stores, or local plumbing supply business. The heat exchangers are available from multiple suppliers including those mentioned in the design section above. Pressure tanks are also available from multiple suppliers such as Flexcon, Franklin Pump Company, and ITT Industries. Heat exchangers and a pressure tank, and associated controls can be delivered to the site within 20 days of ordering them.

Procurement of the components of this system will be done in an "open and free" competitive basis.

VIII. Equipment Installation

System Installation – The plan for construction and installation is shown in the project timeline. This timeline estimates the entire construction portion of the project to be 11 days from initial well drilling, to system startup and shakedown. Equipment installation will be done by licensed professionals in accordance with all applicable safety and work rules.

It is anticipated that there will be no disruption in the twice-daily milking operations at the dairy, both during construction, and during startup of the system.

System Startup and Shakedown - System start-up will be carried out by a qualified well pump and controls technician in conjunction with a qualified hydronic heating and plumbing technician. System start-up will consist of verifying operation of thermostats and controls as designed, and verifying system pressures and flow rates as designed.

IX. Operations and Maintenance

Operation Requirements – The system operation will be based on thermostatic controls and pressure sensed in the pressure tank. When a thermostat calls for heating, appropriate valves will open at the heat exchanger, allowing flow of geothermal water through the heating system. When the pressure correspondingly drops in the pressure tank, the well pump will be energized. The pump speed will be controlled by pressure in the tank.

Maintenance Requirements - The circulating pumps will require a quarterly visual inspection to see that seals and connections are not leaking. Otherwise the pumps and motors have no routine maintenance requirements. The heat exchangers will require quarterly inspection and may require annual cleaning or de-scaling.

Warranties - The electric motors used in the system are all 1 hp or smaller, and have standard 1 year warranties from the manufactures. Downhole pumps for the production well typically come with 1 to 2 year warranties from the manufacturer. The heat exchangers typically have a 1-year warranty.

Expected Equipment Design Life – The water used in this well has low solids and corrosives content, and therefore equipment life should not be affected by the water chemistry. Heat exchangers used in similar applications have functioned with out failure for over 20 years, and thus this is the expected life of the heat exchangers on this project. Submersible pumps in similar well conditions have life expectancies of 12 -15 years. Circulation pumps used in similar applications have performed for more than 15 years with occasional maintenance on the seals. The piping used in the system should be good for 50 years or more. The pressure tank has a life expectancy of 15 years.

Risk Management / Equipment Failures – The proposed system form an engineering standpoint in not a complex system. Components most susceptible to failure are controllers and pumps, which are standard off the shelf items that can be delivered and installed in 24 hrs by Mr. Hart.

Technology Transfer – This will be the first dairy in southeastern Idaho to be heated by ground source heat pump or geoexchange technology. We intended to provide access for the Eastern Idaho Technical College in nearby Idaho Falls, Idaho to visit our facilities and collect data to support their programs in Air Conditioning / Refrigeration / Heating Technology. We also plan to share information on the systems performance with local and state dairy operators through the local USDA CREES office in Blackfoot Idaho.

X. Decommissioning

There are no plans to decommission this system. If anything, it might be expanded at a future date if the dairy operations were to grow substantially.

XI. Insurance

There are special insurance requirements for this project and the resulting system. The dairy is not located in a government defined flood zone. Our insurance carrier has indicated that the ground source heat pump or geoexchange equipment will be covered under our existing policy with no increased cost.

Appendix A. Energy Audit

An energy audit was conducted by Idaho Energy Associates Inc., in April. The letter report and the checklist used for the audit are included in this appendix.

April 10, 2006

Mr. Lee Hart
Hart Dairy
1455 South, 2000 East
Shelly, Idaho

Summary

Mr. Donald Kilowatt, PE of Idaho Energy Associates Inc. performed this energy audit of the Hart Dairy operations on April 3, 2006. The purpose of the energy audit was to determine if it would be cost effective for Mr. Hart to switch from natural gas to ground source heat pump or geoexchange technology to supply heating and chilling needs for his milking and milk processing operations. While the audit did look at other energy sources and uses such as electricity, no recommendations on those energy uses were included. This audit is not intended to provide detailed specifications for a geoexchange system, as Mr. Hart has hired an engineering firm that specializes in geothermal systems to perform that work. The results of this audit indicate that Mr. Hart could expect to invest approximately $90,000 in wells and equipment and realize a simple project payback in approximately 12 years based on current natural gas prices. If natural gas prices are assumed to increase 5% a year, the simple payback would occur in approximately 10 years. In addition, there are some energy conservation improvements that Mr. Hart could make that would lower his energy consumption, immediately, even if he were to choose not to move forward with conversion to a geoexchange system. A copy of the field audit criteria is attached to this report.

Situation Report

This energy audit was requested by Mr. Lee Hart to support his application to the USDA for and Energy Efficiency Grant through the USDA 9006 program. This audit consisted of a walkthrough and inspection of the Hart Dairy operations, using a 73 element checklist divided into seven categories. The seven general categories are: General Requirements (4 elements); Energy Efficiency Compliance (45 elements in 6 groups); Site Responsiveness (5 elements); Water Conservation (6 elements).; Materials Sensitivity (5 elements); Healthiness (5 elements); and Environmental Releases (3 elements). The complete checklist is attached to this report.

The Hart Dairy operations are located in Snake River Plain of SE Idaho approximately 3 miles south of the town of Shelly. The elevation at their location is 4,609 feet above sea level. Mean average temperatures for the area are presented in Table 1.

Table 1. Mean Average Temperatures at Shelly Idaho

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Temp °F	17.1	22.2	33.4	41.8	50.9	59.8	67.5	66.8	55.6	43.5	30.1	18.1

Currently all of the heating and cooling requirements for the dairy operation are accomplished with natural gas fueled systems. The dairy typically milks 260 cows twice a day in a 12 station milking barn that is approximately 1,200 sq ft (50'l, 24'w, 12'h) with a 12 foot ceiling. The milking barn is constructed of cinderblock and steel with R21 insulation in the ceiling. There are no windows in the milking barn. The milking operations require about 1,300 gallons of heated water each day, for washing the cattle and the facilities. Hot water is currently provided from a 60hp gas fired boiler. Rinse water for the milking operations is required to be 160°F. Milk processing requires chilling approximately 2,200 gallons a day of milk from approximately 90° F down to 34°F. The chiller being used is a Griton IBC 6106. The bulk tank room where the milk chilling and storage operations are conducted is approximately 576 sq ft and has 10' ceilings. (24'l x 24'w x 10'h). This building is also constructed of cinderblock with an insulated metal roof. These buildings are heated by natural gas ceiling mounted heating units.

Natural gas is provided by Intermountain Gas Company at the rate of $1.255 /therm. Hart Dairy's annual natural gas bill was $8,247 last year. This total includes natural gas applications in the home and shop, which are not considered in this energy audit.

Potential Improvements

Hart Dairy can decrease their energy consumption in their dairy operations in three ways.
1) While the hygiene and cleaning requirements of the buildings preclude the use of insulation on the walls, there can be some heating efficiencies gained by adding some insulation to the ceiling in both buildings.
2) There are a number of pipe runs in the facility that could benefit from pipe insulation and still meet the hygiene and cleaning requirements.
3) The operation could decrease their natural gas consumption by approximately 5,500 therms by converting to a ground source heat pump system for heating and chilling operations in the milk barn and bulk tank room.

Technical Analysis

By far, the biggest energy savings for Hart Dairy is associated with converting the water heating and milk chilling operations to a ground source heat pump or geoexchange system. This would save the operation approximately 5,500 therms of natural gas energy load each year. This is approximately $7,000 per year in reduced natural gas costs at the current price. Increased electrical load associated with the circulation pumps necessary for the geoexchange system are estimated to add approximately $440 / year at the current Rocky Mountain Power rate of $0.059897 per kWh. The current electric service

provider, Rocky Mountain Power also has some incentives Mr. Hart may qualify for when he installs a geoexchange system.

Mr. Hart plans to add insulation to the ceiling of both buildings to bring the insulation factor to R36. This will entail minimal cost and is not part of the grant application this energy audit is supporting. Mr. Hart also plans to add additional insulation to some of the piping in his facilities. Both tasks are expected to cost less than $400 combined and will be done during routine maintenance of the facilities.

This audit is not intended to provide detailed specifications for a geoexchange system, as Mr. Hart has contacted a professional engineer to provide that service. However, based on systems that our firm, Idaho Energy Associates Inc., have been involved with in the past, we estimate that this application will require approximately 10-12 tons of main heat exchanger capacity, and 20 tons (6 tons – space heating barn, 3 tons – space heating tank room, 4 tons – cow washing water, 3 tons – cleaning water, 4 tons – milk chilling) of heat pump capacity to convert the system from natural gas to geoexchange. Well drilling, piping, pumps, controllers and heat exchangers for a system of this size typically fall in the $75,000 to $100,000 range.

Potential Improvements Description

Ground source heat pumps or geoexchange systems have been used throughout the world for dozens of years. The technology which is similar to operating a common household refrigerator is well known, and in recent years there have been many refinements that have improved reliability and durability of the systems in addition to lowering the overall cost of geoexchange systems. The performance characteristics of the geoexchange units are well know and documented. All that is required to make a comparison between a geoexchange and natural gas based system is the inlet water temperature, the price of natural gas, and the price of electricity that will operate the pumps in the geoexchange system. Knowing these factors allows qualified engineers to calculate unit sizing to replace natural gas or electric systems. This energy audit does not provide specifications for equipment or design of a geoexchange systems. Mr. Hart has hired an engineering firm that specializes in geothermal systems to perform that work.

A review of the energy bills for Hart Dairy indicates that in the past year (March 2005 to March 2006) the dairy used 6,571 therms of natural gas. Mr. Hart has one gas meter on his property. Some of the natural gas was used for heating of the residence and office space of the dairy. This energy audit did not include the residence or office space; therefore we were unable to determine the exact usage for the milking and processing applications alone. However, the engineering study Mr. Hart has commissioned will be able to quantify this energy requirement.

Mr. Hart has adequate space adjacent to his milking barn and bulk tank room to install a well to well heat pump system. The well heads and piping will not interfere with other operations at the dairy. Existing piping in the buildings can be used for hot water

delivery. Additional insulation on that piping is recommended. There is ample room in the milking and processing buildings to install the heat exchanger and other pieces of equipment associated with a geoexchange system.

A geoexchange system will incorporate some small electrical pumps that were not part of the original heating system. These pumps are similar to the pumps the dairy uses to move milk products throughout the process. Mr. Hart has ample experience with inspection and maintenance of this type of equipment so overall system maintenance should not be an issue.

In summary, the milking barn and bulk tank room facilities at Hart Dairy would be ideal candidates for a geoexchange system for facility heating and process heating and cooling.

The information, calculations and conclusions in this report are valid for the configuration and use of the Hart Dairy facilities at the time of my audit on 3 April 2006.

Respectfully,

Donald Kilowatt, PE
Idaho Energy Associates Inc.
Sun Valley, Idaho

Energy Audit Checklist

Project Title: Hart Dairy Heating and Cooling Energy Efficiency Improvement

Location: 1455 South 2000 East, Shelly, Bingham County, Idaho

Date: 3 April 2006

Auditor: Donald Kilowatt, PE

This checklist identifies various energy efficient and sustainable design techniques and technologies that should be considered for any new building design, existing building modification, or complete building renovation. The checklist provides a method to consider energy efficient and sustainable concepts for the primary energy consuming building systems.

Checklist Item	Requirements Met	Not Applicable	Comments
1. GENERAL REQUIREMENTS			
1. Has ASHRAE Standard 90.1 been consulted for all energy related specification and design activities for this project? ASHRAE Standard 90.1 is an excellent source of building design guidelines to be applied for new building construction and existing building renovations or major modifications.	☐	X	
2. Has ANSI/ASHRAE/IESNA Standard 100-1995 or is equivalent been consulted for Energy Conservation in Existing Buildings? This standard provides many good tools and guidelines to assist with energy efficiency in existing buildings.	X	☐	
3 Has a life cycle cost approach been used to evaluate, compare, and select energy efficient and sustainable design parameters over standard building design parameters with an emphasis on selection of the best life cycle cost option? NBS Handbook 135 and its annual supplement contain current economic factors and energy and construction escalation rates.	X	☐	Not Applicable – this it not new construction
4 Have other sources of information for energy efficient and sustainable design techniques and technologies been consulted? Other significant sources of information include, but are not limited to the US Green Building Council at www.usgbc.org and several texts including the Sustainable Building Technical Manual available through the US Green Building Council. The LEED™ Rating System Version 2.1 contains many additional sustainable design concepts and can be found at: www.usgbc.org/LEED/publications.asp .	X	☐	Owner researched a number of energy efficiency options and improvements. Most were not cost effective for the current operations.
2. ENERGY EFFICIENCY COMPLIANCE			
Lighting Systems			
1. Has an effort been made to limit lighting levels to the minimum needed to meet IESNA (Illuminating Engineering Society of North America) Standards or other applicable Energy Efficiency Standards?	X	☐	Lighting was evaluated and it meets current guidelines
2. *Has task lighting been considered?* If task lighting for desktop or benchtop work is provided, the general area lighting can often be designed at lower light levels than when task lighting is not part of a facility design or planned operations.	☐	X	

Checklist Item	Requirements Met	Not Applicable	Comments
3. *Have compact fluorescent lamps been considered?* Incandescent lamps should not be used at all. Applications that have historically used incandescent lamps should now only have compact fluorescent lamps specified.	X	☐	100% of the lighting in the facilities is fluorescent lighting
4. *Have efficient exit lighting fixtures been specified?* Single Sided: **5 watts or less** Double Sided: **10 watts or less** Note: LED exit light fixtures are an excellent choice for very low maintenance and energy use.	☐	X	
5. *Has T-8 fluorescent technology been specified?* Standard fluorescent technology is now T-8 lamps with electronic ballasts. Ballasts should be selected as follows: Frequent Switching (3 hour cycles or less): specify **rapid start ballasts** Longer lighting cycles (12 hours typical): specify **instant start ballasts** Ballasts with a **low ballast factor (.77 to .87)** should be chosen for most applications as they will perform with lower energy use.	X	☐	Owner is aware of the benefits and will change to new technology as funding becomes available
6. *Have efficient HID lamps been specified?* If High Intensity Discharge (HID) fixtures are specified, select the most energy efficient type that will provide the needed color rendering for the application. Remember to research the application to determine if a more energy efficient type can be used! Typical applications include: Exterior: Low or High Pressure Sodium Interior: High Pressure Sodium or Metal Halide Alternative Technologies: Multiple Lamp compact Fluorescent or ICETRON high discharge fluorescent technologies.	X	☐	Current exterior lighting meets the recommendations

Checklist Item	Requirements Met	Not Applicable	Comments
7. *Has a lighting control system been considered that will automatically control all of the individual lighting fixtures and systems?* For large multi-use facilities, a complete lighting control system should be specified that controls the lighting according to work schedules.	X	☐	Automatic lighting is not necessary nor economically feasible for this operation
8. *Have motion sensors been specified?* Motion sensor controls should be specified for all common use areas. The following types of technologies are available: Passive Infrared (PIR): Offices, classrooms, conference rooms, and others that Provide for a direct line of sight to the sensor. Ultrasonic: Restrooms, libraries, and others where the area is typically cluttered or equipment and machinery can block a direct line of sight to the sensor. Dual Technology: Cubicle areas, and other areas with difficult environments such as high or variable air flow.	☐	X	
9. *Has outside lighting been configured and zoned so that some or all of the fixtures can be turned off during low use periods such as late at night or over the weekends?*	X	☐	This is a 24/7 operation. Outside lights have sensors to control dusk to dawn operation. All lights must be on at night.
HVAC and Mechanical Systems			
1. *Will the specified HVAC system be incapable of simultaneous heating and cooling?* Simultaneous heating and cooling has historically been an effective method to control building temperatures, but has been proven to be a significant waste of energy. New HVAC system designs or modifications must not operate through principles of simultaneous heating and cooling.	X	☐	The proposed geoexchange system meets these recommendations
2. *Have electronic temperature controls been specified that are capable of being programmed to setback the temperature whenever the facility is unoccupied?* The following temperature settings provide a general guide for typical work areas during off hours: Heating: **55° F** (but can be set as low as 45°F) Cooling: **System turned off**	X	☐	

Checklist Item	Requirements Met	Not Applicable	Comments
3. *Have economizer controls been considered?* Economizer controls open dampers to bring in additional outside air to cool the facility during cooler weather. Economizer controls should be standard in HVAC designs to take advantage of cooler weather.	X	☐	
4. *Have efficient chillers been specified?* Minimum energy performance specifications for chillers are listed in Chapter 6 of ASHRAE 90.1.	X	☐	The geoexchange system will use best available technology for chilling requirements.
5. *Have heat recovery systems been considered?* Laboratory, industrial, and process facilities that utilize once-through / 100% fresh air are always good candidates for heat recovery systems.	X	☐	
6. Have de-stratification strategies been considered to cycle trapped warm air from the ceiling level back to the floor level?	X	☐	An existing fan system was designed and installed for this purpose.
7. **Has insulation been specified for all hot and chilled water, refrigerant, steam, and glycol lines?**	X	☐	This is part of the new design.
8. *Have high efficiency motors with variable frequency controllers been considered for all rotating equipment applications?*	X	☐	All of the new pump motors and controllers will be high efficiency models
9. *Has properly sized equipment been specified?* Oversize equipment is generally not energy efficient and can result in increased maintenance and repair costs due to short cycling. Undersize or misapplied equipment will not adequately condition the facility and can also be costly to maintain.	X	☐	The owner has made arrangements for a Geoexchange specialist with a PE license to design the system.
10. *Have heat pumps been considered?* Even through heat pumps are less efficient in cold arid regions, they should still be considered for water to air and geothermal applications. If heat pumps are being considered, the facility operator and maintenance personnel should be contacted to discuss their ability to operate and maintain the heap pumps correctly. Heat pumps must be correctly sized and care should be taken to ensure that heat pump systems are installed by the sub-contractor exactly as specified in the design. Geothermal heat pump technologies work more effectively in regions with cold winter seasons. In general, the ground makes a better heat sink or source than does widely fluctuating air temperatures.	X	☐	This audits primary goal is to support conversion of the dairy water heating and chilling systems from natural gas to a geoexchange or ground source heat pump system.

Checklist Item	Requirements Met	Not Applicable	Comments
11. *Have passive solar heating applications been considered?* Passive solar heating technologies are proven to work in our climate and should always be included in building designs when determined to be cost effective. Water heating, space heating, and make up air preheating through the use of a transpired solar wall collector are all methods to obtain passive solar heating gains for a facility.	X	☐	Passive solar heating is not a cost effective option in this area.
12. *Has protection been considered for outside condensers?* Wind carries debris that can damage condenser fins over time. Such damage will reduce airflow and condenser capacity. For condensers that are subject to high wind conditions, some type of barrier should be provided that reduces the potential for fin damage but will not restrict airflow through the condenser.	☐	X	There will be no outside condensers.
13. *Has a location or shading for condensers been considered that will provide the least or most solar heat gain as applicable for the system needs?*	☐	X	
14. *Have efficient chilled water drinking fountains been specified?* Chilled water drinking fountains should have temperature settings no lower than 55°F and should include controls to not run during unoccupied periods. This control can be obtained through the use of occupancy sensors or possibly through a dedicated circuit and connection to the building's energy management system.	☐	X	There are no drinking fountains in the effected buildings.
15. *Have point source or tankless water heaters been considered?* Point source water heaters result in construction savings by only having to install a single cold water line where the need location is a long distance from the water heater. Tankless water heaters result in lower energy use and lower maintenance costs over conventional water heaters. Either of these water heating technologies are applicable to low water use areas and can save significant energy and maintenance related costs.	X	☐	This audit is supporting an application for a grant to install a geoexchange or ground source heat pump system.
Building Envelope			
1. *Has orientation to maximize daylighting been considered?* North facing windows provide glare-free daylighting strategies. South and west facing windows can provide unwanted heat gain and glare, which can be avoided by specifying view windows with a transmittance factor <0.18 and clerestory windows (above head height) with a transmittance factor of around 0.38.	☐	X	Buildings are already in place and have no windows.

Checklist Item	Requirements Met	Not Applicable	Comments
2. *Have insulated and coated windows been specified?* Windows should be insulated and/or coated at least as follows: North facing: **Triple glazing without low-e coating** South, East, and West facing: **Double glazing with low-e coating** Note: Very cold regions should consider triple glazing on all windows.	☐	X	No windows in buildings
3. *Have insulated outside personnel doors been specified?*	X	☐	Already in place.
4. *Have insulated equipment and garage doors with use-appropriate weather-stripping been specified?*	☐	X	
5. *Are vestibules part of the design for outside personnel doors? Are the vestibules non-heated?* Vestibules are designed in facilities to reduce infiltration of unconditioned air. The primary doors are insulted and weather-stripped whereas the secondary doors (either inside or outside) are typically not insulated and are not weather stripped. Vestibules installed outside the primary building envelope are often designed with fire sprinklers which then must be protected from freezing. This is accomplished by installing a heater in the vestibule or by propping the inside vestibule doors open during the winter. These practices negate the benefits of the vestibules. When appropriate and when code can be met, these types of vestibules should have the inside doors insulated and weather-stripped and should be specified without heat or sprinkler systems.	☐	X	Facility does not have nor need vestibules. Traffic does not warrant them.
6. *Has roofing with reflectance and emissivity of at least 0.9 been considered for buildings that require more heating than cooling?*	X	☐	Owner has taken this roofing option under advisement and may act on this during another fiscal year.
7. *Has the appropriate amount of insulation been specified?* The minimum standard for insulation is ASHRAE Standard 90.1. The Energy Cost Budget whole building simulation method described in section 11 of Standard 90.1 can be used to increase the energy efficiency of the building envelope by the percentages listed in the LEED™ Rating System Version 2.1. Additional insulation to increase the design points for a LEED™ certification score must be evaluated for life cycle cost effectiveness. The maximum amount of insulation should be specified in the design that will provide for maximum life cycle cost effectiveness rather than simple minimum first cost.	X	☐	Owner has agreed to increase insulation in the ceiling of the two buildings.

Checklist Item	Requirements Met	Not Applicable	Comments
8. *Have interior and exterior treatments been considered that will reduce the need for energy use?* Light colored interiors generally increase the perception of high light levels. Dark exterior treatments are a good choice for buildings with high internal heating requirements.	X	☐	Interior treatments are limited by Food Health Safety requirements, but currently support this item.
Automated Control Systems			
1. *Has a complete building control system been considered that will control all building functions?*	X	☐	
2. *Is the selected building control system compatible with other local existing building control systems so they can be networked together when applicable?*	☐	X	There are no other buildings associated with these two buildings.
3. *Have as many systems as possible been specified to be controlled by the automated system so they cannot be inadvertently left on by the tenants?* The following systems are the minimum that should be connected to the automated building controls: • All HVAC systems • Humidification systems • General area lighting • Outside lighting • Water heating equipment • Safety and Security systems	X	☐	
Miscellaneous Strategies and Features			
1. Have on-site co-generation systems been considered to supplement the building energy load? Co-generation includes a variety of energy producing systems that use waste energy or naturally occurring energy sources to offset the amount and cost of purchased energy needed for a facility or process. Many of these types of systems are becoming widely used and may reduce the overall life cycle cost of the facility. The types of systems typically associated with co-generation include waste steam reuse for electric generation, any of a variety of renewable sources such as wind or solar to reduce electricity use requirements, and employing existing standby generation systems to offset peak loading periods with their associate electrical demand costs.	X	☐	This system would not economically support any cogeneration systems.

Checklist Item	Requirements Met	Not Applicable	Comments
2. *Have photovoltaic solar systems been considered?* The cost effectiveness and dependability of active solar systems are steadily improving. Photovoltaic solar systems are particularly applicable to projects that would need to have electrical lines installed over a significant distance.	X	☐	Photovoltaic solar systems are not cost competitive in this location and situation.
3. Have emerging power alternatives been considered? Emerging technologies include alternate fuels, wind, solar, fuel cells, micro-turbines, flywheels, and others at they become available and should be implementing into building designs as they are found to be cost effective.	☐	X	
4. *Has metering and sub-metering been specified that will interface with the building controls system so that energy consumption data can be electronically and remotely monitored, controlled, and compiled?*	☐	X	
5. *Have Energy Star™ products and appliances been specified?*	X	☐	Where appropriate they have been discussed and recommendations made.
6. Has sub-metering been specified that will meter each section of the facility that has a different purpose or function? A multi-purpose facility should have sub-metering for functional areas such as laboratories, office areas, industrial processes, or food service.	☐	X	
7. Has landscaping been considered that will provide the maximum energy benefit for the facility? Deciduous trees provide shade and reduced heat gain in the summer while allowing needed heat gain in the winter. Evergreens are effective in providing year round protection from prevailing winds. Earthen berms provide reduced insulation needs.	X	☐	Landscaping was examined and the existing landscaping was judged to be outstanding from an energy savings standpoint.
Maintenance Considerations			
1. Have designs been reviewed to ensure adequate access to mechanical and electrical equipment, which ensures ease of maintenance? When maintenance is completed correctly and as scheduled, the energy using system is more capable of operating efficiently as designed.	X	☐	The design for the geoexchange system has not been completed, but it will have this element in the design review.

Checklist Item	Requirements Met	Not Applicable	Comments
2. Have designs been reviewed to ensure that the layout reduces or eliminates the chance that the building's contents will be located in a manner that impedes airflow for the building's HVAC system? Restricted airflow can put a building's HVAC system in an out-of-balance condition that results in employee discomfort and increased energy use.	☐	X	
3. Have HVAC controls been located away from the intended location of office and process equipment? Equipment that puts off heat can result in operational problems for a facility when this equipment is located near HVAC controls. Problems can include the inability of the tenants to control the building's HVAC system and increased costs to retrofit the facility after it has been completed.	X	☐	This will be an element in the design done by the PE.
3. SITE RESPONSIVENESS			
1. *Has the impact to local ecosystems been considered when specifying the building location?* A description of the analysis and selected features that minimize the impact of the building to local ecosystems will be required for inclusion in the Energy Efficiency and Sustainable Design Report.	☐	X	Buildings have been the same location for over 15 years.
2. *Has the selected building site avoided locating on prime farmland, within 100 feet of wetlands, or less than 5 feet above a 100 year flood plain?*	☐	X	This audit is for a retrofit of existing buildings.
3. *Have transportation needs and local transportation systems been considered for the building location and site selection?* The selected site location and building design should provide for ease of bus transportation, car or van pool parking spaces, and bike racks when applicable.	☐	X	
4. *Has the outside lighting of neighboring facilities been taken into account when determining the outside lighting needs for a new facility to avoid over lighting the space between facilities?*	☐	X	There are no neighboring facilities with outside lighting.
5. *Has outside lighting been limited to the lowest illumination required by IESNA and is shielded to avoid skyward reflection?*	☐	☐	

Checklist Item	Requirements Met	Not Applicable	Comments
4. WATER CONSERVATION			
1. *Has an analysis been performed that addresses the reduction, control, and treatment of site runoff?* A storm water runoff plan should be prepared that addresses strategies to minimize erosion and the potential washing of oils or other pollutants from parking lots or work areas into streams or sewers both during construction and building occupation. This plan in addition to a description of any other features considered or implemented to reduce, control, or treat site runoff will be required for inclusion in the Energy Efficiency and Sustainable Design Report.	X	☐	The facility has existing permits to operate as a dairy in Idaho.
2. *Has pervious paving been considered as a method to reduce storm water runoff?*	☐	X	
3. *Have low water use fixtures been specified for all casual water use applications?* Maximum flow rates for fixtures should be specified as follows: Faucets: **2.0 gpm** Showers **2.2 gpm** Toilets: **1.6 gpf** Urinals: **1.0 gpf** gpm = gallons per minute gpf = gallons per flush	X	☐	Where applicable, these criteria have been passed on the design engineer.
4. *Has landscaping been selected that will minimize the need for irrigation?* Grass and high maintenance vegetation requires frequent irrigation and cultivation. Xeriscaping is a method of using plants and landscaping materials native to dry regions, and which require little or no additional irrigation.	☐	X	Existing landscaping will not be disturbed by the proposed installation of a geoexchange system.
5. *If irrigation is required, have drip systems operated by timers or by moisture sensors been considered?*	☐	X	
6. *Have strategies been considered to recycle or reuse water and minimize the treatment of waste water?* Grey water can often be used for irrigation purposes. Treatment of waste water usually costs more than treating potable water initially.	X	☐	Wastewater is addressed in the facilities operating permits with the State of Idaho.

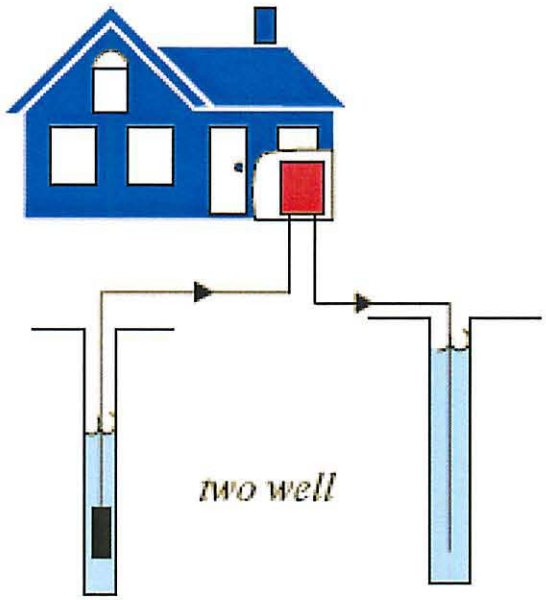
Checklist Item	Requirements Met	Not Applicable	Comments
5. MATERIALS SENSITIVITY			
1. *Have existing buildings been considered for renovation and rehabilitation rather than building a new facility for this project need?* Reusing existing facilities when cost effective will significantly reduce the amount of material waste in both the D&D of the existing facility as well as waste generated while constructing the new facility. A description of existing facilities considered and the practicality and cost effectiveness of their renovation will be required for inclusion in the Energy Efficiency and Sustainable Design Report.	X	☐	
2. *Have materials been specified that contain a maximum of recycled content?*	X	☐	
3. *Have construction methods been specified that will result in the least amount of left over material needing disposal or reuse?*	☐	X	This would be part of the design being done by a PE. Recommendations have been made to the owner of the facility.
4. *For construction process that will require a large amount of left over material or scrap, have materials been specified that are fully recyclable or can be used for another project?*	☐	X	This would be part of the design being done by a PE. Recommendations have been made to the owner of the facility.
5. *Have rapidly renewable material for building products been considered?* Examples of rapidly renewable materials include: • Wood cellulose insulation instead of fiber bat insulation • Linoleum flooring instead of vinyl • Cotton wall covering rather than synthetic materials • Certified wood	X	☐	This recommendation was made to the owner to pass along to the design engineer.
6. HEALTHINESS			
1. *Does the design include measures or technologies that minimize the potential for Indoor Air Quality problems during operation of the facility?* Specify low VOC and low urea formaldehyde resin content in paint, sealant, coating, carpet, composite wood, adhesive, and agrifiber products.	X	☐	
2. *Have independent ventilation systems been specified for chemical use and storage rooms, laboratories, copy rooms, and janitorial supply and storage rooms?*	☐	X	

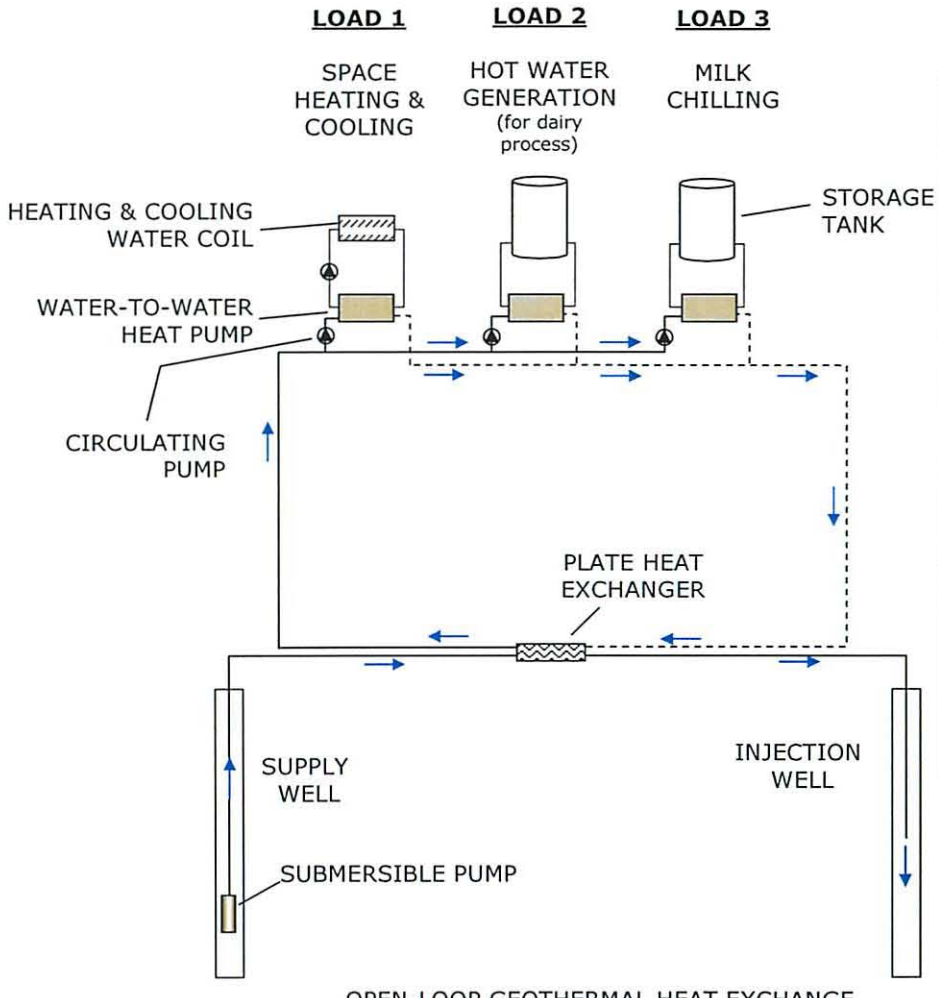
Checklist Item	Requirements Met	Not Applicable	Comments
3. *Does the design ensure that landscaping that will require pesticides is not placed near doors, air intakes, or operable windows?*	☐	X	
4. *Have daylighting strategies been considered?* Daylighting generally means that some combination of building orientation, window placement, light shelves, skylights, and daylighting controls have been utilized to displace artificial light with natural light without adding unwanted thermal gain or glare, and to automatically control building lighting systems when natural light levels are sufficient.	☐	X	This is a modification of existing buildings
5. *Has a combination of direct and indirect lighting been considered?* Conference rooms and certain office floor plans can benefit from the installation of "direct and indirect luminaries". The use of a combination of direct and indirect lighting can, in many cases, reduce the overall lighting electric load and may provide for a lower installation cost. Applying this principle can result in an improved life cycle cost benefit.	☐	X	
7. ENVIRONMENTAL RELEASES			
1. *Have pre-cut or pre-fabricated materials been specified to reduce on-site waste generation whenever possible?*	☐	X	
2. Have changeable or movable materials or systems been considered for facilities that are subject to change? Building systems or operational systems that are modifiable for new or different configurations will result in reduced life cycle demotion and related waste and costs.	X	☐	A recommendation was made to the owner to include this in the design by the PE.
3. *Does the design include space for recycling centers or containers?*	☐	X	

Appendix B. Engineering Design

Process Diagram - Open-Loop Geothermal System

- **Heating Loads Summary**
- **Cooling Loads Summary**
- **Construction Cost Estimate – Open-Loop (Well-to-Well)**





OPEN-LOOP GEOTHERMAL HEAT EXCHANGE

OPTION 3: WELL-TO-WELL

PROCESS DESCRIPTION

THE GEOTHERMAL LOOP ACTS AS A HEAT SOURCE AND SINK FOR WATER-SOURCE HEAT PUMPS.

THE PLATE HEAT EXCHANGER NOT ONLY ISOLATES GROUNDWATER FROM HEAT PUMP EQUIPMENT TO REDUCE SCALING AND CORROSION POTENTIAL, IT ALLOWS FOR OPTIMAL CONTROL OF THE SYSTEM. WITH SIMULTANEOUS HEATING AND COOLING LOADS OCCURING, THE PROCESS LOOP TEMPERATURE IS ALLOWED TO "FLOAT" BETWEEN UPPER AND LOWER SETPOINTS. THESE SETPOINTS ARE CHOSEN BASED ON HEAT PUMP SPECS AND ARE TYPICALLY SOMETHING LIKE 42°F AND 85°F. WHEN THE PROCESS LOOP TEMPERATURE REACHES THESE SETPOINTS, THE WELL PUMP IS ENERGIZED, AND GROUNDWATER FLOWING THROUGH THE HEAT EXCHANGER MODERATES THE PROCESS LOOP TEMPERATURE.

Appendix B: Design and Engineering Heating Loads Summary

Values in red are computed from input data.

Space Heating Loads

Load 1: **Milk Barn**

Floor space	1,220	ft^2
Design outdoor air temperature:	-6	°F
Design indoor air temperature:	70	°F
Annual heating degree days	7,100	
Heat loss at design condition	55	Btu/hr-ft^2
Peak heating Load	67,100	Btu/hr
Annual heating energy required	150	million Btu

Load 2: **Bulk Tank Room**

Floor space	576	ft^2
Design outdoor air temperature:	-6	°F
Design indoor air temperature:	70	°F
Annual heating degree days	7,100	
Heat loss at design condition	55	Btu/hr-ft^2
Peak heating Load	31,680	Btu/hr
Annual heating energy required	71	million Btu

Hot Water Heating Loads

Load 1: **Cow Washing**

Gallons per day required	600	gpd
Number of events per day	2	
Minimum storage required	300	gal
Recovery time	4	hr
Peak flow rate	1.3	gpm
Inlet water temperature	50	°F
Desired outlet water temperature	110	°F
Peak Heating Load	37,500	Btu/hr
Annual heating energy required	110	million Btu

Load 2: **Cow Udders & Milk Barn Floors**

Gallons per day required	520	gpd
Number of events per day	2	
Minimum storage required	260	gal

	Recovery time	4	hr
	Peak flow rate	1.1	gpm
	Inlet water temperature	50	°F
	Desired outlet water temperature	110	°F
	Peak Heating Load	32,500	Btu/hr
	Annual heating energy required	95	million Btu
Total Heating Load			
	Peak hourly	168,780	Btu/hr
	Annual	426	million Btu

Appendix B: Design and Engineering Cooling/Refrigeration Loads Summary

Values in red are computed from input data.

Space Cooling Loads			
Load 1:	**Milk Barn**		
	Floor space	1,220	ft^2
	Cooling load per sq. ft	250	ft^2/ton
	Annual equivalent full load hours	1,000	hr
	Peak cooling Load	58,560	Btu/hr
	Annual cooling energy required	59	million Btu
Load 2:	**Bulk Tank Room**		
	Floor space	576	ft^2
	Cooling load per sq. ft	250	ft^2/ton
	Annual equivalent full load hours	1,000	hr
	Peak cooling Load	27,648	Btu/hr
	Annual cooling energy required	28	million Btu
Process Cooling Loads			
Load 1:	**Milk Chilling**		
	Gallons per day produced	2,340	gpd
	Starting milk temperature	90	°F
	Chilled milk temperature	34	°F
	Cooling Load (on storage tank)	45,549	Btu/hr
	Annual cooling energy required	40	million Btu
Total Cooling Load			
	Peak hourly	131,757	Btu/hr
		11.0	tons
	Annual	126	million Btu

Appendix B: Design and Engineering
Construction Cost Estimate

Construction Cost Estimate	Quantity	Units	Unit Cost	Sub Total	Totals
GEOTHERMAL RESOURCE OPEN-LOOP SYSTEM (WELL-TO-WELL)					
Production Well					
Drilling & materials	250	ft	$30	$7,500	
Well pump, pressure tank, controls	1	lump	$2,000	$2,000	
Injection Well					
Drilling & materials	250	ft	$30	$7,500	
Distribution Piping					
PVC pipe, trench & backfill, pipe bedding, associated fittings & valves	200	ft	$20	$4,000	$21,000
GEOTHERMAL ENERGY UTILIZATTION					
Main Heat Exchanger (plate type)	12	ton	$50	$600	$600
Space Heating Load 1 - Milk Barn					
Retrofit from existing boiler					
Wall cut, piping, fittings	1	lump	$1,750	$1,750	
Heat pump (water-to-water)	6	ton	$1,500	$9,000	
Circulating pump, controls	2	lump	$500	$1,000	$11,750
Space Heating Load 2 - Bulk Tank Room					
Retrofit from existing boiler					
Wall cut, piping, fittings	1	lump	$1,750	$1,750	
Heat pump (water-to-water)	3	ton	$1,500	$4,500	
Circulating pump, controls	2	lump	$500	$1,000	$7,250
Hot Water Load 1 - Cow Washing					
Wall cut, piping, fittings	1	lump	$1,750	$1,750	
Heat pump (water-to-water)	3.5	ton	$1,500	$5,250	
Hot water storage tank (w. backup)	300	gal	$12	$3,600	
Circulating pump, controls	2	lump	$500	$1,000	$11,600
Hot Water Load 2 - Floors, Udders					
Wall cut, piping, fittings	1	lump	$1,750	$1,750	

Heat pump (water-to-water)	3	ton	$1,500	$4,500	
Hot water storage tank (w. backup)	260	gal	$12	$3,120	
Circulating pump, controls	2	lump	$500	$1,000	$10,370
Milk Chilling					
Wall cut, piping, fittings	1	lump	$1,750	$1,750	
Heat pump (water-to-water)	4	ton	$1,500	$6,000	
Storage tank (assume existing already)	0	gal	$0	$0	
Circulating pump, controls	2	lump	$500	$1,000	$8,750
CONSTRUCTION GRAND TOTAL					**$71,320**

Appendix C. Financial Commitment Letter

Idaho Farm Credit Services

February 25, 2005

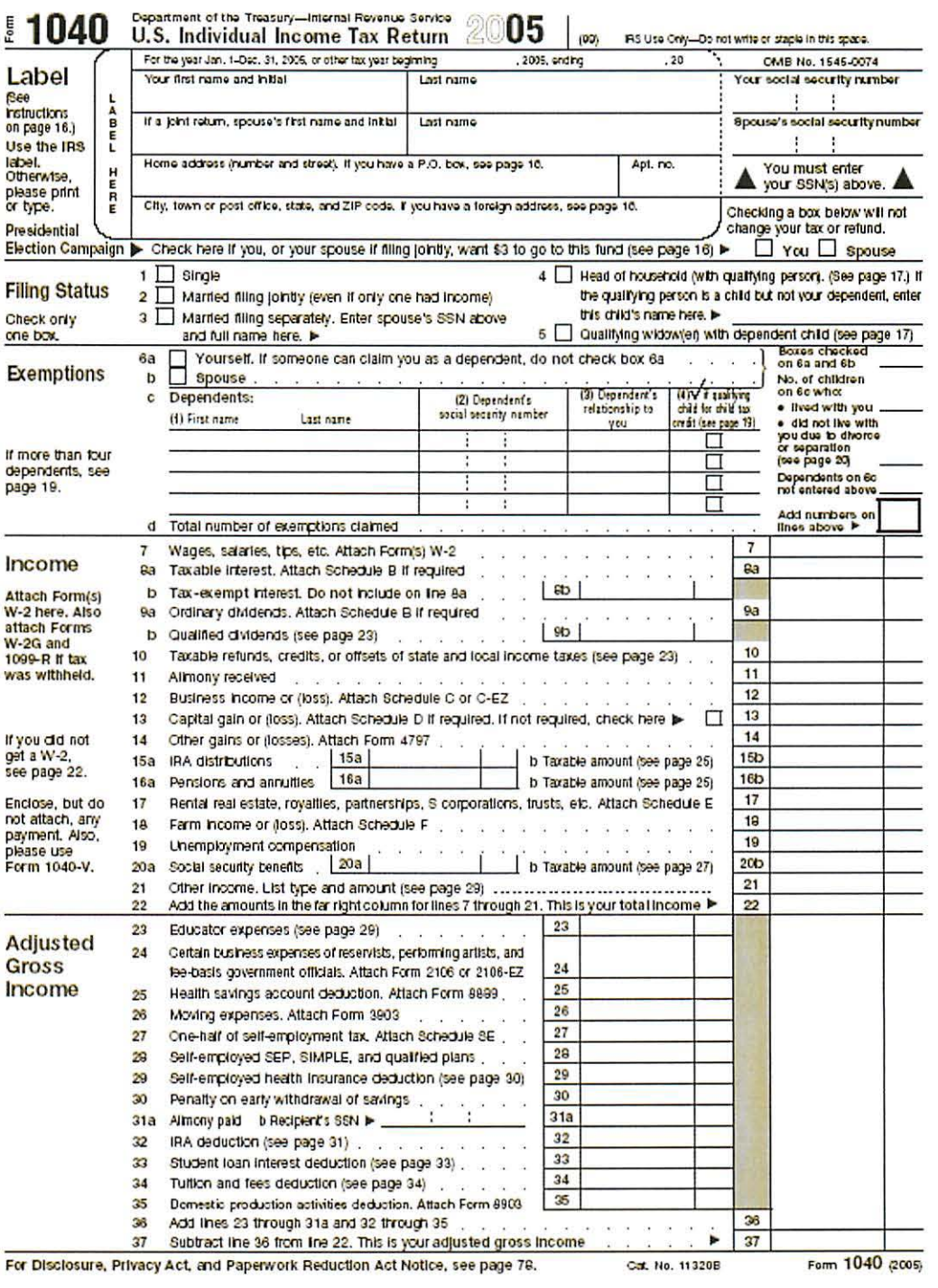
To Whom It May Concern:

Idaho Farm Credit Services agrees to provide financing in an amount no greater than $65,000 for the purchase of materials and labor for the conversion to geothermal energy sources for Lee Hart owner of Hart Dairy, of Shelly, Idaho. This letter is a commitment by Idaho Farm Credit Services to finance 75% the project up to $65,000.

Sincerely,

Patrick Lanley
Sr. Business Analyst
Idaho Farm Credit Services

Appendix D. Federal Tax Return



Form **1040** Department of the Treasury—Internal Revenue Service **U.S. Individual Income Tax Return** **2005** (99) IRS Use Only—Do not write or staple in this space.

Label (See instructions on page 16.) Use the IRS label. Otherwise, please print or type. Presidential Election Campaign

For the year Jan. 1–Dec. 31, 2005, or other tax year beginning , 2005, ending , 20 — OMB No. 1545-0074

Your first name and initial | Last name | Your social security number

If a joint return, spouse's first name and initial | Last name | Spouse's social security number

Home address (number and street). If you have a P.O. box, see page 16. | Apt. no.

▲ You must enter your SSN(s) above. ▲

City, town or post office, state, and ZIP code. If you have a foreign address, see page 16.

Checking a box below will not change your tax or refund.

Check here if you, or your spouse if filing jointly, want $3 to go to this fund (see page 16) ▶ ☐ You ☐ Spouse

Filing Status Check only one box.

1 ☐ Single
2 ☐ Married filing jointly (even if only one had income)
3 ☐ Married filing separately. Enter spouse's SSN above and full name here. ▶
4 ☐ Head of household (with qualifying person). (See page 17.) If the qualifying person is a child but not your dependent, enter this child's name here. ▶
5 ☐ Qualifying widow(er) with dependent child (see page 17)

Exemptions

6a ☐ Yourself. If someone can claim you as a dependent, do not check box 6a
b ☐ Spouse
c Dependents:

(1) First name Last name	(2) Dependent's social security number	(3) Dependent's relationship to you	(4) ✓ if qualifying child for child tax credit (see page 19)
			☐
			☐
			☐
			☐

If more than four dependents, see page 19.

Boxes checked on 6a and 6b
No. of children on 6c who:
• lived with you
• did not live with you due to divorce or separation (see page 20)
Dependents on 6c not entered above
Add numbers on lines above ▶

d Total number of exemptions claimed

Income

Attach Form(s) W-2 here. Also attach Forms W-2G and 1099-R if tax was withheld.

If you did not get a W-2, see page 22.

Enclose, but do not attach, any payment. Also, please use Form 1040-V.

7	Wages, salaries, tips, etc. Attach Form(s) W-2		7
8a	Taxable interest. Attach Schedule B if required		8a
b	Tax-exempt interest. Do not include on line 8a	8b	
9a	Ordinary dividends. Attach Schedule B if required		9a
b	Qualified dividends (see page 23)	9b	
10	Taxable refunds, credits, or offsets of state and local income taxes (see page 23)		10
11	Alimony received		11
12	Business income or (loss). Attach Schedule C or C-EZ		12
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here ▶ ☐		13
14	Other gains or (losses). Attach Form 4797		14
15a	IRA distributions 15a	b Taxable amount (see page 25)	15b
16a	Pensions and annuities 16a	b Taxable amount (see page 25)	16b
17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E		17
18	Farm income or (loss). Attach Schedule F		18
19	Unemployment compensation		19
20a	Social security benefits 20a	b Taxable amount (see page 27)	20b
21	Other income. List type and amount (see page 29)		21
22	Add the amounts in the far right column for lines 7 through 21. This is your total income ▶		22

Adjusted Gross Income

23	Educator expenses (see page 29)	23	
24	Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ	24	
25	Health savings account deduction. Attach Form 8889	25	
26	Moving expenses. Attach Form 3903	26	
27	One-half of self-employment tax. Attach Schedule SE	27	
28	Self-employed SEP, SIMPLE, and qualified plans	28	
29	Self-employed health insurance deduction (see page 30)	29	
30	Penalty on early withdrawal of savings	30	
31a	Alimony paid b Recipient's SSN ▶	31a	
32	IRA deduction (see page 31)	32	
33	Student loan interest deduction (see page 33)	33	
34	Tuition and fees deduction (see page 34)	34	
35	Domestic production activities deduction. Attach Form 8903	35	
36	Add lines 23 through 31a and 32 through 35		36
37	Subtract line 36 from line 22. This is your adjusted gross income ▶		37

For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see page 78. Cat. No. 11320B Form **1040** (2005)

Appendix E. Hart Dairy Income Statement

Hart Dairy

Current Year Profit and Loss Statement, or Income Statement, or Earnings Statement

January 1 through December 31, 2005

INCOME		
	Milk Sold	756,000
	Calves Sold	19,000
	Cattle Sold	63,000
	Government Payments	18,500
	Total Income	**856,500**
EXPENSES		
	Labor	74,000
	Payroll Taxes	6,500
	Repairs	6,200
	Interest (Operating	18,000
	Interest (Other)	60,000
	Rent/Lease	32,000
	Feed	327,000
	Seed	13,000
	Fertilizer	68,000
	Chemicals	17,000
	Custom Hire	8,000
	Supplies	11,000
	Breeding/Veterinarian	17,000
	Fuel, Gas, Oil	33,000
	Property Taxes	12,300
	Insurance	4,700
	Natural Gas	5,100
	Utilities	24,125
	Depreciation	59,000
	Total Expenses	**795,925**
NET INCOME		**60,575**