



Illinois State Water Survey
HYDROLOGY DIVISION

SWS Contract Report 501

**1990 ILLINOIS IRRIGATION ENERGY CONSERVATION
GRANT PROGRAM**

by

Jean A. Bowman and Cecille A. Widoff

Office of Ground-Water Resources Evaluation and Management

F. William Simmons

Department of Agronomy, University of Illinois

Prepared for the
Illinois Department of Energy and Natural Resources

Champaign, Illinois

December 1990

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Contract No. SWRR2

Illinois State Water Survey
2204 Griffith Drive
Champaign, IL 61820-7495

December 1990

INTRODUCTION AND OVERVIEW

As agricultural irrigation spreads in Illinois, the importance of energy and water conservation will grow. For supplemental irrigation to be efficient, it must be: (1) scheduled accurately to reflect the crop's water needs, natural rainfall patterns, and soil moisture characteristics; and (2) applied with irrigation systems which are sufficiently designed and maintained to maximize the relationship between water applied and energy used. In Illinois, there may be opportunities for improved efficiency in both areas. The first, improved scheduling and reduced irrigation, is being addressed in ongoing irrigation field studies. The second, improved irrigation efficiency, is the focus of the Illinois Department of Energy and Natural Resource's (ENR) pilot 1990 Illinois Irrigation Energy Conservation Grant Program (energy grant program); that program is discussed here.

The purpose of this project was to evaluate the energy efficiency of irrigation systems used in heavily irrigated portions of Illinois, including parts of Mason, Tazewell, Lee, Whiteside, and Henry Counties. Further, the goal was to make grant money available to qualified irrigation farmers meeting specific program criteria. The grant money was used by the farmers to make eligible improvements in existing irrigation systems and in the operation of those systems in order to save energy and improve energy efficiency. This project was conducted in conjunction with an irrigation field study in those counties; the purpose of the field study is to gain a better understanding of typical irrigation water use patterns in Illinois by measuring irrigation flow rates, hours of irrigation system operation, and amounts of irrigation water used at regular intervals throughout the growing season. The impact of irrigation water use on regional water resources is also being evaluated in the irrigation field study.

This report contains the results of the energy conservation and grant program. The results of the ongoing irrigation field studies are contained in a companion report, "Irrigation Practices in Illinois," Illinois State Water Survey Circular (in press).

METHODS

Because of funding limitations, the energy grant program was limited to those farmers already participating in the irrigation field studies being conducted by Water Survey personnel. The participating irrigation farmers were notified by mail that grant money may be available for certain eligible improvements to irrigation systems which resulted in energy savings. Following that, a packet was sent to each farmer containing an application form, instructions, eligibility criteria, and a letter describing the program. Completed applications were sent to the Water Survey, where they were reviewed. As part of the application review process, Water Survey personnel made numerous site visits to the irrigation farms to discuss the proposed improvements. These site visits included conduct of six well performance tests to verify and document well deterioration problems. In many cases, revisions to the application forms were made based on discussion and recommendation by Water Survey personnel.

Once applications were complete, they were forwarded to program managers at ENR for further review. Program managers from ENR met with the principal investigators on six occasions to discuss and review the applications as they were received. After the applications were approved and the actual improvements to the irrigation systems made, Water Survey personnel made site visits to inspect the improvements and to interview the farmers about energy savings. Contract managers from ENR accompanied Water Survey personnel on a number of these site visits.

At the end of the irrigation season, each participating farmer was contacted and interviewed regarding energy costs and savings following the improvements.

RESULTS

A total of 33 irrigation farmers in five counties took part in the energy grant program in 1990; program eligibility criteria are summarized in Appendix A. The improvements made to the irrigation

systems totaled \$240,284.32, of which \$89,981.80 was contributed in the form of 40 percent cost-sharing grants through ENR. Estimates of annual energy savings made by participating farmers totaled \$50,267.63. Actual energy savings information was available through extensive interviews and review of energy bills from 26 of the 33 participating farmers. Seven of the participating farmers did not have energy savings to report because: (1) they did not operate their irrigation system in 1990 because of unusually heavy rainfall; (2) they did not operate their irrigation system long enough (because of heavy rains) to obtain adequate energy consumption costs; or (3) they did not have their improvements completed until well into the 1990 irrigation season, and therefore do not have accurate estimates of actual energy savings. The 26 farmers who did have energy savings to report estimated a \$38,892.68 cumulative energy savings in 1990; their actual 1990 energy savings totaled \$46,154.27. Some irrigation farmers saved more energy dollars than they expected and some saved less; the differences between estimated and actual energy savings stemmed mainly from variations in hours of system operation.

The improvements made to irrigation systems through this energy grant program are as follows: (1) 23 participating farmers converted systems from high to low pressure; (2) four participating farmers brought three-phase electricity to their system to change from diesel fuel to off-peak electric use; (3) four participating farmers had irrigation wells rehabilitated or relocated to improve pumping efficiency, based on recommendations from State Water Survey personnel; and (4) one participating farmer had a lower pressure submersible pump installed.

The conversions from high to low pressure involved replacing existing spray nozzles with low-impact nozzles, and reducing the horsepower of the irrigation system engine. In some cases, new diesel motors were required to accommodate the more efficient low pressure nozzles. Most of the low-pressure conversions also required the installation of a small booster pump to operate an extension at the end of the system (end-gun) to keep the pressure high enough to water the corners

of the fields. The total cost for these improvements was \$144,642.46, with an ENR cost-share contribution of \$56,578.80.

The conversions from diesel fuel to three-phase electricity allowed the use of highly cost-effective off-peak electricity during the night hours, which also minimizes evaporative losses making the irrigation conditions more optimal. These improvements required installation of an electric motor, replacing spray nozzles, removal of the diesel engine, and installation of the electric line and meter. Total cost for these improvements was \$48,846.48, with an ENR cost-share contribution of \$16,000.00.

The well rehabilitations/replacements allowed the participating farmers to decrease operating time and improve pumping efficiency by decreasing pumping lift and well loss. The wells that were replaced or rehabilitated had significantly lost capacity, increased recovery time, and lost efficiency; in most instances the farmers were operating their wells 24 hours a day in order to keep up with the irrigation demand. The well rehabilitations ranged from simple chemical rehabilitation to relocation of the well, including installation of pipeline to the irrigation intake point. The total cost for these improvements was \$34,322.38 with an ENR cost-share contribution of \$12,414.00.

Finally, the installation of the low pressure submersible pump allowed the farmer to operate at lower pressure with a highly efficient underground pump. This improvement involved removing the old pump and installing the new submersible one. This improvement cost \$6,625.00, with an ENR cost-share contribution of \$2,650.00.

Copies of letters explaining the conversions to three-phase electricity and the well rehabilitations/replacements are included in this report in Appendix B. Copies of the original grant applications and supporting documentation are included in Appendix C; these applications detail the improvements made by each participating farmer, and their estimated energy savings. Copies of the signed contracts are included in Appendix D. These contracts were signed by participating farmers

when Water Survey personnel visited the grant sites to inspect the improvements.

Table 1 summarizes the grants applied for and received under the ENR energy grant program, including the estimated and actual energy savings. The annual payback is based on *actual* energy savings.

Table 1. Summary of Energy Grants and Savings

<i>Name</i>	<i>Improvement Cost</i>	<i>Grant Contribution</i>	<i>Estimated Energy Savings</i>	<i>Actual Energy Savings</i>	<i>Payback</i>
Breedlove	5,182.00	2,073.00	1,800.00	1,544.00	336
Brownlee	10395.00	4,000.00	2,855.00	3,494 .00	2.98
Cassens	10,050.00	4,000.00	1,773.00	1,121.57	8.96
Coleman	1,649.61	660.00	1,680.00	2,280.00	0.72
Didier	3,852.00	1440.80	2,86.00		1.68
Egan	5,848.00	2339.00	525.00		11.14
Fanter	6300.00	2520.00	842.05	1,843.20	3.42
Finch	6,625.00	2,650.00	960.40	1,020.00	650
K.Friedrich	3,220.00	1,288.00	1,107.00	1,620.00	1.99
R. Friedrich	3,720.00	1,488.00	1,199.00	3,510.00	1.06
Fomoff	9,400.00	3,760.00	1,452.00	1,413.00	6.65
Garlisch	3,968.00	1587.00	603.75		6.57
Hahn	3,875.37	1550.00	553.93	819.00	4.73
Heye	1,698.00	679.00	1,043.46	1,536.00	1.11
Kreiling	4,260.00	1,704.00	1,040.60	1,121.00	3.80
Alan Landis	17,601.48	4,000.00	3,050.00	3,156.00	558
Alvin Landis	10,460.00	4,000.00	3,023.00	3,010.00	3.48
LeFevre	10390.00	4,000.00	1,429.80		7.27
E. Mead	12,400.00	4,000.00	1,680.00		738
T. Mead	11,991.48	4,000.00	2,150.40		5.58
Miller	3,780.00	1512.00	2,411.00	2,720.00	139
D. Pfeiffer	9,096.00	3,998.40	1367.99	1,160.00	7.84
Dean Pfeiffer	9,996.00	3,998.40	2502.88	2,930.76	3.41
L, Pfeiffer	9,998.00	3,999.20	2,657.26	3312.64	3.02
Poci	10,633.00	4,000.00	2,700.00		3.90
Proehl	1,034.38	414.00	200.00	226.78	4.56
Ringhouse	7,616.00	2,486.00	1,130.50	1,627.20	4.68
S&D Farms	9,068.00	3,627.00	1,168.00	2,406.40	3.77
Schmitt	10,833.00	4,000.00	1,027.31	968.00	11.12
Thomas	,530.00	984.00	365.80	1,161.76	Z18
??dike	6,430.00	2572.00	1,041.00	1,027.00	6.26
J. Whitaker	9379.00	3,752.00	1,402.50	2,162.14	434
T. Whitaker	<u>7,000.00</u>	<u>2,800.00</u>	<u>1,239.00</u>	<u>1,086.00</u>	<u>6.45</u>
TOTAL	240,284.32	89,981.80	50,267.63	48,276.45	4.75

CONCLUSIONS

The importance of optimizing irrigation operations has been demonstrated by the energy savings realized with this project. It is worth noting that the 33 irrigation farmers participating in the energy grant program derived substantial direct benefits from the ENR contribution of cost-share grants. However, broader benefits may be felt throughout the general irrigation community in Illinois through the demonstration of viable energy-saving techniques (conversion from high to low pressure, well rehabilitation, etc.) by the participating farmers. Irrigation farmers who have been contemplating such improvements, but who may have lacked specific information on potential energy savings, may now proceed with more energy efficient and cost effective irrigation operations.

APPENDIX A

***1990 Illinois Irrigation Energy Conservation Grant Program
Application Instructions and Program Eligibility Criteria***



November 24, 1989

Dear Participating Irrigation Farmers:

The Illinois Department of Energy and Natural Resources (ENR) has funding available for an Energy Conservation and Irrigation Grant Program. This funding can provide 40% matching grants up to \$4,000 to purchase and install energy conservation measures on irrigation systems.

Two target areas have been identified for the program. These areas are defined as the two hydrologic regions known as the Havana Lowlands and the Green River Lowlands. The areas include: 1) Mason and Tazewell counties and 2) Bureau, Lee and Whiteside counties.- The pilot program will be limited to those operators participating in the phase one of the "Irrigation Water Use in Illinois: Strategies for Soil Water Management and Ground Water Conservation Study" conducted by the State Water Survey and the University of Illinois Cooperative Extension Service.

The enclosed program opportunity notice describes the program and requirements for the submission of an application. Interested and qualified parties whose proposed projects meet the criteria specified in this notice are invited to respond.

If you are interested in applying for a grant, please read the enclosed program description and submit a completed application by May 15, 1990.

The Energy Conservation and Irrigation Grant Program is a cooperative effort of the Illinois Department of Energy and Natural Resources, the State Water Survey and the University of Illinois Cooperative Extension Service.

Sincerely yours,

Henry C. Kurth, Manager
Consumer Assistance Section

Webster Bay, Manager
Agricultural Program

HCK:pc
aplt



PROGRAM OPPORTUNITY NOTICE
FOR THE
ENERGY CONSERVATION, IRRIGATION GRANT PROGRAM
FOR ILLINOIS FARMERS

PROGRAM GUIDELINES

Illinois' irrigated agriculture depends heavily on water and energy inputs. To minimize costs and maximize profits in the short term and to maintain Illinois' irrigation in the long term, it is imperative that the energy and water resources be managed efficiently. The Energy Conservation Irrigation Grant Program will provide Illinois farmers with an opportunity to save energy, save water and reduce their operating costs. The Program is designed as a pilot subsidy project to encourage operator investment, and demonstrate the cost effectiveness of energy conservation investment in more efficient irrigation systems or equipment. The pilot program will be limited to those operators participating in the phase one of the study entitled "Irrigation Water Use In Illinois; Strategies For Soil And Water Management And Ground Water Conservation" conducted by the State Water Survey and the University of Ill. Cooperative Extension Service.

General Description

The Illinois Department of Energy and Natural Resources, as the lead agency, in cooperation with the University of Illinois Cooperative Extension Service, and the State Water Survey will conduct a grant program to partially fund energy conservation improvements in agricultural irrigation systems. The program objective is to provide technical and financial assistance to Illinois farmers to identify, evaluate and implement water management systems and make pump and system improvements that have significant direct and indirect energy conservation potential. Two target areas have been identified for the program. These areas are defined as the two hydrologic regions known as the Havana Lowlands and the Green River Lowlands. The areas include: 1) Mason and Tazewell Counties and 2) Bureau, Lee, and Whiteside Counties. These two target areas were selected because of substantial research work conducted under phase 1 of the program conducted by the Cooperative Extension and the Water Survey. These areas also have a majority of the irrigation systems in the State, and appear to have an abundance of older systems most likely to benefit from an energy efficient retrofit.

Grant Program

The Illinois Department of Energy and Natural Resources has allocated \$150,000 for the Energy Conservation, Irrigation Grant Program for the purchase of equipment and services needed to improve the efficiency of irrigation systems. This includes: 1) The repairing or replacement of selected irrigation pumps which audits indicate have significant potential for energy efficiency improvements; and 2) modifying or retrofitting existing irrigation systems, i.e. operating irrigation systems at lower pressures, etc.

Project Eligibility

To Be Eligible, Projects must meet the following requirements:

1. Be located in the two target areas: 1) Mason and Tazewell Counties; and 2) Bureau, Lee and Whiteside Counties, and be systems that have been analyzed in phase 1 of the Irrigation Study.
2. Utilize existing, reliable technologies designed to reduce energy use through efficiency improvements, reduced hours of operations or by utilizing renewable resources.
3. Demonstrate energy savings to produce a simple payback period of 10 years or less for the total cost of the project based on estimated annual energy savings.
4. To enhance the potential for project success, applicants are encouraged to work with agricultural advisors/specialists from colleges and universities, and/or farm equipment manufacturers and suppliers.
5. New irrigation systems will not be considered for funding. Project eligibility for replacement systems replacing systems older than for five years or more will be determined on a case-by-case basis. Retrofits to existing irrigation systems that meet program criteria are eligible.
6. Program grants shall be 40% matching grants with a minimum grant of \$1000 and a maximum grant of \$4000.
7. All projects must be completed within 90 days following approval of project by the Illinois Department of Energy and Natural Resources. Failure to do this will result in revocation of the grant and require submission of a new application to the Department.
8. Applicant must be the direct user/beneficiary of conservation measures funded by this program.

Grant Application Process:

1. Potential applicant receives a Program packet.
2. Applicant completes an evaluation of his irrigation system, which includes recommendations for energy conservation retrofits.
3. Applicant submits a completed application form along with at least one estimate of project costs to the Illinois Water Survey for preliminary review. The Water Survey makes a preliminary approval and forwards the application to the Department of Energy and Natural Resources for final review.
4. The Department may request additional information prior to taking action on a specific application. The Department may conduct site visits to further evaluate the project and reserves the right to require changes and/or additional Information prior to grant approval.
5. If the application is approved a grant agreement between the applicant and ENR will be signed. This agreement will specify work schedules for the completion of the retrofits and provide for dispersal of the grant funds.

ENR reserves the right to make changes in these policies as may be necessary.

**IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
APPLICATION INSTRUCTIONS**

SECTION

- A. Name:** Please fill in the applicants legal name. If the application is in the name of a corporation, please list the legal name of the corporation and a name of a principal person of the corporation.
Address: List the mailing address of the person or entity named above. Please include county, zip code and the telephone number of the person responsible for the application.
- B. Applicant's social security number:** List the social security number of the person responsible for the grant application. If the application is on behalf of a corporation, list the FEIN number for the corporation.
- C.** List the electric utility supplying power to the site to be improved with the proceeds of this grant. List the account number for the location.
- D.** List the gas, propane or diesel fuel supplier for the site.
- E.** Please describe the energy conservation improvements planned. Be as detailed as possible and attach additional sheets of paper if necessary. All brand names and model numbers of equipment to be purchased should be listed. Attach at least one estimate or contractor bid for the improvement cost.
- F.** Total \$ amount of the improvements: This figure should include only costs associated with the energy conservation measures installed.
- G.** Amount of grant requested: Please list the amount of grant funds you are seeking from ENR under this application. In no case should this amount be greater than 40% than the amount of line F. or more than \$4000.
- H.** Table for energy savings: This table should list the various components of line E. and list the estimated energy costs associated with those installations. ENR recommends that the applicant utilize utilities, equipment suppliers and the Illinois Water Survey to develop these estimates.
- I.** Applicant's Certification: Please read the certification carefully and sign your name acknowledging your acceptance of these terms.
- J.** Mail the completed form and accompanying documents to:

**Ms. Jean A. Bowman
Illinois Water Survey
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495
Phone: (217) 333-3729**

APPENDIX B

***Documentation of Individual Applications
for Conversion to Three-Phase Electricity and
for Well Rehabilitation and Replacement***



Telephone (217) 3334300
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495

May 24, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St, Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Alan Landis for participation in the irrigation energy grant program.

Mr. Landis has applied to bring 3-phase electricity to his farm, allowing him to operate his irrigation rig with low-cost electricity rather than diesel fuel.

Because of the availability of favorable off-peak electric rates in Mr. Landis' area, the use of electric power is substantially cheaper than diesel. Off-peak hours are at night, so irrigation operation occurs during optimal conditions with minimal evaporative losses. This results in decreased operation time.

We recommend that Mr. Landis' application be approved; it encourages energy efficient, cost-effective irrigation practices and takes advantage of favorable electric rates available to farmers in the region.

Sincerely,

F. William Simmons

Jean A Bowman



Telephone (217) 333-4300
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495

May 24, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Marlin LeFevre for participation in the irrigation energy grant program.

Mr. LeFevre has applied to bring 3-phase electricity to his farm, allowing him to operate his irrigation rig with low-cost electricity rather than diesel fuel.

Because of the availability of favorable off-peak electric rates in Mr. LeFevre's area, the use of electric power is substantially cheaper than diesel. Off-peak hours are at night, so irrigation operation occurs during optimal conditions with minimal evaporative losses. This results in decreased operation time.

We recommend that Mr. LeFevre's application be approved; it encourages energy efficient, cost-effective irrigation practices and takes advantage of favorable electric rates available to farmers in the region.

Sincerely,

F. William Simmons

Jean A. Bowman



Telephone (217) 333-4300
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495

May 24, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Terry Poci for participation in the irrigation energy grant program.

Mr. Poci has applied to bring 3-phase electricity to his farm, allowing him to operate his irrigation rig with low-cost electricity rather than diesel fuel.

Because of the availability of favorable off-peak electric rates in Mr. Poci's area, the use of electric power is substantially cheaper than diesel. Off-peak hours are at night, so irrigation operation occurs during optimal conditions with minimal evaporative losses. This results in decreased operation time.

We recommend that Mr. Poci's application be approved; it encourages energy efficient, cost-effective irrigation practices and takes advantage of favorable electric rates available to farmers in the region.

Sincerely,

F. William Simmons

Jean A. Bowman



Telephone (217) 333-4300
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495

May 24, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Robert Cassens for participation in the irrigation energy grant program.

Mr. Cassens has applied to convert an irrigation rig from high to low pressure, and to replace an existing, deteriorated irrigation well. I believe that you are well aware of the energy benefits of converting to lower pressure, and that your questions concern the well.

Mr. Cassens' 25-year-old well had significantly lost capacity, increased recovery time, and lost efficiency. Over the three years of our irrigation study, Mr. Cassens has been forced to operate his well 24-hours a day, seven days a week throughout the irrigation season.

Because of the advanced age of the well, a replacement well has been recommended. The replacement well will increase the watering capacity by 350 gallons per minute, thereby decreasing the necessary operating time significantly.

We recommend that Mr. Cassens' application be approved as his improved operation will be approximately twice as energy efficient as before.

Sincerely,

F. William Simmons

Jean A. Bowman



Telephone (217) 333-4300
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495

May 24, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Alvin Landis for participation in the irrigation energy grant program.

Mr. Landis has applied to replace an existing, deteriorated irrigation well. His original well had lost capacity, increased its recovery time, and had been operating with declining pumping water levels. Over the last three years of our irrigation field study, we observed the well's lost efficiency. Mr. Landis had to increase his operating time to keep up with water demand. Because of the advanced age of the well, chemical rehabilitation would not have been likely to remedy the problems in the long run; a replacement well was the most cost effective remedy. These problems and options were documented by a pumping and well performance test conducted by the Water Survey in October, 1989.

We recommend that Mr. Landis' application be approved as his new well will require fewer total hours of operation, and allow for more efficient application of water and reduced pumping lift. This will result in overall energy savings and efficiency.

Sincerely,

F. William Simmons

Jean A. Bowman



Telephone (217) 333-4300
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495

May 24, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Doug Schmidt for participation in the irrigation energy grant program.

Mr. Schmidt has applied to replace an existing, deteriorated irrigation well. Mr. Schmidt's original well was approximately 57 feet deep with the pump set at 55 feet. A water-free bedrock formation started at 57 feet, the bottom of the well. With only two feet of available drawdown in the well, the pump was constantly dewatered during operation. The well had significantly decreased in capacity. Over the last three years of our irrigation field study, we have observed Mr. Schmidt's well; he has had to operate the well around the clock, regardless of energy consumption, in order to supply adequate water to his crop. These problems were documented in a pumping and well performance test conducted by the Water Survey in October, 1989.

Because of the presence of the shallow bedrock formation that does not yield an adequate water supply, deepening or rehabilitating the existing well was not cost effective. The replacement well was considered to be the only reasonable alternative.

We recommend that Mr. Schmidt's application be approved as his new well will require fewer total hours of operation, and allow for more efficient application of water without pump dewatering and reduced pumping lift. These measures will allow for overall energy savings and efficiency.

Sincerely,

F. William Simmons

Jean A. Bowman



Telephone (217) 3334300
Ground-Water Section
2204 Griffith Drive
Champaign, Illinois 61820-7495

May 24, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Edward Mead for participation in the irrigation energy grant program.

Mr. Mead has applied to rehabilitate an existing irrigation well. The well, drilled in 1976, was 653 feet deep, finished in a sandstone formation, with a pump setting of approximately 150 feet. In the last three years of our irrigation field study, we have observed Mr. Mead's well increasing recovery time, decreasing capacity, and losing efficiency. These problems were confirmed by a test pump. A local well driller recommended deepening the well to increase the capacity and raise the pumping water levels; we confirm this recommendation. The improvements will allow Mr. Mead to operate his well fewer hours and decrease his overall pumping lift.

We recommend that Mr. Mead's application be approved as it is within the program guidelines and goals.

Sincerely,

F. William Simmons

Jean A. Bowman



May 28, 1990

Illinois State Water Survey

Telephone (217) 333-4300

Ground-Water Section

2204 Griffith Drive

Champaign, Illinois 61820-7495

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses your questions regarding the application by Robert Garlisch for participation in the irrigation energy grant program.

Mr. Garlisch has applied to convert his existing irrigation rig from high to low pressure. At the time he filed his application, he estimated going from 90 pounds pressure at 2200 revolutions per minute and 1000 gallons per minute water delivery, to 40 pounds pressure at 1800 revolutions per minute and 1300 gallons per minute water delivery for an annual savings of about \$600 with a 6.5 year payback period. However, as Mr. Garlisch has notified you, a test pump of the well has shown that he was only pumping 850 gallons of water per minute to begin with, and that his improvements would yield him 950 gallons per minute instead of 1300. He was concerned that the change in estimated savings would disqualify him from participating in the program.

We have visited with Mr. Garlisch and have re-evaluated his energy application. By going from 850 to 950 gallons per minute delivery, he will save between 50 and 100 hours of operation per year. With fuel prices at approximately \$1.05 per gallon and fuel consumption at 5 gallons per hour, that will enable a savings of between \$260 and \$525 a year. However, in going from the present 90 pounds pressure at 2200 rpm to 40 pounds pressure and 1800 rpm, he will also save in fuel consumption per hour. The savings is estimated at approximately one gallon per hour. That will mean a savings of approximately 840 gallons of fuel a year at a savings of \$882.

With these changes, we estimate that Mr. Garlisch will be saving between \$1,142 and \$1,407 per year. His installation cost is estimated at \$3,968, making his simple payback period in years between 2.8 and 3.5. This is well under the 10 year maximum payback period. (Please note that Mr. Garlisch's original application accounts for the energy savings in fuel consumption but not for savings in total hours of operation. That explains why his improvements yielding fewer gallons of water per hour than expected still have higher annual savings than he estimated on his original application.)

We recommend that Mr. Garlisch's application be approved so that he may go ahead with his improvements. He will be saving both in total hours of operation and in fuel consumption per hour.

Sincerely,

F. William Simmons

Jean A. Bowman



A Division of the

Illinois Department of Energy and Natural Resources

APPENDIX C

***Copies of Original Grant Applications
and Supporting Documentation***

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

Breedlove Farms
 A. Name: John Breedlove B. Applicant's S.S.#: 396-46-5781
 Address: RR#1 Box 253 C. Electric Utility: Menard Electric Co-op
Manito, IL Account #: 01-016-017-04
 Zip Code: 61546 D. Gas Utility: _____
 County: Tazewell Account #: _____
 Telephone #: (309) 968-6951

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Irrigation
Convert from high pressure to low pressure machine.
This entails putting new holes into the pipe with a
torch and welding nipples in to put low pressure sprinklers
in each hole. We would also use a boost pump with a
new end gun. The job of pulling the high pressure pump
out of the casing, adjust the pump to low pressure, and
installing it into the casing. We would also use a smaller
electric motor from a 60 hp. to a 30hp. with labor.

F. Total \$ amount of improvements \$ ~~5182~~ 5182
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ ~~2073~~ 2073

H. Estimated start up date Mar of 1990 Estimated completion date April of 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved (→)	Cost/kWh	Units Saved	Cost/Unit		
Converting from a high pressure to a lower pressure system	4600 2073	Horse power change from a 60 to a 30 it is \$28/h	.04/kWh @ 1000 hrs / yr. total \$1920			Hp charge per year \$840 \$960 Electric	2.56 yrs payback
TOTAL	2073		Bill without hp charge + \$960 at low pressure 1/2 saving \$960			1800/yr	2.56 yrs.

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

John Breedlove 3/21/90
 Applicant's Signature Date

T. N. & W. IRRIGATION INC.
R. R. #2
MANITO, IL. 61546

DATE 1/4/89

JOHN BREEDLOVE

LOW PRESSURE CONVERSION ON 4 TOWER VALLEY (660 FT.)

NELSON SPRAY III SPRINKLERS AND CHART	175
NELSON 15 PSI REGULATORS	567
SR100 END GUN	575
130 GPM BOOSTER PUMP, PANEL, AND WIRING	1000
REMOVE AND INSTALL LAND ROLLAR PUMP MAKE PUMP 500 GPM AT 40 PSI	940
NEW 30 HP ELEC MOTOR, CHANGE HEATERS IN EXISTING PANEL	1400
FREIGHT	150
WELDING NEW OUT LETS IN PIPE. INSTALLING SPRINKLERS AND END GUN	375
TOTAL	\$5,182.00

CUSTOMER TO KEEP OLD ELEC MOTOR,

CUSTOMER SIGNATURE

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: STEVEN D BROWNLEE B. Applicant's S.S.#: 352-60-4545
 Address: 230 WEST MAIN STREET C. Electric Utility: COMMON WEALTH EDISON CO.
AMBOY, ILLINOIS Account #: SER.# RC90-0012
 Zip Code: 61310 D. Gas Utility: Van Orin COOP Oil Co.
 County: LEE Account #: _____
 Telephone#: (815) 857-2233 Home
 (815) 857-3838 Farm

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

I will be converting my East Irrigation Well and Pivots' power source from a cummins 220 120 hp. (6 gal/hr) diesel to a 75 hp. U.S. Holoshaft Motor using Off-Peak Electrical Power supplied by Commonwealth Edison, with the option to power the well and pivot with diesel power during On-Peak periods by means of an Amarillo C100A Combination Gearhead, thus allowing continuance 24 hours per day operations during extremely dry periods without incurring the \$ 800.00 demand charge and higher price per kWh rates imposed during those On-Peak hours. The diesel power is more efficient than the On-Peak rates and charges, but the Off-Peak rates are 4.5 times cheaper than the current diesel power. The savings outlined below are well documented due to the fact that Dale (my father) and I converted our West Irrigation Well and Pivots' power source to Off-Peak Electrical power before the 1989 season and have experienced the savings as well as learning the higher management skills needed for optimum efficient Off-Peak Operations.

F. Total \$ amount of improvements \$ \$ 10,395.00

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ \$ 4,000.00

H. Estimated start up data March 15, 1990 Estimated completion data May 15, 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
OFF PEAK Electric Conversion	\$10395.	Hours of annual use are as follows:					
			.02417/kWh	Cummins 220 D		1986	575 hrs
		Electric cost .89/hr		6 gal/hr @ .90/gal		1987	700 hrs
		plus \$17.99/month		750 hrs of use		1988	800 hrs
		\$883.50	4500 gal	.90/gal	\$ 4050.00	3.56	
		\$750.00	600 hrs of use		\$ 3166.50	3.28	
			3600 gal	.90/gal	\$ 2490.00	4.17	
		\$660.00	500 hrs of use				
			3000 gal	.90/gal	\$ 2040.00	5.09	
TOTAL	\$10395.	681 hours	\$822.00	4086 gal	.90/gal	\$ 2855.00	3.64

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Steven D. Brownlee 2-27-90
 Applicant's Signature Date

TOTAL AMOUNT OF THE IMPROVEMENTS

Commonwealth Edison contract to supply 480 volts (815)288-2211	\$ 3113.11
Amarillo C100A Combination Gearhead () -	\$ 2332.00
K & D Motor & Electric : 75 hp. U.S. Holoshaft Motor(used) (308)995-6063 Size 4 Used pump panel	\$ 1800.00 \$ 800.00
Erbes Electric : Installation of 480 volt meter & panel (815)8495260	\$ 750.00
Midwest Irrigation Co. : Combination Chemagation & (402)723-5374 Control Valve	\$ 400.00
Mid-American Pump : Stainless Steel Headshaft(Goulds) (402)463-5658	\$ 400.00
Wilco Rental : Trencher rental & labor to install wire (815)625-4323	\$ 200.00
Freight : Fuel & Motel charges incurred during trip out to Nebraska to haul Gearhead, Motor, Panel, Chemagation valve, and Headshaft back to Amboy. Individual freight charges could total \$700.00	\$ 200.00
Eller & Willey Block Co. : Prefabricated Concrete (815)284-7761 Transformer Pad	\$ 400.00

TOTAL IMPROVEMENTS \$10395.11



Commonwealth Edison
DIXON OFFICE
919 FIRST STREET
DIXON, ILLINOIS 61021
(815) 288-2211

Date: 02/02/1990

MR. STEVE BROWNLEE
SLEEPY HOLLOW RD.
AMBOY TWP IL 61310

Dear MR. STEVE BROWNLEE

Enclosed are the documents related to the supply of electricity at SLEEPY HOLLOW RD., AMBOY TWP, ILLINOIS. Please sign all copies of the enclosed documents. Return the signed documents and payment of \$3,113.11 to my attention. *sd #2441*

The cost of providing electric service is void after six months.

Upon receipt of your payment and signed copies, Commonwealth Edison will begin to schedule any necessary service work. An authorized copy of each document will be returned to you for your files.

If you have any questions concerning this or other Commonwealth Edison matter, please call me at (815) 288-2211 ext. 249.

Sincerely,

MARK HECKMAN
Sales Department
Commonwealth Edison

See RC 90 0012

Enclosures

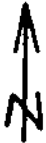
SERVICE ENTRANCE LOCATION SKETCH

S.E.R. # REC-0012

THIS INFORMATION FOR THE ELECTRICAL CONTRACTOR AND/OR ARCHITECT
FOR STEVE BROWNLEE IRRIGATION

FOR A CONNECTED LOAD OF _____ K.W. LIGHT, AND _____ H.P. AND _____ SPECIAL
AND ESTIMATED TOTAL MAXIMUM DEMAND OF 75 KW.
FOR CLASS OF BUSINESS IRRIGATION SERVICE VOLTAGE 480V 3Ø 3W GROUND

The electrical contractor should secure the approval of the appropriate Municipal Authority and must conform to the Commonwealth Edison Company's Book of Information and Requirements for the supply of Electric Service. This location is contingent upon there being no objection to crossing adjacent property with service wires if access location given is for load shown above, and any change in load may require change in location. Customer's underground conduit should not be installed in advance of Commonwealth Edison Company's conduit. Approval of this extension will constitute customer's approval of service location as shown below.



C.E. CO. TO: (As Checked)

CUSTOMER TO: (As Checked)

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><input checked="" type="checkbox"/> 1 Install, Own, and Maintain Transformers.</p> <p><input checked="" type="checkbox"/> 2 Install, Own, and Maintain Primary Wire or Cable.</p> <p><input type="checkbox"/> 3 Trench 30" Deep and Rough Backfill.</p> <p><input type="checkbox"/> 4 Install, Own and Maintain _____ Set(s) of _____ Secondary Service Cable, C.E. Co. to Feed into Bldg. Customer to Pull.</p> <p><input checked="" type="checkbox"/> 5 Furnish Lugs and Connect Secondary at Transformer. Customer to Furnish Lugs and Connect at Switch.</p> <p><input type="checkbox"/> 6 Install, Own and Maintain Transformer Pad.</p> | <p><input type="checkbox"/> 7 Provide Grade Within 4" of Finished Grade Before C.E. Co. Starts Work.</p> <p><input checked="" type="checkbox"/> 8 Install, Own, and Maintain Transformer Foundation Per C.E. Co. Specs CS285 and <u>CS289</u>. Front of Foundation to Face <u>WEST</u>.</p> <p><input checked="" type="checkbox"/> 9 Install, Own, and Maintain Secondary Cable to C.E. Co. Transformer.</p> <p><input type="checkbox"/> 10 Install, Own and Maintain Vehicular Barriers Per C.E. Co. Specification CS295.</p> <p><input type="checkbox"/> 11 Install Service Atch. at Bldg. of Sufficient Height as to Maintain Min. Service Drop Height of 18'-0".</p> <p><input type="checkbox"/> 12 Extend Service Entrance Conduit(s) a Minimum of 2' into Undisturbed Earth Outside Bldg. Wall.</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Sketch Submitted To Customer on _____ By _____ Marketing _____ Est. _____

SHORT CIRCUIT CURRENT

The short circuit current which can be delivered from Commonwealth Edison Company's system, calculated at the first point(s) of connection between Edison-owned facilities and those of _____ (customer's name)

_____, each point(s) being situated at _____ in 40,900 amperes symmetrical rms 3 (THREE) phase, at 480 volts.

The electrical characteristics of circuits used in extending from the aforementioned point(s) and those of your rotating equipment, will affect the short circuit duty imposed on your electrical facilities.

We suggest that this information be conveyed to the designer of your electrical system to enable him to specify an adequate and economical installation.

LOCATION PLAN FOR ELECTRICAL FACILITIES
APPROVED BY:

CUSTOMER _____ DATE _____

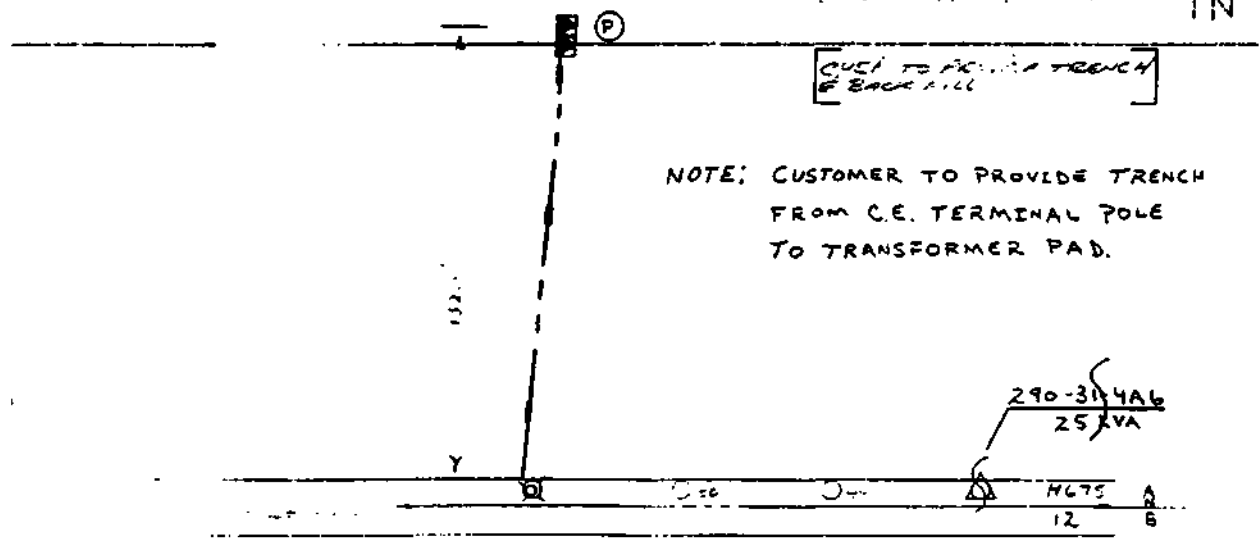
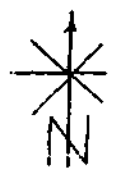
COMMONWEALTH EDISON COMPANY
DIVISION ENGINEERING DEPARTMENT

BY B. BURGETT ENGINEER DATE 01-29-90

TELEPHONE 288-8271 EXTENSION 271

APPROVED _____

75 HP PUMP, 2 HP PUMPS
(480V 3P, 3W, GND. 2P)



NOTE: CUSTOMER TO PROVIDE TRENCH
FROM C.E. TERMINAL POLE
TO TRANSFORMER PAD.

NOTE: LOC. 290-31-446 CAN BE REMOVED
(RAISING) W/ PUMP WILL BE SERVED FROM
NEW 480V LOC.

Proposal

ERBES ELECTRIC
RR 1 Box 19
SUBLETTE, ILLINOIS 61367
(815) 840-8290

Dale Brownlee
1202 Sleepyhollov Rd
Aubey, IL 61810

Installation of 200 AMP, 480 volt, 3-phase, 4-wire, B-phase grounded system for irrigation system. Wire will be 4/0 URD, installed in a 4" tile, (tile supplied by owner) metered at pivot of irrigation.

Contractor will install meter socket, but no other additional boxes. Meter socket will be mounted on volmanized lumber and connected to disconnect supplied by owner.

All labor to be performed on a non-union basis by Erbes Electric. All materials and workmanship to be in accordance with the National Electric Code, and National Building Code.

Total Contract Price \$ 1,450.00

Reduced due to I will
be trenching the wire and
doing most of labor.

50% Ad ch # 5467

WE PROPOSE to furnish labor and material — complete in accordance with above specifications, and subject to conditions found on both sides of this agreement, for the sum of:

dollars (\$ 1,450.00)

Payment to be made as follows: 50% down, Net 30 days upon monthly billing

ACCEPTED. The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above. (Read reverse side).

Respectfully submitted.

ERBES ELECTRIC

Date of Acceptance 7/10/67

Douglas Erbes

By _____

By _____

By _____

Note: This proposal may be withdrawn by us if not accepted within _____ days.

FROM:

INVOICE

5098



Mid-America Pump & Supply

Industrial Park East, Bldg. S.H. 48
 P.O. Box 1287
 HASTINGS, NEBRASKA 68902-1287
 (402) 463-5658
 FAX (402) 463-0323

Invoice Date: 5-16-89

SHIP TO: _____

SOLD TO: Dale Brownlee
1202 Sleepy Hollow Road
Amboy, Illinois, 61310

Same

(If Different Than SOLD TO)

YOUR ORDER NO.		DATES ENTERED		SHIPPED VIA.		F.O.B. POINT		TERMS		JOB NAME	
Vbl/Dale		4-11-89		UPS-BLUE PPD & ADD		Hastings		C.O.D.			
QUAN.	BK. ORD.	SHIPPED	DESCRIPTION					UNIT PRICE		AMOUNT	
1		1	1 3/16" x 5 1/2" S.S. Headshaft 12 thd. Goulds Headshaft							141	82
1		1	Nut							19	00
										160	82
			UPS-BLUE & C.O.D. Charges							35	18
			TOTAL CHARGES							196	00
<p><i>11400.00 quoted due to headshaft size since will be approximately twice as long (120")</i></p>											
<p>PAID 5-12-89 WITH CK #5565</p>											
<p>PLEASE PAY FROM THIS INVOICE. NO STATEMENT WILL BE MAILED.</p>											

The title to the merchandise and personal property covered by this invoice shall remain vested in Mid-America Pump & Supply, Inc. until the purchase price is paid in full.

A FINANCE CHARGE COMPUTED AT A PERIODIC RATE PER MONTH, WHICH IS AN ANNUAL PERCENTAGE OR HIGHEST LAWFUL RATE, WILL BE APPLIED TO ACCOUNTS AFTER DEDUCTING CURRENT CREDITS.

P.O. # _____ P.O. # _____
 P.O. # _____ P.O. # _____

ORIGINAL

C5289

PAGE 1 OF 2

C5289

PAGE 1 OF 2

**FOUNDATION FOR OPEN DELTA COMPARTMENTAL TR
DESIGN FOR ELECTRIC SERVICE STATIONS
167KVA MAX CAPACITY - EACH TRANSFORMER
(LOW PROFILE TRANSFORMER ONLY)**

ITEM	MATERIAL DESCRIPTION	(BY C.E. CO.)	MIG	S.I.	UNIT	QTY A
A	DRIVEN GROUND	C8550..FO	6			1
B	COND. 1/0 BT SD 19 STRD. CU. ①		6	355082	FT	30

NOTES:SUPPLEMENTARY MATERIAL

- ① WHEN NON-JACKETED BARE CABLES ARE IN THE VICINITY, REPLACE ITEM-B WITH 1/0 LEAD CLAD COPPER CONDUCTOR(S) 360809.

INFORMATION

- ① DO NOT PLACE CONDUITS UNDER THIS SECTION OF FOUNDATION, IF AVOIDABLE.
- ② ALL SECONDARY CONDUIT SHOULD ENTER OPENING UNDER THE LARGER (LIGHTING) TRANSFORMER ONLY.
- ③ PRIMARY AND SECONDARY CONDUIT BY CUSTOMER. ALL CONDUIT SHALL TERMINATE FLUSH WITH TOP OF BOXED OUT CABLE OPENING WHEN CONDUIT RUN IS NOT INSTALLED. A 4 INCH 90° PRIMARY CONDUIT BEND WITH A MINIMUM 12 INCH RADIUS SHALL BE TERMINATED 12 INCHES BEYOND THE FOUNDATION IN DIRECTION OF CABLE RUN AND 30 INCHES BELOW GRADE. SECONDARY CONDUIT SIZE AND QUANTITY DETERMINED BY SERVICE ENTRANCE REQUIREMENT. CUSTOMER TO PROVIDE METAL CONDUIT CLAMPS FOR #2 WIRE, 0, 2, TYPE "BLD" OR EQUIVALENT WHEN BENDS ARE GALVANIZED RIGID STEEL CONDUIT.
14. DO NOT DISTURB GROUND IN FOUNDATION AREA MORE THAN NECESSARY WHEN INSTALLING CONDUIT.
- ⑮ AFTER PRIMARY AND SECONDARY CONDUITS ARE IN PLACE, BACK-FILL WITH SCREENINGS, SAND OR FINE EXCAVATED MATERIAL THOROUGHLY COMPACTED BEFORE POURING FOUNDATION.

\$400.00

- ⑯ THE CONCRETE MIX IS TO BE COMPOSED OF CEMENT, SAND, GRAVEL, AIR ENTRAINMENT, FLY ASH AND THE MINIMUM AMOUNT OF WATER TO PRODUCE A COMPRESSIVE STRENGTH OF 3000 p.s.i. AT 28 DAYS ON TEST. THE SAND AND GRAVEL TO BE CLEAN AND HARD. THE AIR ENTRAINMENT TO BE BETWEEN 3% AND 6% BY VOLUME. THE MIX TO HAVE 5 BAGS OF PORTLAND CEMENT TYPE-1 OF A REPUTABLE BRAND, PER CU. YD. OF CONCRETE. IF AVAILABLE, FLY ASH IS TO BE MIXED IN AT A RATE OF 20 LBS. PER BAG OF CEMENT. ALSO A SLUMP OF 3 INCH TO 5 INCH IS REQUIRED.
- ⑰ TOP OF FOUNDATION TO BE SMOOTH AND LEVEL.
- ⑱ GRADE AWAY FROM FOUNDATION.
19. PRIMARY AND SECONDARY CONDUIT MUST COME THROUGH FOUNDATION IN DESIGNATED AREAS. DEVIATIONS FROM THE DESIGN AS SHOWN MUST HAVE C.E. CO. APPROVAL.
20. WEIGHT OF ULTIMATE TRANSFORMER TO BE FURNISHED BY ENGINEER [] LBS.
- ⑲ ALTERNATE METHODS OF MAKING GROUND CONNECTIONS ARE: CABLED, SILFOS BRAZING, BOLTED OR COMPRESSION.
- ⑳ FINAL GRADE TO BE WELL DRAINED AT ALL TIMES.
- ㉑ BOX OUT BETWEEN CONDUIT OPENINGS WITH 1 INCH UNTREATED LUMBER TO PROVIDE A 4 INCH X 6 INCH CLEAR OPENING. LUMBER MAY REMAIN IN PLACE AFTER CONCRETE IS POURED.
- ㉒ WHEN NUMBER OF SECONDARY CONDUITS EXCEED THAT SHOWN IN TABLE A, REFER TO C5290.

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Robert Cassens B. Applicant's S.S.#: 361-07-1577
 Address: R.R. 1 C. Electric Utility: Farmers Mutual Electric
Prophetstown, Ill. Account #: 3-17-11
 Zip Code: 61277 D. Gas Utility: _____
 County: Henry Account #: _____
 Telephone #: (815) 537-5679

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

New 75' well *
Renozzling and new 40 Hp motor
See attached estimates.
* Test well shows 75' sufficient.

F. Total \$ amount of improvements \$ 10,050.

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4,000.

H. Estimated start up date May 7 Estimated completion date June 7

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Well, motor, renozzling See attached savings sheet.	\$10,050.	35856	.0494			\$1,773.	5.6
TOTAL	\$10,050.	35856	.0494			\$1,773.	5.6

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Robert Cassens
Applicant's Signature

April 23, 1990
Date

*****ESTIMATE*****

04/24/90

PAGE 1

ROBERT CASSENS
OSAGE ROAD
PROPHETSTOWN, IL. 61277
(815)-537-5679

BEIERMANN AGRI-SYSTEMS INC.
26409-178th Ave. N
CORDOVA, ILLINOIS 61242
(309)-654-2222

THE FOLLOWING EQUIPMENT IS NEEDED TO IMPROVE THE IRRIGATION
EFFICIENCY FOR THE CENTER PIVOT SYSTEM FOR ROBERT CASSENS.

- 1 NEW IRRIGATION WELL, 14" STEEL CASING W/12" STAINLESS STEEL
SCREEN AT THE BOTTOM, APPROX. 75' TOTAL DEPTH----- \$8,750.00

- 1 RENOZZLING OF THE CENTER PIVOT, USING EXISTING SPRINKLERS-- \$300.00
CUSTOMER PROVIDES LABOR INSTALLING NOZZLES

- 1 NEW 40 HP VHS MOTOR W/TRADE IN OF OLD 60 HP----- \$1,000.00
CUSTOMER TO PROVIDE LABOR TO MOVE PUMP AND SWITCH MOTORS.

CASSENS TOTAL===== \$10,050.00

THANK YOU VERY MUCH,
BEIERMANN AGRI-SYSTEMS INC.

Grosch Irrigation Co., Inc.

Well Drilling and Complete Installations

MASON CITY, IL 62864

Phone 217-482-5479

~~STATEMENT~~ ESTIMATE
-ESTIMATES BASED ON CURRENT PRICES-

DATE April 16 19 90

Robert Cassens

RR 1

100 ft. Well			
80	ft.	14" Plain steel casing	\$3800.00
20	ft.	12" Stainless steel screen	\$3675.00
		Gravel	\$750.00
		Permit	\$75.00
		Test pumping	\$200.00
		Drilling fluids	\$350.00
		Installation	\$500.00
		Steel pump base	\$150.00
			<hr/>
			\$9500.00
A charge of \$40.00 per ft. will be added if the well is over 100 ft. \$30.00 ft. will be deducted if the well is under 100 ft.			
			75' \$8750

Service charge is $1\frac{1}{2}\%$ per month
Annual rate is 18% per year

ESTIMATED COST SAVINGS PER YEAR, W/10" OF WATER APPLIED ON 135 ACRES

PRESENT WELL AND MOTOR:

500 GPM High PSI w/35' pumping level, very inefficient,* 60 HP motor,
Requires approx. 1200 hours, consuming approx. 49.8 kwh. @ \$.0577/kwh.
Total energy cost per year----- \$3448.00

NEW ENERGY CONSERVATION PLAN:

850 GPM Low PSI w/70' pumping level, 40 Hp motor, Requires approx. 720 hours,
consuming approx. 33.2 kwh. @ \$.0701/kwh. **
Total energy cost per year----- \$1675.00

Annual Kw savings----- ,35856 kw.
Annual cost savings----- \$1773.

* Due to poor well, pumping air, resulting in low GPM requiring more hours of operation.
New well also 500' closer to pivot, resulting in more efficient use of energy pumping shorter distance.

** Kw charge differs due to rate structure.

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Robert Coleman B. Applicant's S.S.#: 218-40-3380
 Address: 1383 Bullman Rd. C. Electric Utility: _____
Harman, Ill. Account #: _____
 Zip Code: 61042 D. Gas Utility: Brown Oil Co.
 County: Lee Account #: _____
 Telephone #: (815) 251-4731

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Reduce operating pressure of 1977 Center Pivot from 130 lbs. to 60 lbs., a reduction of 70% operating pressure. Replace old high pressure PC100 End gun with SR100 Med. pressure End gun. Will require closer spacing of nozzles to accommodate Med pressure.

F. Total \$ amount of improvements \$ 1,649.61
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 659.85
 H. Estimated start up date 6/90 Estimated completion date 7/90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
<u>Re-nozzle</u>	<u>1,650</u>			<u>2,000 gal</u>	<u>84</u>	<u>1,650</u>	<u>1</u>
TOTAL							

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Robert D. Coleman 4/28/90
 Applicant's Signature Date

IMPORTANT: Use Ball Point Pen. Press Hard. Make Sure All Copies Are Legible.

ORDER FORM AND SALES CONTRACT

"Proposal"



T-L IRRIGATION SYSTEMS

AUTHORIZED DEALER

Mead Machine Shop
731 Walter Rd

T-L IRRIGATION CO.
P.O. Box 1047
Hastings, Nebraska 68901
(402) 462-4128

Omaha, Ill. 61310

Date 4/28/90

Sold to: Robert Coleman

Phone (815) 251-4731

Herman, Ill. 61042

Shipping Directions: 1223 Bollman Rd

Shipping Date: _____

Herman, Ill. 61042

G.P.M. 1000 PSI (Top of Plot) 10" End Gun Yes Sprinkler Pkg. # 3A Press. Reg. No
No. of Towers 10 Auto-Endgun Yes Eng. or Elec. Eng End Pipe Lgth. 15' Gear Dr. Type Man
Serial No. _____ Position Stop Yes Towable No Tires Std Spans 1 1/4" Oil Line e

QUANTITY	MODEL/PART #	DESCRIPTION		
1293'	MD89775	10" L36 Nozzles - Med Pressure	47¢/ft	607.21
1	SN9038	SP100 End Gun - Med Pressure		465.00
1	SN9099	Taper bore Nozzle - End gun		15.15
65	PC8041	Weld on Couplings	48¢ ea	31.20
1	BP8768	Sheave - Pump		49.45
1	BB8774	Bushing SDS x 1 1/2"		19.50
2	BX8362	Belt 1/2 B103	13.85	27.70

Objective:

Reduce Operating Pressure from 130" to 60"
Expected Horsepower Savings - 51 hsp
Optimum Fuel Savings - 2.8 gph
Expected Fuel Savings - 2 gal/hr
Expected Fuel Savings per yr - 2,000 gal
Expected Fuel Savings @ \$4.40/gal - \$1,680

Sub-Total	1,209.61
Installation	400.00
Freight	40.00
Total	1,649.61
Sales Tax (If Applicable)	N/A
Less Down Payment	-
Balance Due on Delivery	1,649.61

Neither T-L Irrigation Co., nor the Seller shall be liable for any delays or defaults in making delivery, where occasioned by any cause beyond its control, including but not limited to: action of any governmental authority; strikes; shortage of labor or materials; production facilities or transportation; labor difficulties; fire, flood; accidents or acts of God.

SELLER Mead Machine Shop

METHOD OF PAYMENT: Cash Lease

By _____

By _____

Title _____

This Agreement is Subject to the Acceptance by T-L Irrigation Co., of Hastings, Nebraska.

CUSTOMER

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Dave Didier B. Applicant's S.S.#: 324-50-7608
 Address: 674 Meyers Rd C. Electric Utility: Com Edison
Ambay, Ill Account #: _____
 Zip Code: 61310 D. Gas Utility: North Oil Co.
 County: Lee Account #: _____
 Telephone #: (815) 857-3889

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

The attached proposal pretty much explains all material estimates and labor charges.

F. Total \$ amount of improvements \$ 3,852⁰⁰

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1,540⁰⁰

H. Estimated start up date Mar 1, 90 Estimated completion date Mar 10, 90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
High Press. to Low Press	3,852 ⁰⁰			The attached analysis sheet will explain fuel savings and a payback period of approx two to three years. Fuel costs will be cut by approx 1/3.			
TOTAL							

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Dave Didier 1/26/90
 Applicant's Signature Date

- Grain Bins
- Bucket Elevators
- Grain Dryers
- Portable Augers
- Irrigation Systems
- Pneumatic Conveyors



Roosevelt Street
 Hoopole, IL 61258
 Phone (815) 948-2591
 or 948-7091

No. _____

Date 1/23/90

PROPOSAL & SALES AGREEMENT

Owner Dave Dieder
674 Meyers Rd.
Amoy, Ill 61310

Tenant same

No Pieces	Description	Unit Price	Total Price
	<u>Re: Hi pressure to low pressure</u> <u>(Sprinkler Conversion)</u>		
	<u>To convert Raincoats Center Pivot</u> <u>from hi. pressure impact sprinklers</u> <u>to Nelson R30 series pivot rotators</u>		
<u>1</u>	<u>Complete sprinkler pkg designed by</u> <u>Wilmont Industries</u>		<u>\$1,339.00</u>
<u>1</u>	<u>Nelson SR 100 End gun</u>		<u>530.00</u>
<u>1</u>	<u>2 HP Booster pump pkg including</u> <u>contactor box, pressure switch, all</u> <u>plumbing, hardware, etc</u>		<u>1,303.00</u>
	<u>All labor to complete using</u> <u>customer loader tractor</u>		<u>680.00</u>
	<u>Prices quoted are based on 800 gpm</u> <u>and 29 PSI at top of pivot.</u>		
	<u>After test pumping existing well if 1000 gpm</u> <u>sprinklers are required, add 94.00 to total.</u>		
			TOTAL <u>\$3,852.00</u>

This agreement does or does not include the following

DOES	DOES NOT
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Delivery to site
- Footing and concrete work
- Foundation bolts and steel
- Complete erection
- Preparation to grade level
- Wiring
- Crane

Terms:

Cash with order	
Cash upon delivery of materials	
Cash upon completion	<u>\$3,852.00</u>

*NOTE:

PROPOSAL BY: Tom Beckman

The dealer hereby agrees to furnish the above described materials and services. All work to be completed in a workmanlike manner (according to standard trade practices). Balance due within 10 days after substantial completion or use, whichever occurs first. Price of minor items not immediately available during erection will be deducted, leaving balance payable. Billing of shortages will follow their installation. Balance shall accrue interest of 1 1/2% per month after due date.

ACCEPTED: _____

DATE: _____

Version 4.0

IRRIGATION SYSTEM COMBINATION FIFE COST COMPARISON
ESPECIALLY PREFARED FOR

Valmont by ANALYST
Valmont DEALER
01/18/90 13:58:53

System length 1278 GPM 800 Elevation change 0
Endgun 100 Irr water in./day 0.33
Acres to be watered 127 Fuel Diesel Inches/yr 15.0
Fuel cost \$ 0.85/Gal Hrs. op./season 1081
Brake hp/hr 14.60

CASE I
=====

CASE II
=====

System make-up

System make-up

Pipe segments

No. Length Diam
1 1260.0 6.62

No. Length Diam
1 1260.0 6.62

Overhang 18.0 feet

Overhang 18.0 feet

Pivot pressure needed 28.9

Pivot pressure needed 83.9

System Brake HP 19.3----Not incl. generator

System Brake HP 56.0

Added Brake HP 0.0

Added Brake HP 0.0

System brake HP + added BHP is used to calculate fuel cost.

FUEL COST DIFFERENCE

YEAR	FUEL COST	PER YEAR	CUM	YEAR	FUEL COST
=====	=====	=====	=====	=====	=====
1	1214	2309	2309	1	3523
2	1251	2378	4636	2	3629
3	1288	2449	7136	3	3738
4	1327	2523	9653	4	3850
5	1367	2598	12257	5	3965
6	1408	2676	14933	6	4084
7	1450	2757	17690	7	4207
8	1494	2839	20529	8	4333
9	1538	2924	23453	9	4463
10	1585	3012	26466	10	4597
11	1632	3103	29568	11	4735
12	1681	3196	32764	12	4877
13	1732	3292	36055	13	5023
14	1784	3390	39445	14	5174
15	1837	3492	42937	15	5329

TOTAL \$ 22588
SYSTEM PRICE \$ 30000

TOTAL \$ 65526
SYSTEM PRICE \$ 30000

Fuel costs do not include BHP required for gen. or pumping lift.



The following values are computed from the first year fuel cost for each system

Per acre fuel costs	Case 1 \$	9.53	Case 2 \$	27.66
Fuel cost to apply 1 inch of water over 127.4 acres:	Case 1 \$	80.97	Case 2 \$	234.87
Fuel cost to apply 1 acre inch".	Case 1 \$	0.64	Case 2 \$	1.84

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: EGAN BROS.
Address: 29269 Yates Road
Deer Grove, ILL
Zip Code: 61243
County: Whiteside
Telephone #: (815) 438-3615

B. Applicant's S.S.#: (Douglas R. EGAN) 336-60-5163
C. Electric Utility: System powered by Diesel engine.
Account #: _____
D. Gas Utility: MANLIUS Oil Co.
Account #: Egan Bros. (Hostetler Farm)

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Change Rainald E 65 SN#277 C4186 from high to low pressure (90 PSI to 50 PSI) Material estimate is enclosed which includes the sprinkler package and all necessary equipment to convert to lower pressure.

F. Total \$ amount of improvements: \$ 3566.⁰⁰
G. Amount of grant requested (not to exceed 40% of line F or \$4,000): \$ 1426.⁴⁰

H. Estimated start up date June 15, 1990 Estimated completion date June 15, 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years	
		Units Saved	Cost/kWh	Units Saved	Cost/Unit			
<u>less evaporation and better soil saturation because of low pressure and diesel engine slowed down from 1800 r.p.m. to 1500 r.p.m. would result in less fuel used.</u>	<u>This part would save on hours of running time.</u>	<u>This part would save fuel while running but at the same time pump just as much water.</u>			<u>300 average hrs. of mow x 1.5 gal. saved per hr. equals 450 gal. per year x .70 = 315.⁰⁰</u>	<u>Plus if fuel low pressure can cut 50 hours a year of irrigation time out completely do to a better soil saturation which equals 300 gal of fuel x .70 = 210.⁰⁰</u>		
TOTAL			<u>3566.⁰⁰</u>			<u>750 gal.</u>	<u>.70</u>	<u>525.⁰⁰</u>

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Egan Bros. by Douglas R. Egan May 15, 1990
Applicant's Signature Date

Post-it Brand

Fax Transmittal Memo

7672		No. of Pages	1	Today's Date	12-4-90	Time	9:20
To	Jean A. Bowman		From	Gary Beiermann			
Company	Energy Conservation, Inc. Grant Program		Company	Beiermann Agri-Systems Inc.			
Location	217-323-6540		Location	Dept. Charge			
Fax #	Telephone #		Fax #	Telephone #			
Comments			Original Disposition:	<input type="checkbox"/> Destroy	<input type="checkbox"/> Return	<input type="checkbox"/> Call for pickup	

*****STATEMENT*****

08/25/90

PAGE 1

 (EGAN FARMS) DOUG EGAN
 29666 DEER ROAD
 DEER GROVE, IL. 61243
 (815)-438-3248

 BEIERMANN AGRI-SYSTEMS INC.
 26409-178th Ave. N
 CORDOVA, ILLINOIS 61242
 (309)-654-2222

LISTED BELOW IS THE MATERIALS USED TO CONVERT THE 10-TOWER CENTER PIVOT SYSTEM FOR DOUG EGAN TO LOW PRESSURE AND RAISE THE GALLONAGE TO IMPROVE THE EFFICIENCY OF THE SYSTEM.

- 1 NELSON ROTATOR SPRINKLER PACKAGE FOR AN 10-TOWER CENTER PIVOT SYSTEM, W/NEW END GUN NOZZLE_____ \$1,850.00
- 1 200 GPM END GUN BOOSTER PUMP W/MISC PIPE FITTINGS_____
- 1 BOOSTER PUMP CONTROL BOX W/WIRE, & LABOR_____
- 1 NELSON SR100NV END GUN_____ \$3,010.00
- 1 12 KW LIMA GENERATOR & PULLEY, NEEDED FOR 5-HP BOOSTER PUMP \$2,300.00
- TOTAL LIST ON ABOVE EQUIPMENT-_____ 7,160.00
- SELLING PRICE ON ABOVE EQUIP._____ 5,600.00
- 1 LABOR INSTALLING BOOSTER PUMP, END GUN, CONTROLS_____ \$200.00
- 1 OUTLETS & OUTLET INSTALLATION ON THE CENTER PIVOT SYSTEM TO ACCOMMODATE THE NEW SPRINKLER PACKAGE, & INSTALL SPRINKLERS \$650.00
 (THESE ARE DRILLED & RIVETED, NO WELDING AT ALL.)
- 1 LABOR & MATERIALS FOR WIRING IN NEW LOW PRESSURE SWITCH_____ \$125.00

EGAN TOTAL AMOUNT DUE===== \$6,575.00

terms; NET 30-DAYS

THANK YOU VERY MUCH,
BEIERMANN AGRI-SYSTEMS INC.

DOUG EGAN
FARMING
RR#1
DEER GROVE

IL
61243

297
May 15, 1990
1-438-3248

CHANGE REINKE E65 SN#277 C4186 FROM HIGH TO LOW
PRESSURE. SPECS. NOW 1000GPM @ 90PSI TO 1000GPM @
50PSI. MACHINE IS 8-124' SPAN, 2-144' SPAN, W/ 20'
OVERHANG. INSTALL NEW SR100MV NELSON END GUN,
END GUN SWITCH, AND #145 SPRINKLER PACKAGE.

A.	#145 SPRINKLER PKG. W/COUPLERS (NELSON PLASTIC)	1230.
B.	INSTALLATION OF SPRINKLER PACKAGE.	500.
C.	RETROFIT 2-HP BOOSTER PUMP W/ END GUN SWITCH.	1510.
D.	SR100MV END GUN INSTALLED	1016.
E.	SET OF PULLEY'S FOR PROPER GENERATOR SPEED	110.
	TOTAL	4366
	LESS TRADE IN OF 7.5KW GENERATOR	900.
	PROJECTED TOTAL	3566.

May 31, 1990

Webster Bay
IL Department of Energy and
Natural Resources
325 W. Adams St., Room 300
Springfield, IL 62704

Dear Mr. Bay:

This letter addresses some changes to the application by Doug Egan for participation in the irrigation energy grant program.

As you may recall, I notified you by phone that a generator was inadvertently left off the estimate Mr. Egan sent in, and that the total cost of improvements and total grant amount requested were, therefore, incorrect. The irrigation dealer, Alton Irrigation in Rock Falls, has sent a corrected estimate. Please replace the original estimate from Alton Irrigation with the enclosed, updated estimate. The new total is \$5848, which is \$2282 more than listed on the initial application and estimate. The cost of the generator is \$2282. The new amount of grant money requested will be \$2339, rather than \$1426.

Since you already have the original application, I will let you make the necessary changes in order to expedite the processing of this application.

Everything now looks in order for Mr. Egan's application, but if you have any further questions or comments, please call us.

Sincerely,

F. William Simmons

Jean A Bowman

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: TIM FANTER B. Applicant's S.S.#: 329-54-1609
 Address: RRI Box 43A C. Electric Utility: Meward Electric Cooperative
KILBOURNE, ILL Account #: 09-034-027-01
 Zip Code: 62655 D. Gas Utility: _____
 County: MASON Account #: _____
 Telephone #: (309) 543-2307

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Convert from High Pressure impact sprinklers to low pressure Nelson Rotator nozzles, also adding 2 Hp Booster pump and different end gun; Change Pump and rewind 60 HP Electric Motor to A 40 HP and a Chemigation check valve

F. Total \$ amount of improvements \$ 6300.-

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 2520.-

H. Estimated start up date April 1, 1990 Estimated completion date April 10, 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Low pressure Conversion	3672	6624	.0456			302. ⁰⁵	12
Rewind motor Pump & change Pump & Add Chemigation check valve	2628	- 0 -	\$28/HP			540. ⁰⁰	5
TOTAL	6300					842.⁰⁵	7 1/2

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Tim Fanter
Applicant's Signature

March 21 1990
Date

Illinois Valley Irrigation, Inc.
Box 421, Rt. 136 East, Havana, IL 62644
(309) 535-3610

PROPOSAL

February 9, 1990

Tim Fanter
R.R.
Kilbourne, IL 62655

Low Pressure Conversion/model 4271 - 827' system @ 750 g.p.m. includes:

Nelson Rotator nozzles w/U4 pads
Nelson pressure regulators
2 HP booster pump
Nelson SR100 end gun

\$3,347.00

Labor

500.00

\$3,847.00

125

Pull pump, restage 8-10DM bowl to 5-10 DM. Reset pump, add check valve, rewind 60 HP motor to 40 HP, replace pump motor bearings, down size fuses & heaters in pump panel.

\$2,740.00

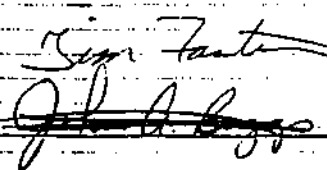
Less discount

(287.00)

Total

\$6,300.00

APPROVED BY:

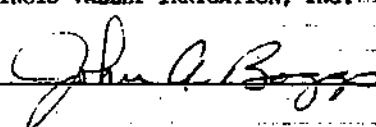


ILLINOIS VALLEY IRRIGATION, INC.

DATE:

Feb 23, 1990

BY:



ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Arthur E. Finch B. Applicant's S.S.#: 726-30-7979
 Address: R.R.# 2 C. Electric Utility: Menard Electric Coop.
Chandleville, IL 62627 Account #: 24-006-006-01
 Zip Code: 62627 D. Gas Utility: _____
 County: Mason Account #: _____
 Telephone #: 1309 1546-2353

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

10 HP Crown Submersible Pump-Model # 7H400
Nelson Spray III
~~6" 70# Check Valve~~ G.B.
SR100 Nelson End Gun

F. Total \$ amount of improvements \$ 6,625.00 G.B.
~~6,975.00~~
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 2,650.00 G.B.
~~2,799.00~~
 H. Estimated start up date 3-19-90 Estimated completion date 4-20-90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
10 HP Pump							
Nelson Sprays							
Booster Pump							
Check Valve							
End Gun	6,975.00 6,625.00 <u>G.B.</u>	8400 10 HP	.08 \$28 per HP			\$ 680.40 \$ 280.00	7
TOTAL						\$ 960.40	

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Arthur E. Finch 1-4-90
 Applicant's Signature Date

I wish to convert a 20 H.P. high pressure system to low pressure for economic reasons.

I have two 10 H.P. irrigation systems running off ac. No. 15-032.-002-01 also with Menard Electric Cooperative. The cost of operation for both systems is less than the High pressure system that I wish to convert to low pressure.

The high pressure system used 16320 K.W.H. in 1989 while the two 10 H.P. systems used 15840 K.W.H. The two 10 H.P. systems irrigated twice the acres as the 20 H.P. high pressure system. The three fields were in corn receiving the same amount of water.

You may call Menard Electric Cooperative to confirm the cost of electricity used and ^{you} will come to visit the systems at ^{your} convenience.

Menard Electric Cooperative Phone No. 217-632-7746

Menard Electric rates for irrigation \$28.00 per H.P. plus .08 K.W.H.

1 High Pressure total cost \$1323.70 energy cost for 1989

2 low pressure systems total cost 1303.45 energy cost for 1989

High Pressure energy cost per A. \$33.09 for 1989

low pressure energy cost per A. \$16.30 for 1989

Arthur E. Finch

RR2 Box 14

Chesapeake, Del. 62627

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: KEITH FRIEDRICH B. Applicant's S.S.#: 361-40-0200
 Address: R.R. # 2 C. Electric Utility: _____
HAVANA, IL 62644 Account #: _____
 Zip Code: 62644 D. Gas Utility: E.S. (MASON CO.)
 County: mason Account #: _____
 Telephone #: (309) 543-2980

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

INCREASE G.P.M. OF A 1300' LOCKWOOD PIVOT BY 30% THUS 30% LESS
RUN TIME FOR SAME AMOUNT OF WATER. BY INCREASING GPM PRESSURE
WILL DROP FROM 81# TO 45# AT TOP OF PIVOT.
ADDITION OF A BOOSTER PUMP WILL BE NECESSARY.

F. Total \$ amount of improvements \$ 3220.00

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1288.00

H. Estimated start up date JUNE 15 Estimated completion date JUNE 20

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
increase gpm 30% drop press. 55%	3220.00			1350 gal	.82		
TOTAL	3220.00			1350 gal	.82	1107.00	2.9

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Keith Friedrich
 Applicant's Signature

May 29, 1970
 Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT PURCHASE AGREEMENT

CUSTOMER: KEITH FRIEDRICH
R. R. #2
HAVANA, ILL. 62644

1300 LOCKWOOD @1400 GPM 45# @ TOP OF PIVOT

NELSON SPRAY 3
100% REGULATED
3/4 PIPE NIPPLES FOR REGULATOR
BOOSTER PUMP KIT
LABOR

TOTAL \$3220.00

Keith Friedrich
CUSTOMER SIGNATURE

5-22-90
DATE

J. [Signature]
P & A authorized acceptance

May 22 1990
DATE

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side (or instructions))

Part I - To be completed by applicant.

A. Name: Russell Friedrich B. Applicant's S.S.#: 345-30-5537
 Address: RR 2 C. Electric Utility: _____
MAVANA ILL Account #: _____
 Zip Code: 62644 D. Gas Utility: F.S.
 County: MASON Account #: _____
 Telephone #: (309) 535-3970

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Low Pressure Nozzles and Add head pipe
Increase Malons By 30% Cut Run Time By 30%
By Increasing Gallon; Pump Pressure will lower from
80" to 45" at top of pipe, with out any pump work
Presently using apx 9750 gallon of fuel - 30% should
cut to 6725 gallon. Same pump is used for 2 units

F. Total \$ amount of improvements \$ 3720
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1488
 H. Estimated start up date June 30 Estimated completion date June 30

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
<u>Low pressure Nozzles + High-gal</u>				<u>2965 gal</u>	<u>.72</u>	<u>2137.8</u> <u>2</u> <u>= 1199.00</u>	
TOTAL	<u>3720</u>					<u>1199.00</u>	<u>3.6</u>

J. I/we hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Russell Friedrich May 25-1990
 Applicant's Signature Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT PURCHASE AGREEMENT

CUSTOMER: RUSSELL FREDRICH
R. R. #2
HAVANA, ILL. 62644

1300 RAINGAT @1400 GPM 45# @ TOP OF PIVOT

NELSON 3 DN IMPAC PLASTIC
100% REGULATED
3/4 PIP NIPPLES FOR REGULATOR
BOOSTER PUMP KIT
LABOR TO RENOVZLE

TOTAL \$3720.00

Russell Friedrich
CUSTOMER SIGNATURE

5-25-90
DATE

[Signature]
P & A authorized acceptance

5-25-70
DATE

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Randall R. Fornoff B. Applicant's S.S.#: 325-50-6980
 Address: RR #1, Box 1 C. Electric Utility: _____
Havana, Illinois Mason County Account #: _____
 Zip Code: 62644 D. Gas Utility: Mason County Service Company
 County: Mason Account #: 135847-2
 Telephone #: (309) 543-3516

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Convert a 1300 ft. Valley irrigation system from 95 p.s.i. with high impact
spray guns, Nelson 200 end gun, high pressure pump, and a Duetz 6 cyl. turbo powered
diesel engine, to a 20 p.s.i. system with Valley 20 p.s.i. sprays/regulators, a
Nelson 100 end gun with a 5 h.p. booster pump, changing the high pressure pump to
a 3-12BH 1/2 C pump, and a Duetz model F5L912 5 cyl. diesel engine.

F. Total \$ amount of improvements \$ 9,400.00

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 3,760.00

H. Estimated start up date Mar 15, 90 Estimated completion date Apr 15, 90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Converting the system from 95psi (high pressure) to a 20 psi (low pressure) and trading the 6 cyl. motor for a 5 cyl fuel efficient motor	\$9,400.00			1320 gal diesel fuel annually	\$1.10/	\$1,452.00 annually	6.5 yrs.
TOTAL	\$9,400			1320 gal.	\$ 1.10/	\$ 1,452.00	6.5 yrs

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Randall R. Fornoff
 Applicant's Signature

January 25, 1990
 Date

- PROPOSAL -



STELTER-HOFREITER, INC.

Havana, Illinois 62644

BUYER'S NAME <i>Randy Fornoff</i>			TELEPHONE
ADDRESS			
TOWN	COUNTY	STATE	ZIP CODE

ANY EQUIPMENT TRADED IN IS WARRANTED BY BUYER TO BE FREE OF ENCUMBRANCE.

QTY.	DESCRIPTION -- MODEL -- SIZE	CASH PRICE
	<i>Deere 75 6912 Eng w/ clutch / battery panel / front pulley / hub / battery / trailer oil sight gauge / battery</i>	\$ 7990 00
	<i>65 HP 111</i>	
	<i>We want gear</i>	
	<i>Price good till 5/1/89</i>	
FREIGHT AND HANDLING CHARGES		
		\$ 695 00
TOTAL		\$ 8685 00
LESS TRADE-IN		
TOTAL CASH PRICE		\$ 5000 00
SALES TAX		
CASH BALANCE		

TRADE-IN EQUIPMENT		ALLOWANCE
MFG. AND DESCRIPTION		
<i>Deere P 561 912</i>	\$	
<i>any trailer</i>		
<i>1000 HP</i>		
TOTAL ALLOWANCE	\$	

BIDS SUBJECT TO _____ DAYS AND/OR COMPANY PROGRAMS.

BY *Frank D. Stelter*
 SIGNED THIS *10th* DAY OF *Nov* 19*89*

February 8, 1990
RR 1 Box 1
Havana, IL 62644


Ms. Jean A. Bowman
Illinois Water Survey
2204 Griffith Drive
Champaign, IL 61820

Dear Ms. Bowman:

Enclosed please find an itemized list of the contract with Central Illinois Irrigation. Included at the bottom is the information that we used to determine the 30% fuel savings. (In actuality it amounts to a 44% savings.) If this is not adequate, please let me know.

Thank you for your attention to this matter.

Sincerely,


Randall R. Fornoff

enclosure

Central Illinois Irrigation
R.R.# 1, Box 122
Havana, IL 62644
(309)543-2776
February 6, 1990

Randy Fonhoff
R.R.# 1, Box 1
Havana, IL 62644

1	5 HP Booster Pump	\$ 1,700.00
1	Set Rainbind Sprays with Reg.	1,250.00
1	Nelson SR100 End Gun	600.00
1	Labor, Freight, Wiring	500.00
1	Pull Pump and Take off Bowls	<u>550.00</u>
		\$ 4,600.00
	Trade-in Big Gun	<u>- 200.00</u>
	TOTAL	\$ 4,400.00

1000 GPM 85 PSI High Pressure	78HP
1000 GPM 40 PSI Low Pressure	45HP
6L913 Deutz at 78 HP will use	3.6 Gal. per Hour
5L912 Deutz at 45 HP will use	2 Gal. per Hour

Note- These HP are for pumping water only.

825 Hours a Year x 1.6=1320 Gallon

\$1.10 Gallon=\$ 1,452.00 a Year Saved.

RECEIVED 11-4-90

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application
(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: ROBERT L. GARRISCH B. Applicant's S.S.#: 329-42-1274
 Address: RR 3 Box 60 C. Electric Utility: _____
FOREST CITY ILLINOIS Account #: _____
 Zip Code: 61532 D. Gas Utility: FS DIESEL FUEL
 County: MASON Account #: MASON COUNTY SERVICE CO
P.O. Box 158 EASTON ILLINOIS
 Telephone #: (309) 968-7659 (SUPPLIER)

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

NELSON LOW ANGLE SPRINKLERS WITH DIFFUSOR NOZZLES
MINIMUM PRESSURE 25 LBS, NELSON PRESSURE REGULATORS
25 LBS, 3 HP BOOSTER PUMP (BURKLEY), LINDSEY BOOSTER
CONTROL PANEL AND PRESSURE SWITCH, LABOR, FREIGHT
AND FLOW METER TEST.

F. Total \$ amount of improvements \$ 3,968.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1,587.20
 H. Estimated start up date FEBRUARY 10 Estimated completion date APRIL 1

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
CHANGE SYSTEM TO LOW PRESSURE PUMP 300 GAL PER MIN. MORE BY THIS MEASURE	3,968			575 GAL OF FUEL PER YEAR OR 115 HRS OF OPERATION	\$ 1.05 PER GAL.	603.75	6.57 YEARS
TOTAL							

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Robert L. Garrisch Applicant's Signature January 20, 1990 Date

T N & W I R R I G A T I O N

LINDSAY ZIMMATIC
SALES & SERVICE
309-968-7778

Bob Garlisch
R. R. #3 80x 60
Forest City, Il. 61532

Nelson Low Angle Sprinklers with Defusers	\$	1808.00
Nelson Pressure Regulators 25 lb.		530.00
3 HP Booster Pump (Berkley)		647.00
Lindsay Panel & Pressure Switch		257.00
Labor (Test Pump with Flow Meter, Change Sprinklers, & Add Holes as needed)		<u>1370.00</u>
	Sub-Total	4662.00
	Less: Cash Discount	<u>694.00</u>
	Total	\$ 3963.00

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Hahn Farms Inc. - Don Hahn B. Applicant's S.S.#: 37-1186070
 Address: R.R.#1 Box 386 C. Electric Utility: MEMARD ELECTRIC COOP.
HAVANA IL. 62644 Account #: 16-017-003-01
 Zip Code: 62644 D. Gas Utility: _____
 County: MASON Account #: _____
 Telephone #: (309) 543-4660

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

I WANT TO LOWER THE PRESSURE AT THE PIEST POINT FROM 78 PSI TO 46 PSI. AT THE SAME TIME I WILL INCREASE GPM FROM 750 GPM TO 850 GPM. THIS SHOULD CUT MY RUN TIME BY 13%. ALSO THE LOW PRESSURE ROTATING NOZZLES SHOULD REDUCE EVAPORATION.

F. Total \$ amount of improvements \$ 3875.37
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1550.15
 H. Estimated start up date UPON APPROVAL Estimated completion date JUNE 30 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
LESS PRESSURE LESS RUN TIME. LESS EVAPORATION LESS ELECTRICITY	\$3875.37	8522	4.065			553.93	7 years
TOTAL	\$3875.37	8522	4.065			553.93	7 years

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Hahn Farms Inc - Don Hahn 5/26/90
 Applicant's Signature Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

SYSTEM QUOTE

HAHN FARMS INC.
R.R. #1
HAVANA, ILL 62644

* P & A IRRIGATION, INC.
* RT 97 SOUTH
* HAVANA, ILL. 62644

LOW PRESSURE VALLEY QUICK TOW 850 GPM 46#

BOOSTER PUMP KIT
LABOR TO MOUNT BOOSTER PUMP
NELSON ROATERS INCLUDING END GUN
LABOR TO RENOZZLE
PULL PUMP & REMOVE BOWL

SYSTEM TOTAL

\$ 3875.37

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: VERNON Heye B. Applicant's S.S.#: 336-32-2442
 Address: RR#1 C. Electric Utility: MEWARD ELECTRIC
BATH ILL Account #: 15 009 0401
 Zip Code: 62617 D. Gas Utility: _____
 County: MASON Account #: _____
 Telephone #: (309) 546-2266

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

I plan to install Nelson Spray III Nozzels on my Raincat
Serial ## 2449 . Installation of these and modification
of the Arpra pump serial # 38072457 Model 123LM , Modification
consisting of removal of 1 stage. This together will decrease the
pivot pressure from 50# to 30# and decrease the the Horsepower
requirement by 15.5 HP.
Formula: 15.5HPx.748\$KWHx.09cx1000 hr= APPx \$1043.46 per year

F. Total \$ amount of improvements \$ 1698.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 679.20
 H. Estimated start up date 5-1-90 Estimated completion date 5-10-90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Lower HP Requirement	1698.00	11,594	.09			\$1043.46	1.6 Yr.
TOTAL							

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Vernon Heye 4-13-90
 Applicant's Signature Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT PURCHASE

CUSTOMER: DUANE HAHN & VERN HEYE
R.R. #1
BATH, ILLINOIS 62617

DATE: APRIL 17, 1990

LOW PRESSURE CONVERSION PACKAGE ONE (1) SET NELSON SPRAY III	3668.00
PULL PUMP AND REMOVE BOWL RESET PUMP	530.00
LABOR TO RENOZZLE	500.00

TOTAL PRICE \$1698.00

*PUMP WORK IS AN ESTIMATE, ANY REPAIR TO PUMP WOULD BE
AND ADDITIONAL CONTRACT.

Vern Heye
sign
Duane Hahn
sign

ACCEPTED BY: Jim Hunt

DATE: 4-17-90

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Ralph Kreiling B. Applicant's S.S.#: 320-24-1256
 Address: RR #3 Box 78 C. Electric Utility: REA
Forest City, IL 61532 Account #: 0502401101
 Zip Code: 61532 D. Gas Utility: NA
 County: Mason Account #: _____
 Telephone #: (309) 597-2143

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

<u>Nelson Spray III Sprinklers + Chart</u>	<u>\$ 305.00</u>
<u>Nelson 15 PSI Regulators</u>	<u>\$ 1180.00</u>
<u>SR 100 End Gun</u>	<u>\$ 575.00</u>
<u>130 GPM Booster Pump, Panel, + Wiring Overhang</u>	<u>\$ 1200.00</u>
<u>Check Out System with Flow Meter, Freight and Labor</u>	<u>\$ 1000.00</u>
<u>Total</u>	

F. Total \$ amount of improvements \$ 4260.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1704.00
 H. Estimated start up date Feb 1990 Estimated completion date April 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Change to Low Pressure to Increase Gallage from 900 GPM to 1200 GPM	4260.00	From 665 hours to 493 hours or 172 hours of operation savings	Per hour Cost of Electricity \$6.05			1040.60	4.09 yr.
TOTAL	4260.00	172	6.05			1040.60	4.09 yr.

J. I/We hereby certify that:
 The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Ralph Kreiling Applicant's Signature 1-23-90 Date

T. N. & W. IRRIGATION INC.
R. R. #2
MANITO, IL. 61546

DATE 1/4/89

RALPH KREILING

LOW PRESSURE CONVERSION ON 7 TOWER LINDSAY (1280 FT. 900-70)

NELSON SPRAY III SPRINKLERS AND CHART	305
NELSON 15 PSI REGULATORS	1180
SR100 END GUN	575
130 GPM BOOSTER PUMP, PANEL, AND WIRING OVERHANG	1200
CHECK OUT SYSTEM WITH FLOW METER	
FREIGHT AND LABOR	1000
TOTAL	&4,260.00

TERMS 10% DOWN, 75% DELIVERY, 15% WHEN DONE

CUSTOMER SIGNATURE _____

T. N. & W. IRRIGATION INC.
R. R. #2
MANITO, IL. 61546

DATE 1/22/90

RALPH KREILING

TO IRRIGATE 132 ACRES PUMPING 900 GPM WOULD TAKE 66 HRS TO
APPLY ONE INCH OF WATER

TO IRRIGATE 132 ACRES PUMPING 1200 GPM WOULD TAKE 45 HRS TO
APPLY **ONE** INCH OF WATER

RALPH WATERED 665 HRS IN 1989 SEASON AT 900 GPM IF HE WOULD
HAVE CHANGED TO LOW PRESSURE AND PUMPED 1200 GPM WOULD HAVE
SAVED 172 HRS OF OPERATION FOR SAME AMOUNT OF WATER
APPLICATION

RALPHS TOTAL ELECTRIC COST FOR 665 HRS WAS \$4,025.00 IN THE
1989 SEASON WHICH IS \$6.05 PER HR OF OPERATION

RALPH PUMPING 1200 GPM WOULD HAVE SAVED 172 HRS OR
 $\$6.05 \times 172 = \1040.60 TOTAL FOR ONE YEAR

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: ALAN LANDIS B. Applicant's S.S.#: 341-40-4313
 Address: 7112 Hickory Hills Rd C. Electric Utility: Commonwealth Edison
ROCK FALLS, IL 61071 Account #: 234-23-2
 Zip Code: 61071 D. Gas Utility: _____
 County: Whiteside Account #: _____
 Telephone #: (815) 438-3871

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

To bring 3 phase electricity to the farm allowing irrigation systems to operate with low cost electricity vs. diesel fuel. Irrigation water use efficiency would be enhanced due to night operation with the low off-peak electrical cost. Water use is estimated to be 10-25% more efficient due less evaporation at night.

F. Total \$ amount of improvements

\$ 17,601⁴⁸

G. Amount of grant requested (not to exceed 40% of line F or \$4,000)

\$ 4,000¹⁰⁰

H. Estimated start up date June 1, 1990

Estimated completion date May 27, 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Chg. to electricity	\$17,601 ⁴⁸	(2,465) electricity cost	.02417	(5,022) diesel cost	43¢/gal.	\$2,557	
Off-peak Electric operation (Nights) 20% water savings		\$493				493	
TOTAL	17,601⁴⁸					\$3,050	5.77

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Alan Landis
Applicant's Signature

April 20, 1990
Date

ELECTRIC SERVICE CONTRACT

RATE 6T PER CUSTOMER REQUEST

PLS:

Sers: RC900025 R: 0

This Contract, dated 03/21/1990, between COMMONWEALTH EDISON COMPANY, herein called the "Company", and ALAN LANDIS, herein called the "Customer", Witnesseth That, the parties hereto do agree as follows:

The Company will supply all electricity required by the Customer for power, lighting, and miscellaneous purposes on the premises occupied by the Customer at 234-34-2, NUNE-LYND-MPKNS TWP, ILLINOIS, up to but not exceeding:

FOR GENERAL SERVICE - TIME OF DAY CUSTOMERS, A 30-MINUTE ON-PEAK DEMAND OF 119 KILOWATTS
AND A 30-MINUTE OFF-PEAK DEMAND OF 119 KILOWATTS.

The Customer will make written application for any service in excess of the number of kilowatts specified above. Electricity will be supplied as follows:

Loc. 01. max. 30-minute peak demand 58 , metering voltage approx. 480 volts, 3 phase, 3 wire
Loc. 02. max. 30-minute peak demand 61 , metering voltage approx. 480 volts, 3 phase, 3 wire

The Customer will receive and pay for electric service under Rate 6T Ill. C.C. No. 4 as on file with the Illinois Commerce Commission. The customer will initially be billed in accordance with provision for:

GENERAL SERVICE - TIME OF DAY. (REQUIRED IF MAX. DEMAND EXPECTED TO EXCEED 500 KW STATED IN THE RATES.
OPTIONAL IF MAX. DEMAND IS LESS THAN 500 KW.)

In addition, Rider(s) No. 06 ,20,23 and Terms and Conditions attached to the Customer's copy hereof are part of this Contract. Any changes in the rate(s) and other applicable portions of the Company's Rate Schedule shall be applicable to service rendered hereunder.

Service shall commence on or about 05/07/1990.

This Electric Service Contract, dated 03/21/1990 with Rider(s) No. 06 ,20,23 supercedes and cancels all Electric Service Contracts and Electric Service Station Agreements prior to 03/21/1990, subject to the applicable provisions with substitution of rate.

The Company and the Customer agree that the Company will furnish at the Customer's expense the labor and materials necessary to do the work for the Customer on or adjacent to the Customer's premises described below.

TAXABLE CHARGES		NON-TAXABLE CHARGES	
Rider 2 Charge	\$ 7303.00	Base Tax	\$ 0.00
Service Connection	\$ 7571.20	State Tax	\$ 10.28
Terminals Facilities	\$ 1437.00	Municipal Tax	\$ 0.00
Electric Service Station	\$ 1290.00		
Community Bank	\$ 0.00		
	\$ 0.00		
	\$ 0.00		
	\$ 0.00		
Credit	\$ 0.00		
		Total Customer Charge	\$ 17601.48

The Customer agrees to pay to the Company the sum of \$17,601.48 at the time this agreement is accepted. Work will be done during the Company's regular working hours, unless otherwise specified. This Agreement shall be void if not accepted by the Customer within ninety days from date submitted. Transformers and metering equipment installed in conjunction with this work shall, in all cases, remain the property of the Company.

Alan Landia

Calculations - electric vs. diesel

diesel

$$4.5 \text{ gal/hr.} \times 1,200 \text{ hrs.} \times .93/\text{gal} = \$5,022$$

electric

$$85 \text{ Kw/hr.} \times 1,200 \text{ hrs.} \times .02417 = 2,465$$

$$\text{savings with electric} = \underline{\underline{\$2,557}}$$

Calculation - increased water use
efficiency at night of 20%

$$20\% \times \$2,465 = \text{saving } \underline{\underline{\$493}}$$

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: ALVIN LANDIS B. Applicant's S.S.#: 334-05-9219
 Address: 11109 HOOVER ROAD C. Electric Utility: Commonwealth Edison
ROCK FALLS, IL. 61071 Account #: Not established yet.
 Zip Code: 61071 D. Gas Utility: _____
 County: Whiteside Account #: _____
 Telephone #: (815) 625-2414

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Convert irrigation system to low pressure operation.
Change from diesel to electric pumping unit to
utilize low cost electricity. Utilization of modern
submersible pump increasing pumping efficiency
by 8%.

F. Total \$ amount of improvements \$ 10,460.00

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4,000

H. Estimated start up date June 1, 1990 Estimated completion date May 30, 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Convert System to Low Pressure	\$3,141.00						
Change to Elec. pumping unit + install Elec. Bsp. Increased Pump efficiency 8%	\$5,433.00 / \$1,886.00	\$1,932 electric cost	\$.02417	4,800 diesel cost	.	2,868	
		8% x \$1,932				155	
TOTAL	10,460					3,023	3.46

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Alvin Landis May 3, 1990
 Applicant's Signature Date

- Grain Bins
- Bucket Elevators
- Grain Dryers
- Portable Augers
- Irrigation Systems
- Pneumatic Conveyors



Roosevelt Street
 Hoopole, IL 61258
 Phone (815) 948-2591
 or 948-7091

No. _____
 Date 21 June 91

PROPOSAL & SALES AGREEMENT

Owner Abia Landis

Tenant _____

No. Item	Description	Unit Price	Total Price
	1000' 2" x 4" x 6" concrete foundation for		
	1000' 2" x 4" x 6" concrete		
	2HP 5000 BTU pump 48" over 2" dia		1495.00
	with auto plug		450.00
	1/2" galvanized steel pipe and ana		500.00
	1/2" galvanized steel pipe and ana		195.00
	Weld on fittings		2161.00
	Labor to install all above		1800.00
			2161.00
		TOTAL	

This agreement does or does not include the following

Terms:

Cash with order

Cash upon delivery of materials

Cash upon completion

	Delivery to site
	Footings and concrete work
	Foundation bolts and steel
	Complete erection
	Preparation to grade level
	Wiring
	Crane

*NOTE:

PROPOSAL BY: Landis Inc.

The dealer hereby agrees to furnish the above described materials and services. All work to be completed in a workmanlike manner (according to standard trade practices). Balance due within 10 days after substantial completion or use, whichever occurs first. Price of minor items not immediately available during erection will be deducted, leaving balance payable. Billing of shortages will follow their installation. Balance shall accrue interest of 1 1/2% per month after due date.



**ALBRECHT
WELL
DRILLING, INC.**

RR #1, OHIO, ILLINOIS 61349

April 19, 1990

Dear Mr. Landis;
Enclosed are the quotes for the pumps you have requested for your consideration.

1. 8DHL 30 HP 2-Stage Goulds Pump	\$ 1,433.34
700 GPM @135' TDH	
30' 6" Drop Pipe @ \$8.66 /Ft.	259.80
40' 6-3 Sub. Cable @ \$2.50/Ft.	100.00
1 Top Plate	100.00
	<hr/>
	1,893.14
Freight & Install	600.00
	<hr/>
	\$ 2,493.14

2. 10JMC 50 HP 1-Stage Goulds Pump	\$ 3,940.00
100 GPM @155' TDH	
50' 6" Drop Pipe @ \$8.66/Ft.	433.00
60' 4-3 Sub. Cable @ \$6.00/Ft.	360.00
1 Top Plate	100.00
	<hr/>
	\$ 4,833.00
Freight & Install	600.00
	<hr/>
	\$ 5,433.00

If there are any questions please feel free to contact me at our office.

Thank you,


ROBERT W. ALBRECHT

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
 Preliminary Program Application
 (See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: MARLIN E. LEFEVRE B. Applicant's S.S.#: 358-20-9846
 Address: 29580 PLAUTZ ROAD C. Electric Utility: COMMONWEALTH EDISON
ROCK FALLS IL Account #: 248-22-4
 Zip Code: 61071 D. Gas Utility: _____
 County: WHITESIDE Account #: _____
 Telephone #: (815) 625-2723

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

THE FOLLOWING EQUIPMENT IS NEEDED TO CONVERT THE
CURRENT CENTER PIVOT SYSTEM FROM 800 RPM @ 75 PSI TO 1000
RPM @ 44 PSI, WHILE ALSO CHANGING THE POWER SUPPLY FROM A
TRACTOR PTO DRIVE TO ELECTRIC, WHICH CAN BE OPERATED ON
OFF PEAK RATES AS LOW AS \$.02417 PER/KWH.
MATERIAL ESTIMATE + CONTRACTOR BID ATTACHED

F. Total \$ amount of improvements \$ 10,390.⁰⁰
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4,000.⁰⁰
 H. Estimated start up date MARCH 1990 Estimated completion date JUNE 1990
 I. Table of Annual Energy Savings Estimates - SEE ATTACHED ESTIMATED COST SAVINGS

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
TOTAL							7.3

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Marlin E. LeFevre
 Applicant's Signature

March 23, 1990
 Date

*****CONTRACT*****

02/20/90

PAGE 1

 MARLIN LEFEVRE & GENE LEFEVRE BEIERMANN AGRI-SYSTEMS INC.
 29580 PLAUTZ ROAD & 29640 PLAUTZ ROAD 26409-178th Ave. N
 ROCK FALLS, IL. 61071 CORDOVA, ILLINOIS 61242
 (815)-625-2723 & 626-5186 (309)-654-2222

THE FOLLOWING EQUIPMENT IS NEEDED TO CONVERT THE CURRENT CENTER PIVOT SYSTEM FROM 800 GPM @ 75 PSI TO 1000 GPM @ 44 PSI, WHILE ALSO CHANGING THE POWER SUPPLY FROM A TRACTOR PTO DRIVE TO ELECTRIC, WHICH CAN BE OPERATED ON OFF PEAK RATES AS LOW AS \$.02417 PER/KWHR.

- 1 LOW PRESSURE SPRINKLER PACKAGE, W/BOOSTER PUMP & SR100 GUN, W/LABOR RENOZZLING & INSTALLING BOOSTER PUMP & END GUN----- \$2,200.00
 - 1 8" PLUMBING PACKAGE W/CHECK VALVE ----- \$400.00
 - 1 USED 60 HP VHS MOTOR W/STARTER PANEL, W/HOA, ----- \$1,950.00
 - 1 200 AMP 3-PHASE, 480 VOLT UNDERGROUND SERVICE ----- \$1,300.00
 - 1 TRANSFORMER PAD & TRENCHING OF PRIMARY UNDERGROUND WIRE ----- \$650.00
 - 1 MISC. WIRING HOOK-UPS TIES PIVOT & PUMP TOGETHER ----- \$125.00
 - 1 LABOR TO PULL PUMP, REWORK BOWLS, RESET THE PUMP, WO/PARTS- \$650.00
 - 1 COMMONWEALTH EDISON FEE FOR THEIR UNDERGROUND WIRE TO WELL- \$3,115.00
- *****
LEFEVRE1 TOTAL===== \$10,390.00

ESTIMATED COST SAVINGS PER YEAR, W/10" OF WATER APPLIED, ON 135 ACRES

800 GPM @ 75 PSI W/50' PUMPING LEVEL, @ 75% EFF. REQUIRES APPROX. 60 BRAKE HP. REQUIRES APPROX. 764 HOURS, CONSUMING APPROX. 3.33 GPH, @ \$.80 PER GALLON,
 TOTAL ENERGY COST PER/YEAR W/DIESEL-APPROX. ----- \$2,035.30 PER/YEAR

1000 GPM @ 44 PSI W/50' PUMPING LEVEL, @ 75% EFF. REQUIRES APPROX. 51 BRAKE HP. REQUIRES APPROX. 611 HOURS, USING APPROX. 41 KWHr. @ \$.02417 PER/KWHR,
 TOTAL ENERGY COST PER YEAR W/ELECTRIC-APPROX. --- \$605.50 PER/YEAR

 ANNUAL COST SAVINGS BY CONVERTING TO LOW PSI & ELECTRIC IS APPROX.- \$1,429.80

THANK YOU VERY MUCH,
 BEIERMANN AGRI-SYSTEMS INC.
 GARY & MARIE BEIERMANN
 MELVIN BEIERMANN

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Edward Mead B. Applicant's S.S.#: _____
 Address: 1214 Amboy Rd C. Electric Utility: _____
Amboy, Ill. Account #: _____
 Zip Code: 61310 D. Gas Utility: Lee & S. Inc., Amboy Ill.
 County: Lee Account #: _____
 Telephone #: (815) 857-2198

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Rehabilitate Existing Well -
Increase GPM from 325 to 600
(Reduce pumping time by 46%)

F. Total \$ amount of improvements \$ 12,400⁻

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4,000⁻

H. Estimated start up date 6/90 Estimated completion date 6/90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Rehabilitate Well	12,400 ⁻			2,000	84¢	1,680 ⁻	7.38
TOTAL	12,400 ⁻			2,000 ⁻	84¢	1,680 ⁻	7.38

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Edward Mead 4/28/90
 Applicant's Signature Date



**ALBRECHT
WELL
DRILLING, INC.**

RR #1. OHIO. ILLINOIS 61349

March 19, 1990

Mr. Ed Mead
1214 Amboy Grove
Amboy, IL 61310

Dear Mr. Mead;

Following please find the proposal for rehabilitating your irrigation well that pumps 325 GPM with a pumping water level of 240 feet. Our objective is to get the well to pump 600 GPM with a pumping water level of 100 feet. The proposal is as follows:

- 1. Ream the well out to 11" diameter and a total depth of 845 feet. \$6,600.00
Testing Well and Pump Installation. 800.00
- 2. Additional drilling to deepen well to approximately a total depth of 1195 feet. 5,000.00

TOTAL PROPOSAL \$12,400.00

If you have any questions, please feel free to contact us.

Sincerely,

S. Dean Albrecht gal

S. DEAN ALBRECHT
ALBRECHT WELL DRILLING, INC.

SDA:gal

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Thomas F. Mead B. Applicant's S.S.#: 318-44-7489
 Address: 731 Walton Rd C. Electric Utility: _____
Ambay Account #: _____
 Zip Code: 61310 D. Gas Utility: Lee S. Inc., Ambay, Ill
 County: Lee Account #: 174784-3
 Telephone #: (815) 857-2843

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Used Goulds Vert. Turbine Pump, Model 10 RJNO 6-stage,
Minimum 150'-6" Water tube column, discharge head
Cold pump has column deterioration, shaft worn at bushings,
excessive pump wear) Approx. cost - \$5,000-
New Perkins 6354T Diesel Power Unit - \$5,500-
Re-nozzle existing 1976 Pivot to Nelson low-pressure
R-30 Rotator Nozzles w/ D4 Plates on drops - \$1,491⁴⁵

F. Total \$ amount of improvements \$ 11,991⁴⁵
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4,000²⁰
 H. Estimated start up date 6/90 Estimated completion date 6/90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Turbine Pump	5,000 ⁻			1,440	84¢	1,209 ²⁰	4.13
Perkins Diesel	5,500 ⁻			790	84¢	604 ²⁰	9.09
Nozzles	1,491 ⁴⁵			400	84¢	336 ²⁰	4.44
TOTAL	11,991 ⁴⁵			2,560 ⁻	84¢	2,150 ⁴⁰	5.7

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Thomas F. Mead
 Applicant's Signature

4/28/90
 Date

ALBRECHT WELL DRILLING, INC.

RR 1
OHIO, ILLINOIS 61349
(815) 376-2811

PROPOSAL SUBMITTED TO <i>Thomas E. Neud</i>		PHONE <i>557-5843</i>	DATE <i>4/1/70</i>
STREET <i>731 Walton Rd.</i>		JOB NAME	
CITY, STATE AND ZIP CODE <i>Amberg, Ill. 61310</i>		JOB LOCATION <i>Amberg Rd. 3 mi. west of Amberg</i>	
ARCHITECT	DATE OF PLANS	JOB PHONE	

We hereby submit specifications and estimates for:

- Used Goulds Vert. Turbine Pump*
 - 10 RSMO 6 STAGE Bowl Assy.*
 - 150' of ~~6" dia~~ Lube column*
 - Discharge Head*
- Total Cost \$5000.00*

We Propose hereby to furnish material and labor — complete in accordance with above specifications, for the sum of:

Payment to be made as follows: _____ dollars (\$ _____).

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature *[Signature]*
Note: This proposal may be withdrawn by us if not accepted within _____ days.

Acceptance of Proposal — The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.
Date of Acceptance: _____

Signature _____
Signature _____



T-L Irrigation Systems
Sales & Service

ni Pen. Press Hard. Make Sure All Copies Are Legible.

"Proposal"



IRRIGATION SYSTEMS

Mead Machine Shop
Amboy, Illinois 61310

T-L IRRIGATION CO.
P.O. Box 1047
Hastings, NE 68902-1047
(402) 462-4128

815-857-2198 Or 815-857-2843

Date 4/19/90

Sold to: Thomas Mead
Amboy Ill. 61310

Phone (815) 857-2843

Shipping Directions: _____

Shipping Date: _____

G.P.M. _____ PSI (Top of Pivot) _____ End Gun _____ Sprinkler Pkg. # _____ Press. Reg. _____
No. of Towers _____ Auto-Endgun _____ Eng. or Elec. _____ End Pipe Lgth. _____ Gear Dr. Type _____
Serial No. _____ Position Stop _____ Towable _____ Tires _____ Spans 114" Oil Line _____

QUANTITY	MODEL/PART #	DESCRIPTION	
1	6354T	New Perkins 6354T Diesel	
		Power Unit Incl: Murphy Panel	
		Trailer Package	
		Drive Shaft & Skt. H.	5,500 ⁻
		PSI Required at Pivot 40 ^{psi}	92.4
		Pump L.H. - 100'	231.0
		Pivot Point Loss	10.0
		<u>Total Head</u>	<u>333.4</u>
		Pump FH - 802'	
		Continuous hsp req. - 66.7	
		Fuel Consumption - 3.7 gph	
		Operating Cost - \$3.11 per hr.	

Neither T-L Irrigation Co., nor the Seller shall be liable for any delays or defaults in making delivery where occasioned by any cause beyond its control, including but not limited to: action of any governmental authority; strikes, shortage of labor or materials, production facilities or transportation; labor difficulties; fire, flood, accidents or acts of God.

Sub-Total	5,500 ⁻
Installation	
Freight	
Total	5,500 ⁻
Sales Tax (if Applicable)	N/A
Less Down Payment	
Balance Due on Delivery	5,500 ⁻

SELLER Mead Machine Shop

METHOD OF PAYMENT: Cash Lease

By [Signature]

By _____ Title _____

This Agreement is Subject to the Acceptance by T-L Irrigation Co., of Hastings, Nebraska.

CUSTOMER

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

NOTES

Part I - To be completed by applicant.

A. Name: Marvin Miller B. Applicant's S.S.#: 357-38-4295
 Address: R.R. 1 Box 39 C. Electric Utility: _____
Bath, IL 62617 Account #: _____
 Zip Code: _____ D. Gas Utility: Prater Oil Company
 County: Macon Account #: 125-500
 Telephone #: (309) 546-2621

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Presently we have an 8 tower and a 10 tower high pressure systems. We plan to install the Nelson Spray III nozzle package; install end gun booster pumps; cut back the engine RPM's; repulley the generators to run at the same RPM's as before. Operating pressures will be reduced from 94 PSI to 45 and 77 PSI to 45. Fuel consumption will be cut from 4 GPA to 2.5 and 3.94 GPA to 2.5.

F. Total \$ amount of improvements \$ 3780.00 11
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1512.00
 H. Estimated start up date 4-1-90 Estimated completion date 9-30-90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
High Press. to low Press. conversion	3780.00			2940	.84	2411.00	1.6
TOTAL	3780.00			2940	.84	2411.00	1.6

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Marvin Miller 5-8-90
 Applicant's Signature Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT PURCHASE

CUSTOMER: MILLER & MIDDLEKAMP
AT ROY'S HOUSE
RAINCAT 10 TOWER

DATE: APRIL 17, 1990

	PRESENT SYSTEM	PROPOSED SYSTEM
PUMP	12 RM 4 STAGE	SAME
GEAR HEAD	5 - 4	SAME
MOTOR	BF 913	SAME
MOTOR'S RPM	2200	1890
FUEL USAGE	4 G.P.H.	2.5 G.P.H.
PRESSURE @ GROUND	94 - LBS	45 - LBS
G.P.M.	1000	SAME
PUMP EFFICIENCY	83.5 %	83 %
H.P. USED	107	69

COST OF LOW PRESSURE CONVERSION:

NELSON SPRAY III
BOOSTER PUMP KIT
NEW PULLEY
LABOR TO RENOVATE & ADD BOOSTER PUMP

TOTAL AMOUNT \$1890.00

sign

Marvin Miller

sign

accepted by

5-8-90

date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT PURCHASE

CUSTOMER: MILLER & MIDDLEKAMP
SOUTHWEST OF HOUSE
RAINCAT 8. TOWER

DATE: APRIL 17, 1990

	PRESENT SYSTEM	PROPOSED SYSTEM
PUMP	12 RL 4 STAGE	SAME
GEAR HEAD	5 - 4	SAME
MOTOR	BF 913	SAME
MOTOR'S RPM	2200	1990
FUEL USAGE	3.94 G.P.H.	2.5 G.P.H.
PRESSURE @ GROUND	77 - LBS	45 - LBS
G.P.M.	1000	SAME
PUMP EFFICIENCY	85 %	83 %
H.P. USED	90	69

COST OF LOW PRESSURE CONVERSION:

NELSON SPRAY III
BOOSTER PUMP KIT
NEW PULLEY
LABOR TO RENOVATE & ADD BOOSTER PUMP

TOTAL AMOUNT \$1890.00

sign

Marvin Miller

sign

accepted by

5-8-90

date

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Darrell Pfeiffer B. Applicant's S.S.#: 333-40-2289
 Address: R.R. 1 C. Electric Utility: Menard Electric Coop.
Forest City, Ill. Account #: 11-5-8-1 6-32-3-1
 Zip Code: 61532 D. Gas Utility: _____
 County: Mason Account #: _____
 Telephone #: 309 1 597-2386

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

SEE ATTACHED P&A BID

F. Total \$ amount of improvements \$ 9096.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4000.00
 H. Estimated start up date 2/3-/90 Estimated completion date 4/30/90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
A 50HP to 40HP	5198.	5232	.0425	XXXXXXXXXXXXXXXXXX	XXXXXXXXXX	\$622.44	8.3 yr.
B 50HP to 40HP	4798.	7660	.0425	XXXXXXXXXXXXXXXXXX	XXXXXXXXXX	\$735.55	7 yr.
TOTAL	\$ 9096	12892				\$1367.99	7.7

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Darrell Pfeiffer 2-3-90
 Applicant's Signature Date



P & A Irrigation, Inc.

PL 87 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT PURCHASE

CUSTOMER NAME Darrell Pfeiffer
ADDRESS R.R. 1 Forest City, Ill 61532
TELEPHONE NUMBER (309) 597-2386

QTY	DESCRIPTION	PRICE
(A) 1	Reinke renozzle Package	\$ _____
	Nelson Rotor Sorinklers	\$ 1988.00
	Chart for Sprinkler Spacing	\$ 160.00
	*Booster Pump Kit	\$ 1400.00
	Labor Installing Sprinklers	\$ 550.00
	PumpWork	\$ _____
	Machining Pump Bowls	\$ 500.00
	Labor Pulling Pump	\$ 600.00
		\$5198.00
(B) 1	Reinke Renozzle Package	\$ _____
	Nelson Rotor Sprinklers	\$ 1738.00
	Chart for Sprinkler Spacing	\$ 160.00
	*Booster Pump Kit	\$ 1400.00
	Labor Installing Sprinklers	\$ 500.00
	Pump Work	\$ _____
	Machining Pump Bowls	\$ 400.00
	Labor Pulling Pump	\$ 600.00
		\$4798.00
	TOTAL	\$9996.00

TERMS OF PAYMENT
 DOWN PAYMENT -----\$ _____
 UPON DELIVERY -----\$ _____
 UPON COMPLETION-----\$ _____

Jim Shot
(SOLD BY)

(ACCEPTED BY)

(DATE)

(ACCEPTED BY)

(DATE)

DARRELL PFEIFFER
Explanation of Energy Saving

A.	36160 KW used ave. last 3 yrs. .0425 cost per kw unit 1536.80 kw cost per year in past 50 HP requirement in past 940 interreptable rate used 92000 HP cost per yr. 1536.80 kw cost in past 3536.80 total energy cost past(yr)	30928 KW used per yr in future .0425 cost per kw unit 1314.44 kw cost per yr in future 40 HP requirement in future \$40 interreptable rate used \$ 1600 HP cost per yr. 1314.44 kw cost per yr. 2914.44 total energy cost future(yr)
B.	38300 kw used ave last 3 yrs .0425 cost per kw unit 1627.75 cost kw per yr past 50 HP requlreaent in past \$40 interreptable rate used \$2000 cost HP per yr past 1627.75 cost kw per yr past 3627.75 total energy cost past(yr)	30640 kw used per yr future .0425 cost per kw unit 1302.20 cost kw per yr future 40 HP requlreaent in future \$40 interreptable rate used \$1600 cost HP per yr future 1302.20 cost kw per yr future 2902.20 total enerty cost future(yr)

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Dean Pfeiffer B. Applicant's S.S.#: 333-40-2288
 Address: RR 1 Box 10 C. Electric Utility: Menard Electric Coop.
Bath, Illinois 62617 Account #: ^(A)15-29-009 & ^(B)15-29-008
 Zip Code: 62617 D. Gas Utility: _____
 County: Mason Account #: _____
 Telephone #: (309) 5462222

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

SEE P&A ATTACHED LIST

F. Total \$ amount of improvements \$ 9,996.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4,000.00
 H. Estimated start up date February 20, 1990 Estimated completion date March 20, 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
a. 50Hp to 40 Hp	\$4728.	8512	.0425	XXXXXXXXXX	XXXXXXXXXX	\$761.76	6.2 yrs
b. 60 Hp to 40 HP	\$5268.	22144	.0425	XXXXXXXXXX	XXXXXXXXXX	\$1741.12	3 yrs
TOTAL	\$9996	30656		XXXXXXXXXX	XXXXXXXXXX	\$2502.88	14 1/2

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Dean Pfeiffer 2-3-90
 Applicant's Signature Date



P & A Irrigation, Inc.

RL 97 South, Havana, Illinois 62644
Phone 309/543-3344

CONTRACT PURCHASE

CUSTOMER NAME Dean Pfeiffer
ADDRESS RR 1 Box 10 Bath, Illinois, 62617
TELEPHONE NUMBER (309) 546-2222

QTY	DESCRIPTION	PRICE
A 1	Reinke renozzle package 50 to 35 PSI	\$
	Nelson Rotor Sprinklers	\$ 1,568.00
	Chart for Sprinkler Spacings	\$ 160.00
	*Booster Pump	\$ 1,400.00
	Labor installing sprinklers	\$ 500.00
1	Pump work 50 to 40 HP	\$
	Machining Pump Bowls	\$ 500.00
	Labor on Pulling Pump	\$ 600.00
B 1	Reinke renozzle package 50 to 35 PSI	\$
	Nelson Rotor Sprinklers	\$ 1,808.00
	Chart for Sprinkler Spacings	\$ 160.00
	*Booster Pump	\$ 1,400.00
	Labor installing sprinklers	\$ 550.00
1	Pump Work 60 to 40 HP	\$
	Machining Pump Bowls	\$ 750.00
	Labor on Pulling Pump	\$ 600.00
TOTAL		\$9,996.00

TERMS OF PAYMENT
 DOWN PAYMENT -----\$ _____
 UPON DELIVERY -----\$ _____
 UPON COMPLETION-----\$ _____

Jim Short
(SOLD BY)

(ACCEPTED BY)

(DATE)

(ACCEPTED BY)

(DATE)

DEAN PFEIFFER
Explanation Of Energy Saving

A.	.42,560	kw used ave. last 3 yrs.	34,048	kw used per yr in future
	<u>.0425</u>	cost per kw unit	<u>.0425</u>	cost per kw unit
	1808.80	kw cost per year	1447.04	kw cost per yr in future
	50	Hp requirement in past	40	Hp requirement in future
	<u>\$40</u>	interreptable rate used	<u>\$40</u>	interreptable rate used
	2000	Hp cost per yr.	\$1600	Hpcost per yr.
	<u>1808.80</u>	kw cost per yr.	<u>1447.04</u>	kw cost per yr.
	3808.80	total energy cost past	3047.04	total energy cost future
B.	55,360	kw used ave last 3 yrs.	33,216	kw used future pre yr.
	<u>.0425</u>	cost per kw unit	<u>.0425</u>	cost per kw unit
	2352.80	kw cost per yr past	1411.68	kw cost per yr. future
	60	Hp requirement in past	40	Hp requirement in future
	<u>\$40</u>	interreptable rate used	<u>\$40</u>	interreptable rate used
	2400	Hp cost per yr past	\$1600	Hp cost per yr. future
	<u>2352.80</u>	kw cost per yrs past	<u>1411.68</u>	kw cost per yr.
	4752.80	total energy cost past	3011.68	total energy cost future

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Leo Pfeiffer B. Applicant's S.S.#: 336-32-4158
 Address: R.R.1 C. Electric Utility: Menard Electric Co.
Forest City, Ill 61532 Account #: 15-23-006-01 15-31-004-01
 Zip Code: _____ D. Gas Utility: _____
 County: Macon Account #: _____
 Telephone #: (309) 597-2115

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

SEE ATTACHED P&A BID

F. Total \$ amount of improvements \$ 9998.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4000.00
 H. Estimated start up date 2/25/90 Estimated completion date 3/19/90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
A 50HP to 40HP	\$4325.	7712	.0425			\$727.76	6 yrs
B 150HP to 133HP	\$5673.	29400	.0425			\$1929.50	3 Yr
TOTAL	\$9998.	37112				\$2657.26	

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Leo J Pfeiffer 2-3-90
 Applicant's Signature Date



P & A Irrigation, Inc.

Rt. 87 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT PURCHASE

CUSTOMER NAME Leo Pfeiffer
ADDRESS R.R. 1 Forest City, Ill 61532
TELEPHONE NUMBER (309) 597-2115

QTY	DESCRIPTION	PRICE
(A) 1	Reinke renozzle package	\$ _____
	Nelson Rotor Sprinklers	\$ 1565.00
	Chart for Sprinkler Spacings	\$ 160.00
	*Booster Pump kit	\$ 1400.00
	Labor installing sprinklers	\$ 500.00
I	Pump work	\$ _____
	Machining Pump Bowls	\$ 800.00
	Labor pulling pump	\$ 600.00
		\$4325.00
(B) 1	Reinke Renozzle Package	\$ _____
	Nelson Rotor Sprinklers	\$ 2838.00
	Pressure Regulators	\$ 425.00
	Chart for Sprinkler Spacings	\$ 160.00
	Labor Installing Sprinklers	\$ 700.00
	Pump work	\$ _____
	Machining Pump Bowls	\$ 750.00
	Labor pulling pump	\$ 800.00
		\$5673.00
	TOTAL	\$ 9998.00

TERMS OF PAYMENT

DOWN PAYMENT -----\$ _____
 UPON DELIVERY -----\$ _____
 UPON COMPLETION-----\$ _____

Jim Short
(SOLD BY)

(ACCEPTED BY)

(DATE)

(ACCEPTED BY)

(DATE)

LEO PFEIFFER
Explanation of Energy Saving

A.	38560 KW used ave. last 3 yrs. .0425 cost per kw unit 1638.80 kw cost per year in past 50 HP requirement in past \$40 interreptable rate used \$2000 HP cost per yr. 1638.80 kw cost in past 3638.80 total energy cost past(yr)	30848 KW used per yr in future .0425 cost per kw unit 1311.04 kw cost per yr in future 40 HP requirement in future \$40 interreptable rate used \$ 1600 HP cost per yr. 1311.04 kw cost per yr. 2911.04 total energy cost future(yr)
B.	196000 kw used ave last 3 yrs .0425 cost per kw unit 8330.00 cost kw per yr past 150 HP requilreaent in past \$40 interreptable rate used \$6000 cost HP per yr past 8330.00 cost kw per yr past 14330.00 total energy cost past(yr)	166600 kw used per yr future .0425 cost per kw unit 7080.50 cost kw per yr future 133 HP requilreaent in future \$40 interreptable rate used \$5320 cost HP per yr future 7080.50 cost kw per yr future 12400.50 total enerty cost future(yr)

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: TERRY POZI B. Applicant's S.S.#: 354-48-5249
 Address: 9342 BUELL RD C. Electric Utility: COMMONWEALTH EDISON
ROCK FALLS ILLINOIS Account #: Will not receive one till meter is installed
 Zip Code: 61071 D. Gas Utility: _____
 County: WHITESIDE Account #: _____
 Telephone #: (815) 626 7956

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

(See attached)

F. Total \$ amount of improvements \$ 10,633.⁰⁰
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4000.⁰⁰
 H. Estimated start up date 4-20-90 Estimated completion date 6-1-90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Conversion of high-pressure gas to low pressure electric	low pressure \$7927 electricity \$2706 \$10,633				from \$4.25/acre to \$1.25/acre		
TOTAL	\$10,633			75%		\$2,700	3.9

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Terry Pozzi
Applicant's Signature

4-20-90
Date



I

In reply to the energy saving estimates; since I have been on high pressure, the cost of water per unit was right at \$4.25 an acre. I was using an L.P. engine which was becoming too expensive to operate. The L.P. engine was using around 700 GALS of L.P. gas every 5-6 days. With this amount of fuel it costs approximately 1200-1500.00 an month. After the conversion to low pressure, the estimated cost would be approximately \$1.25 per acre. Simple payback period would be 4-6 yrs. For more information just let me know..

Thank you
Terry Povi

- Grain Bins
- Bucket Elevators
- Grain Dryers
- Portable Augers
- Irrigation Systems
- Pneumatic Conveyors



Roosevelt Street
Hooppole, IL 61258
Phone (815) 948-2591
or 948-7091

No. _____
Date 4/17/90

PROPOSAL & SALES AGREEMENT

Owner Terry Poir Tenant None
9340 Buell Rd
Rock Falls, Ill 61070
Re: low pressure conversion

No. Pieces	Description	Unit Price	Total Price
1	11. & 50 HP (vertical) hollow shaft motor		1830 ⁰⁰
1	50 HP pump panel		684 ⁰⁰
1	SR100 end gun		450 ⁰⁰
1	5 HP retro fit booster pump & control box		1921 ⁰⁰
1	Nelson Rotator sprinkler pkg		842 ⁰⁰
1	Transformer & electric panel pad		500 ⁰⁰
1	Mikes wiring conduit, etc for electric hook-up		1200 ⁰⁰
1	Pump rebuild from engine to low pressure electric		1000 ⁰⁰
			7927 ⁰⁰
<p>COMMONWEALTH EDISON BILL WAS 2706.⁰⁰ THAT IS FOR LINE EXTENSION AND WIRE. ANY QUESTION I WOULD BE HAPPY TO ANSWER THEM. Terry Poir</p>			
			TOTAL <u>7927⁰⁰</u>

This agreement does or does not include the following

DOES	DOES NOT
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Delivery to site
- Footling and concrete work
- Foundation bolts and steel
- Complete erection
- Preparation to grade level
- Wiring
- Crane

Terms:

Cash with order
 Cash upon delivery of materials

Cash upon completion
 *NOTE:

PROPOSAL BY: _____

The dealer hereby agrees to furnish the above described materials and services. All work to be completed in a workmanlike manner (according to standard trade practices). Balance due within 10 days after substantial completion or use, whichever occurs first. Price of minor items not immediately available during erection will be deducted, leaving balance payable. Billing of shortages will follow their installation. Balance shall accrue interest of 1 1/2% per month after due date.

ACCEPTED: Terry Poir DATE: 4-18-90

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: J. D. Proehl B. Applicant's S.S.#: 352-38-6467
 Address: R.1 - Box 49 C. Electric Utility: CENTRAL ILL. LIGHT CO.
MANITO, ILL. Account #: 60091
 Zip Code: 61546 D. Gas Utility: ---
 County: TAZEWELL Account #: ---
 Telephone #: (309) 968-6780

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

ACID WILL BE POURED INTO WELL TO CLEAN WELL SCREEN.
AFTER SCREEN IS CLEANED, WATER WILL FLOW INTO THE
WELL MORE READILY AND THEREFORE WE CAN PUMP
MORE GALLONS PER MINUTE. THIS WILL REDUCE OUR
ELECTRICAL COST OF THE ELECTRIC MOTOR. THIS WILL
MAKE THE IRRIGATION SYSTEM MORE EFFICIENT.
(ESTIMATE ATTACHED)

F. Total \$ amount of improvements \$ 1034.38

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 7034.38

H. Estimated start up date FEB. 16, 1990 Estimated completion date FEB. 15, 1990

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
<u>1 CLEAN WELL SCREEN</u>	<u>\$ 1034.38</u>					<u>\$ 200⁰⁰</u>	<u>5</u>
TOTAL	<u>1034.38</u>					<u>200⁰⁰</u>	<u>5</u>

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

J. D. Proehl
 Applicant's Signature

JANUARY 17, 1990
 Date

Grosch Irrigation Co., Inc.

Well Drilling and Complete Installations

MASON CITY, IL 62864

Phone 217-482-5479

No 1001

~~STATEMENT - ESTIMATE~~
-ESTIMATES BASED ON CURRENT PRICES-

DATE January 9 . 19 90

J.D. Proehl

RR 1 Box 49 Manito, Il. 61546

Acid	\$550.00
Labor	\$450.00
Sales tax	\$34.38
Total	\$1034.38

Service charge is $1\frac{1}{2}\%$ per month
Annual rate is 18% per year

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Ringhouse Inc. B. Applicant's S.S.#: 37-1020897
 Address: RR 1 C. Electric Utility: _____
EASTON, ILL 62633 Account #: _____
 Zip Code: 62633 D. Gas Utility: _____
 County: MASON Account #: _____
 Telephone #: (309) 562-7278

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

To convert Rainier center pivot system to low pressure.
Trade a Deutz 913 150 HP engine for a JD 4239D
59 HP engine. By converting to low pressure and
going to a small engine we will drop fuel use
from 4.2 gal per hr. to 2.5 gal per hr.

F. Total \$ amount of improvements \$ 7616
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 3046
 H. Estimated start up date 3-15-90 Estimated completion date 4-15-90

I. Table of Annual Energy Savings Estimates

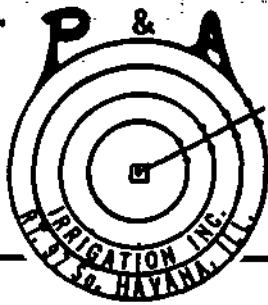
Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Low pressure 1.7 x 700 hr gal	7616			1190 gal Pet. yr.	.95	1130.5	6.74
TOTAL							

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Ringhouse Inc
Kenneth E Ringhouse 1-29-1990
 Applicant's Signature Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

CONTRACT TO PURCHASE

RINGHOUSE BROTHERS, INC.
EASTON, IL. 62633

* P & A IRRIGATION, INC.
* RT 97 SOUTH
* HAVANA, IL. 62644

JD 4239D 59HP @ 1800 RPM WITH SAFETY GAUGE, HOOD	\$5055.00
CLUTCH	688.00
OIL SIGHT GUAGE	112.00
FRONT PULLEY (NECESSARY TO GEAR RATIO OF PACKAGE)	160.00
SAFETY HOOK-UP WIRE TO PIVOT WITH PROPER PLUGS	40.00
PULLEY TO GENERATOR NECESSARY FOR GEAR REDUCEING	45.00
ENGINE TRAILER WITH PROPER GENERATOR MOUNT	400.00
TOTAL	6500.00
LESS TRADE IN OF 913 DEUTZ	- 1000.00
ENGINE SUBTOTAL	5500.00
1 SET OF NELSON SPRAY	235.00
BOOSTER PUMP	1031.00
LABOR TO INSTALL	350.00
PULL PUMP & REMOVE BOWLS	500.00
SYSTEM CHANGES	2116.00
TOTAL CONVERSION	7616.00

*SEE NOTES ATTACHED

purchaser

P & A IRRIGATION,

DATE



P & A Irrigation, Inc.

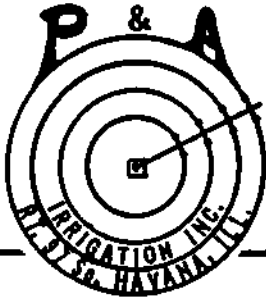
Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

QUOTE

RINGHOUSE BROTHERS *INC.*
EASTON, IL. 62633

* P & A IRRIGATION, INC.
* RT 97 SOUTH
* HAVANA, IL. 62644

JD 4239D 59HP @ 1800 RPM WITH SAFETY GAUGE, CLUTCH, HOOD, OIL SIGHT GAUGE, FRONT PULLEY, ENGINE TRAILER, HOOK-UP TO PIVOT, GENERATOR MOUNTED, NEW PULLEY FOR GENERATOR (IF NECESSARY)	\$6500.00
LESS TRADE-IN OF 913 DEUTZ	-1000.00
TOTAL CONTRACT.	<hr/> \$5500.00



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

QUOTE

RINGHOUSE BROTHERS *INC.*
EASTON, IL. 62633

* P & A IRRIGATION, INC.
* RT 97 SOUTH
* HAVANA, IL. 62644

MODEL 2-6E5 S/N 177C 4033 948' & 40' END BOOM

CONVERTING REINKE SYSTEM TO LOW PRESSURE

1 SET NELSON SPRAY 3
NEW PRESSURE GUAGE
BOOSTER PUMP KIT WITH
LOW WATER SAFETY SWITCH @ PIVOT
LABOR TO INSTALL
PULL PUMP & REMOVE BOWL

TOTAL CONTRACT \$ 2116.00

Kinghouse Ave
R R 1
Easton, Ill

Miss Bowman,

Please find enclosed the information we discussed. The trailer is more necessary than I thought. If you don't purchase a trailer, then they have to make a skid stand and mounting bracket for the generator out of I beams which would be as expensive or more so than a trailer made for this. Also the pulleys have to be changed in order to gear the generator for the correct R.P.M.

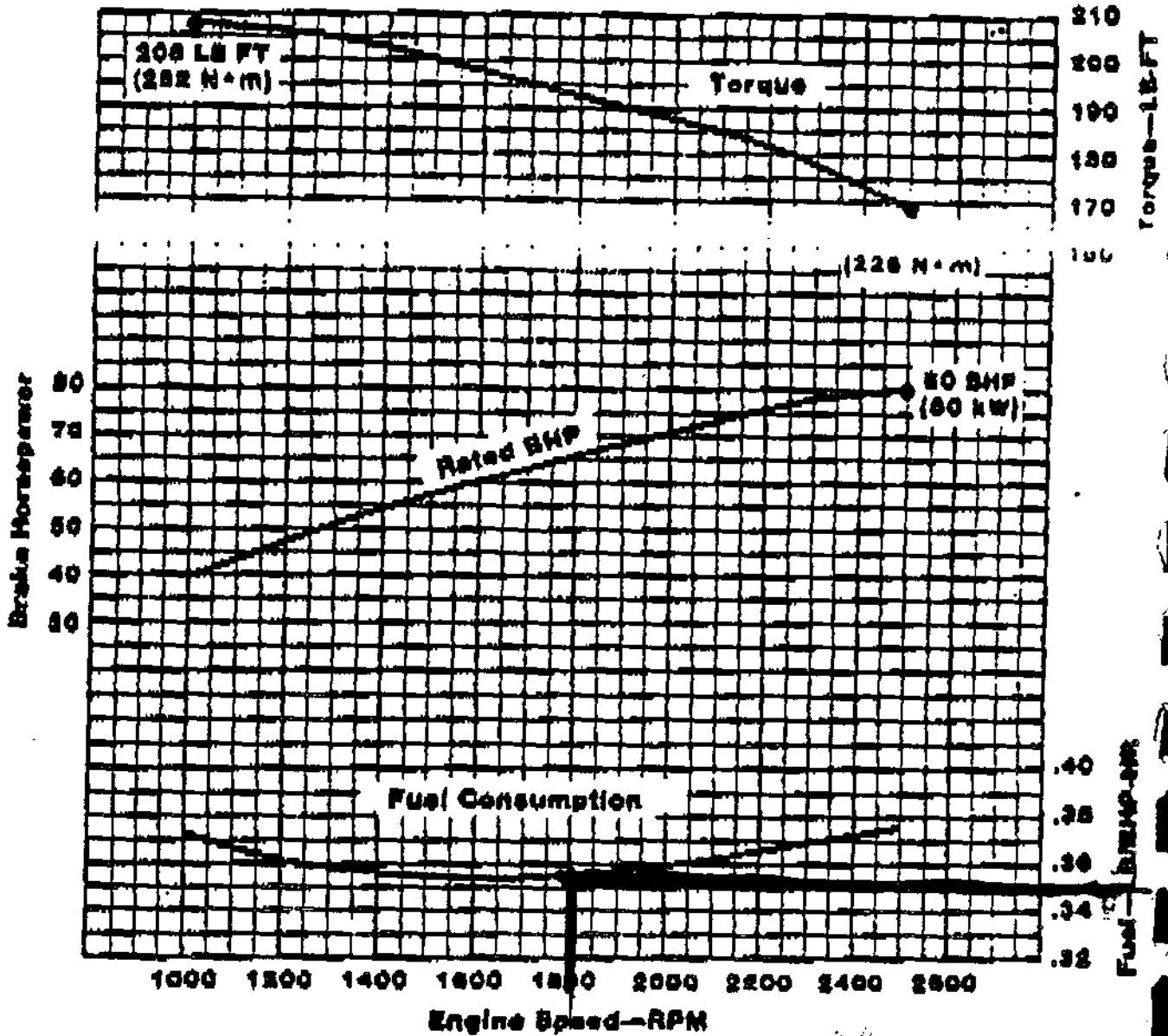
Sincerely yours
Kenneth E Ringhouse

TRAILER OPTION HAS BEEN ADDED TO PACKAGE AS IT IS MORE COST EFFECTIVE TO PURCHASE THAN TO BUILD A FRAME TO HOLD ENGINE AND GENERATOR ON SIGHT. LABOR COSTS AND MATERIALS FOR PERMANENT MOUNT ON SIGHT WOULD IN OUR ESTIMATION EXCEED THE COST OF THE TRAILER WITH THE GENERATOR MOUNTED INCLUDED.

Pully's are needed to run generator the correct R.P.M.

Performance Curve †

239D
 0 rpm
 0 rpm
 0 rpm
 0 rpm
 1 appli-
 erating
 ds per
 iditions.
 ecessary
 ons for
 orized
 9 kPa)



$0.36 \text{ #/HP/hr} \times 54 \text{ HP} = 19.4 \text{ #/hr} = 2.5 \text{ Gal/hr}$

Charts used to figure fuel consumption at 1800 R.P.M.

$0.36 \text{ # of fuel times } 54 \text{ HP} = 19.4 \text{ lb fuel per hr.} \div 8 \text{ lb. per gal} = 2.5 \text{ gal per hr.}$

76 #/hr
 #/gal = 4.22 gal/hr

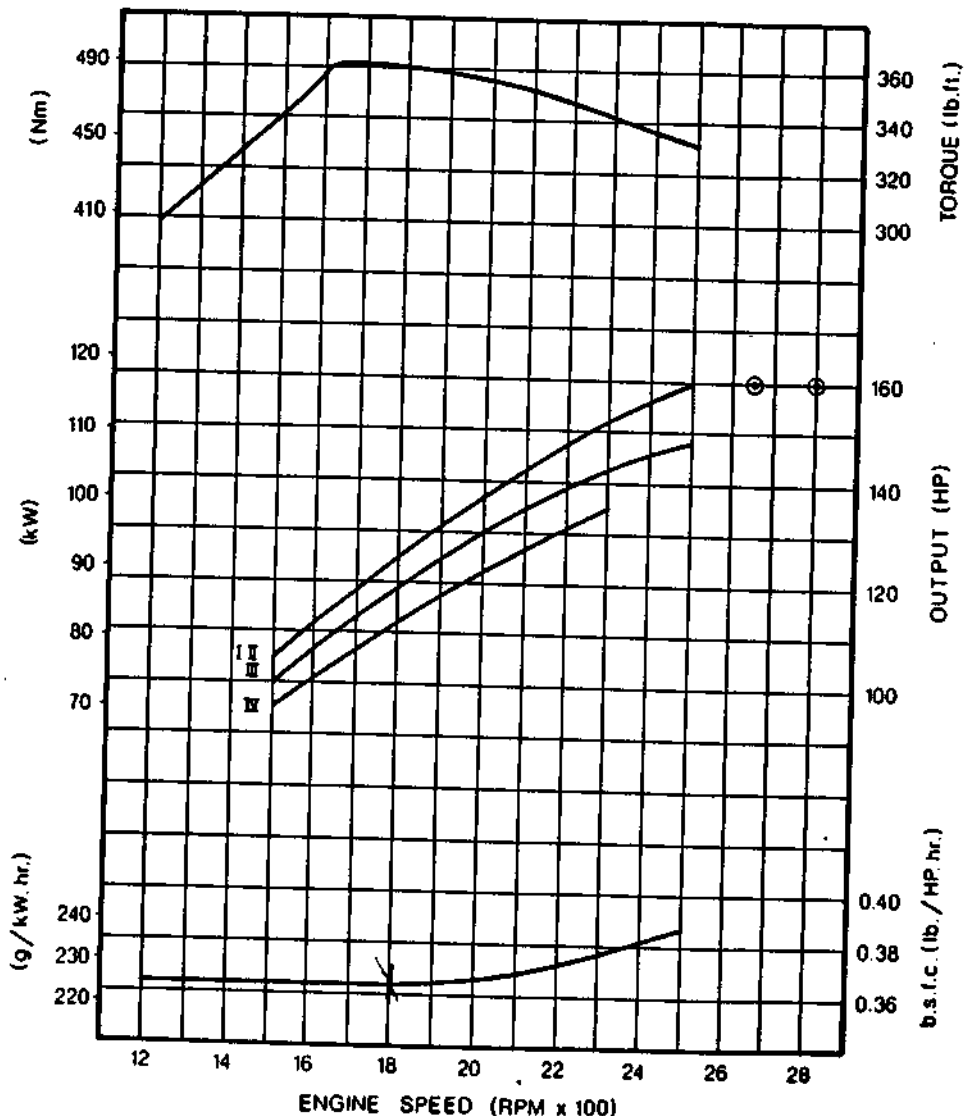


BF6L913

$$9.3 \text{ HP} \times 3.63 \frac{\text{lb}}{\text{hr}}/\text{HP} = 33.76 \text{ lb/hr}$$

$$9.3 \text{ HP} \times 3.63 \frac{\text{lb}}{\text{hr}} = \frac{33.76 \text{ lb}}{8 \text{ lb/gal}} = 4.22 \text{ gal/hr}$$

$E_i \frac{\text{lb}}{\text{gal}} = 4.22 \frac{\text{gal}}{\text{hr}}$



Rating Standards DIN 70020 (Automotive I)
 DIN 8271/ISO 3046/1 (Industrial II, III, IV)
 Engine equipped with cooling air blower, air cleaner, muffler, alternator (idling)
 Torque and fuel consumption curves relate to maximum rated output



Distributed By:

DEUTZ CORPORATION

7585 Ponce de Leon Circle
 Atlanta, Georgia 30340
 (404) 449-6140
 Telex: 6827025
 Telecopier: (404) 447-6387

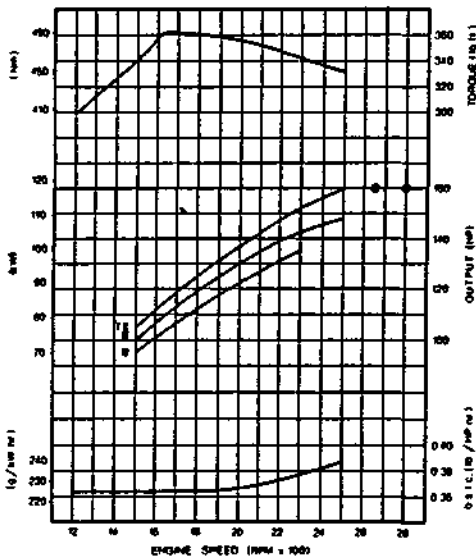
KHD CANADA, INC.

180 Rue De Normandie
 Boucherville, RQ. J4B 5S7
 Canada
 (514) 641-2680
 Telex: 268544

ILLINOI POWER PRODUCTS
 444 Randy Road
 Carol Stream, Ill. 60188
 (312) 462-7280



F6L913



Rating Standards (DIN 6271) (Subcategory II)
 Data 6271/100 (3000/1) (Subcategory II, III, IV)
 Engine equipped with optional air cleaner, muffler, generator (optional)
 Fuel and fuel consumption curves refer to maximum rated output

DIN 6271 RATING OUTPUT DATA

- II Light Duty Intermittent Output
- III Heavy Duty Intermittent Output
- IV Continuous Duty Output

DIN 6271 REFERENCE CONDITIONS

- 80.6° F (27° C) Temperature
- 400' (120m) Altitude
- 60% Humidity



Engine Speed	RPM	1500	1800	2000	2150	2300	2500	2650	2800
Light Duty Intermittent Output DIN 6271	HP	105	125	137	144	152	160	160	160
	KW	77	92	101	106	112	118	118	118
Heavy Duty Intermittent Output > DIN 6271	HP	100	119	130	136	142	148	—	—
	KW	74	88	96	100	104	109	—	—
Continuous Duty Output to DIN 6271	HP	95	112	122	130	135	—	—	—
	KW	70	82	90	96	99	—	—	—

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
 Preliminary Program Application
 (See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: S+D FARM INC. B. Applicant's S.S.#: 37-1151585
 Address: RR #1 C. Electric Utility: CENTRAL IL. PUBLIC SERV.
BATH, IL. Account #: 7247890
 Zip Code: 62617 D. Gas Utility: Pontiac Oil Co.
 County: MASON Account #: 160400
 Telephone #: (309) 543-3207

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

I plan to convert 2 - 400 acre systems and 1 - 160A system to low-pressure spray nozzles and booster pumps. I will increase the gallerage on the small systems from 300 GPM each to 415 GPM and the larger one from 875 to 1200 GPM. In both cases the total acreage requirements per hour would remain nearly the same as before conversion.

F. Total \$ amount of improvements \$ 9068.
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 3627.20
 H. Estimated start up date 4/1/90 Estimated completion date 5/1/90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
Convert to low pressure large system	3900			534	.85	454.	8.6
#1 Convert to low pressure small system	2584	3183 6366	.1124			357.	7.2
#2 Convert to low pressure small system	2584	3183	.1124			357.	7.2
TOTAL	9068	6366	.1124	534	.85	* 1168.	7.7

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

S+D Farm Inc.
Daryl Fornoff, President 3-14-90
 Applicant's Signature Date

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: DOUG SCHMITT B. Applicant's S.S.#: 333-60-6024
 Address: 30788 PLAUTZ ROAD C. Electric Utility: COMMONWEALTH EDISON
ROCK FALLS, IL Account #: PP95-HE-33213
 Zip Code: 61071 D. Gas Utility: _____
 County: WHITESIDE Account #: _____
 Telephone #: (815) 626-4449

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Illinois Water Survey conducted a test on my irrigation well
in the fall of 1989. This test was requested due to the fact this
well was surging both air and water. It then was determined that a
relocated installed well would have a significant direct conservation
energy savings. The energy savings come from the costs of well
efficiency. This is demonstrated by not breaking demand charge, less
pump operating hours, etc. to meet required GPM for both crop and
irrigation management. (costs associated are attached)

F. Total \$ amount of improvements \$ 10,838
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 4,000
 H. Estimated start up date 2/20/90 Estimated completion date 5-20-90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
<u>install well in a better formation</u>	<u>10838</u>	<u>4540</u> <u>+ 55.8</u>	<u>Rate charge</u> <u>.05581</u> <u>Demand</u> <u>13.87</u>			<u>253.37</u> <u>773.94</u>	
TOTAL	<u>10838</u>					<u>1027.31</u>	<u>10</u>

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Doug Schmitt Applicant's Signature 4-4-90 Date

ILLINOIS IRRIGATION...
Description of energy conservation improvements

*****CONTRACT*****

02/20/90

PAGE 1

DOUGLAS SCHMITT
30788 PLAUTZ ROAD
ROCK FALLS, IL. 61071
(815)-626-4449

BEIERMANN AGRI-SYSTEMS INC.
26409-178th Ave. N
CORDOVA, ILLINOIS 61242
(309)-654-2222

THE FOLLOWING IS A BILL FOR TEST WELLS DONE ON DOUG SCHMITT'S FARM TO LOCATE A MORE EFFICIENT AND PRODUCTIVE WELL, SINCE THE OLD WELL & LOCATION JUST DIDN'T PROVIDE ENOUGH WATER, AND PUMPED AIR SINCE THE DRAWDOWN WAS SO GREAT.

1	57' TEST WELL-----	\$228.00
1	48' TEST WELL-----	\$192.00
1	62' TEST WELL-----	\$248.00
1	57' TEST WELL-----	\$228.00
1	59' TEST WELL-----	\$236.00
1	72' TEST WELL-----	\$288.00
1	59' TEST WELL-----	\$236.00
1	72' TEST WELL-----	\$288.00
1	72' TEST WELL-GOOD FORMATION-----	\$144.00

TOTAL===== \$2,088.00

THE RESULTS OF THE ABOVE TEST WELLS INDICATE THAT THE WELL BE RELOCATED TO A BETTER FORMATION IN ORDER TO GET A WELL THAT WILL PRODUCE A HIGHER VOLUME OF WATER WO/AIR WHICH WOULD MAKE IT A MORE EFFICIENT OPERATION.

THE COST OF A NEW WELL WOULD BE:

1	75' IRRIGATION WELL, 55' OF 14" STEEL CASING W/20' OF 12" STAINLESS STEEL SCREEN AT THE BOTTOM OF THE WELL. (100' WELL COST \$9500, MINUS \$30 PER/FT UNDER 100' OR PLUS \$40 PER/FT OVER 100'.)	\$8,750.00
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------

D-SCHMIT TOTAL===== \$10,838.00

THANK YOU VERY MUCH,
BEIERMANN AGRI-SYSTEMS INC.
GARY & MARIE BEIERMANN
MELVIN BEIERMANN

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: LOREN A. THOMAS B. Applicant's S.S.#: 350-24-5169
 Address: R.R.#2 Box 123 C. Electric Utility: _____
Havana, Ill. Account #: _____
 Zip Code: 62644 D. Gas Utility: Mason Co. Service
 County: Mason Account #: 2242451
 Telephone #: (309) 535-3720

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Renozzel Reinke System (10 yrs old) to Low Pressure Sprays
Increase Pump 800 GPM to 1000 GPM 80 PSI to 40PSI will increase
efficiency by 5%, Run time will decrease 20% Horsepower
used will drop by 10 HP

F. Total \$ amount of improvements \$ 2530.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 1012.00
 H. Estimated start up date Feb-1 Estimated completion date March-1

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
<u>Pressure Reduc</u>	<u>2530.00</u>			<u>505.20 gal.</u>	<u>1829.10</u>	<u>365.80</u>	<u>7 yrs</u>
			<u>cost last year</u>				
TOTAL	<u>2530.00</u>						

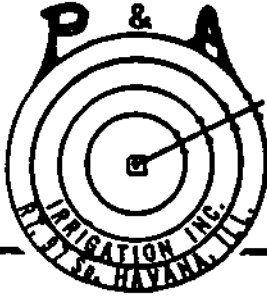
J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Loren A. Thomas
 Applicant's Signature

Jan. 25, 1990
 Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

QUOTE

LOREN THOMAS
RR # 2
HAVANA, IL. 62644

* P & A IRRIGATION, INC.
* RT 97 SOUTH
* HAVANA, IL. 62644

RENOZZEL REINKE SYSTEM 1079 C 6343
FROM 800GPM TO 1000 GPM
80 PSI 50 PSI

1 SET NELSON SPRAY III
NEW REINKE BOOSTER PUMP INCLUDING LOW WATER SAFETY
AND WIRING \$ 1470.00

RENOZZEL LABOR, & PULLEY
INSTALL BOOSTER PUMP 380.00

ALL REGULATORS 640.00
NEW PULLEY & BELTS 40.00

TOTAL CONTRACT \$ 2530.00

DATE 1/23/90

CUSTOMER Loren A. Thomas

ACCEPTED BY: [Signature] P & A IRRIGATION, INC.

Pump will increase 5% in efficiency, Run time will decrease 20%
Horsepower use will drop 10HP

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program
Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Steve Vandike B. Applicant's S.S.#: 344-40-7816
 Address: R.R. 1 C. Electric Utility: Farmers Mutual Electric
Geneseo, Ill. Account #: 3-16-11
 Zip Code: 61254 D. Gas Utility: _____
 County: Henry Account #: _____
 Telephone #: (309) 944-2229

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Converting present center pivot system to low pressure.
See attached estimate.

F. Total \$ amount of improvements \$ 6430.
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 2572.
 H. Estimated start up date May 15 Estimated completion date June 1

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback in Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
convert to low pressure See attached sheet.	\$6430.	18326	.0568			\$1041.	6.1
TOTAL	\$6430.	18326	.0568			\$1041.	6.1

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Steve Vandike April 26, 1990
 Applicant's Signature Date

*****ESTIMATE*****

04/15/90

PAGE 1

STEVE & VIKI VANDIKE
RFD 1
GENESE, IL. 61254
(309)-944-2229

BEIERMANN AGRI-SYSTEMS INC.
26409-178th Ave. N
CORDOVA, ILLINOIS 61242
(309)-654-2222

LISTED BELOW IS THE MATERIALS NEEDED TO CONVERT THE 7-TOWER
CENTER PIVOT SYSTEM FOR STEVE VANDIKE TO LOW PRESSURE AND A HIGHER
GALLONAGE TO IMPROVE THE EFFICIENCY OF THE SYSTEM.

1	LOW PRESSURE SPRINKLER PACKAGE INSTALLED ON 7-TOWER CENTER PIVOT SYSTEM, W/NEW END GUN NOZZLE-----	\$1,170.00
1	WELDING ON MORE OUTLETS ON THE PIPE OF THE CENTER PIVOT TO ACCOMMODATE THE NEW SPRINKLER PACKAGE-----	\$200.00
1	130 GPM END GUN BOOSTER PUMP W/MISC PIPE FITTINGS-----	\$750.00
1	BOOSTER PUMP CONTROL BOX W/WIRE, & LABOR-----	\$575.00
1	40 HP VHS 3-PH. IRRIGATION PUMP MOTOR, 460 VOLT, INSTALLED-	\$2,685.00
1	LABOR PULLING OUT PUMP, REMOVING STAGE(S), RESETTING PUMP--	\$800.00
1	MISC. LABOR WIRING IN NEW MOTOR, FREIGHT, HANDLING & ETC.--	\$250.00

VANDIKE TOTAL===== \$6,430.00

THANK YOU VERY MUCH,
BEIERMANN AGRI-SYSTEMS INC.
GARY & MARIE BEIERMANN

ESTIMATED COST SAVINGS PER YEAR, W/8" OF WATER APPLIED ON 135 ACRES

PRESENT SYSTEM:

650 GPM High PSI w/60' pumping level, 60 HP motor, Requires approx. 752 hours,
consuming approx. 49.8 kwh. @ \$.0672/kwh.
Total energy cost per year -----\$2517.00

CONVERTING TO LOW PRESSURE:

850 GPM Low PSI w/60' pumping level, 40 HP motor, Requires approx. 576 hours,
consuming approx. 33.2 kwh. @ \$.0772/kwh. *
Total energy cost per year -----\$1476.00

Annual Kw savings -----18326 kwh.
Annual cost savings -----\$1041.

* Kw charge differs due to rate structure.

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: John A. Whitaker B. Applicant's S.S.#: 354-28-4681
 Address: R.R. 3 Box 61 C. Electric Utility: _____
Forest City, IL Account #: _____
 Zip Code: 61532 D. Gas Utility: Mason County Service Co.
 County: Mason Account #: 234242-1
 Telephone #: (309) 968-6405

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

Plan is to Renovate the Irrigation System with Nelson Low Pressure Impact Sprinklers and Remove Bowls from the Pump to Reduce the Pressure and Replace the Existing Engine and Generator with a More Efficient John Deere Engine. The New Sprinklers should be 15% more efficient in water distribution than the old high pressure sprinklers - thereby reducing the total running hours per year. Presently, the system requires 5.3 gallons of fuel per hr. with average annual use of 825 hrs. This should be reduced by 1.7 gal. per hr. or 3.6 Gallon per hr.

F. Total \$ amount of improvements \$ 9379.00
 G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 3751.60
 H. Estimated start up date 3-12-90 Estimated completion date 3-26-90

I. Table of Annual Energy Savings Estimates

Conservation Measures	Estimated Installation Cost	Electric (kWh)		Fossil Fuel		Total Dollar Savings	Simple Payback In Years
		Units Saved	Cost/kWh	Units Saved	Cost/Unit		
<u>Conversion to Low Pressure System</u>	<u>9379.00</u>			<u>14025 Gal/Yr.</u>	<u>1.00/Gal.</u>	<u>140250/Yr.</u>	<u>6.68 Yrs.</u>
TOTAL							

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

John A. Whitaker 2-26-90
 Applicant's Signature Date



P & A Irrigation, Inc.

Rt. 97 South, Havana, Illinois 62644
Phone 309/543-3244

QUOTE FOR

MR. JOHN WHITAKER
RR # ~~33~~ *Box 61*
FOREST CITY, ILLINOIS *61532*

RENOZZEL 10 TOWER ZIMMATIC

3 DN PLASTIC IMPACT LOW PRESSURE	\$ 844.00
BOOSTER PUMP KIT	1375.00

TOTAL	\$2219.00
-------	-----------

* * * * * * * * * * *SPECIAL PRICE* * * * * \$1664.00

| | |
|---------------------------------|--------|
| REGULATORS AND ALL SPRINKLERS | 455.00 |
| PULL AND REMOVE BOWLS FROM PUMP | 660.00 |

| | |
|-------|-----------|
| TOTAL | \$2779.00 |
|-------|-----------|

NOTE

ANY PUMP REPAIR WOULD BE EXTRA

TERMS: 10% DOWN
90% COMPLETED

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Illinois Irrigation Energy Conservation Grant Program

Preliminary Program Application

(See reverse side for instructions)

Part I - To be completed by applicant.

A. Name: Todd A. Whitaker
Edward L. Whitaker
 Address: RR #3 Box 62 Forest City, IL
RR #1 Box 34 Forest City, IL
 Zip Code: 61532
 County: Mason
 Telephone #: (309) 968-7709

B. Applicant's S.S.#: TAW 347-40-3572
EW 319-22-8884

C. Electric Utility: _____
 Account #: _____

D. Gas Utility: Mason Co. Service Company
2342944 2339536
 Account #: _____

E. Describe the Energy Conservation Improvements planned. Please include all brand name and model #'s of any equipment purchased. (Attach copies of material estimates and/or contractors bids.)

F. Total \$ amount of improvements \$ 7,000

G. Amount of grant requested (not to exceed 40% of line F or \$4,000) \$ 2,800

H. Estimated start up date April 15 Estimated completion date April 20

I. Table of Annual Energy Savings Estimates

| Conservation Measures | Estimated Installation Cost | Electric (kWh) | | Fossil Fuel | | Total Dollar Savings | Simple Payback In Years |
|-------------------------|-----------------------------|----------------|----------|---------------|--------------|----------------------|-------------------------|
| | | Units Saved | Cost/kWh | Units Saved | Cost/Unit | | |
| low pressure sprinklers | 1,300 | 10% | | 10% | | | |
| 2h.p. booster pump | 1,200 | | | | | | |
| 4239T JD Less trade | 4,500 | | | | | | |
| diesel fuel oil | | | | 1080
39.06 | 1.10
1.30 | 1188
50 | |
| TOTAL | 7,000 | | | | | 1,239 | 5.6 |

J. I/We hereby certify that:

The information submitted above and on any attachments is correct to best of my knowledge.

I understand that: this application in no way obligates the Department of Energy and Natural Resources to any financial commitment and, if approved, that I/we will be required to negotiate and sign a written contractual agreement with ENR outlining the grant procedures and schedules.

Todd A. Whitaker Applicant's Signature March 8, 1990 Date

I plan on converting my twelve year old Zimmatic high pressure center pivot irrigation system to low pressure.

I will accomplish this by replacing the old high pressure sprinklers with low pressure, low profile Rainbird sprinklers. In addition a two horse power Berkeley booster pump will have to be added to the end gun to supply it with enough pressure to perform properly.

Steve Bitner from Central Illinois Irrigation Company, and myself have decided that we can slow the engine speed two to three hundred r.p.m.s to reach the desired decrease in pressure that is recommended.

With the new decrease in pressure the six cylinder model# 913 turbo charged Deutz diesel engine that is currently used is too big. Also the engine speed for the high pressure was two thousand r.p.m.'s. The engine speed would have to be reduced to seventeen to eighteen hundred r.p.m.'s. Deutz does not recommend running this engine below nineteen hundred r.p.m.'s. What looks like the best solution to this problem is a smaller and more efficient four cylinder John Deere 4239T turbo charged engine that is rated at seventy-five horse power at eighteen hundred r.p.m.'s.

The average yearly use of this irrigation system is six hundred hours. By replacing the old worn high pressure sprinklers with new low pressure, low profile sprinklers I should save at least ten percent running time. Using the ten percent figure that would decrease my average yearly hours by sixty.

By replacing the six cylinder Deutz with the smaller four cylinder John Deere and in addition to the lower horse power requirement of lower pressure I should recognize a savings of one and one half to two gallons of fuel per hour. And .063 Quarts of oil per hour. For my energy savings estimates below I will use the one and one half gallons of fuel savings.

If you have any further questions contact Todd at (309) 968-7709.

APPENDIX D

Copies of Signed Contracts with ENR

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: John Breedlove

ADDRESS: R.R. #1, Box 253

Manito, IL

ZIP CODE: 61546

COUNTY: Tazewell

TELEPHONE NO: 309/968-6951

FEIN or S.S. NO: 346-46-5781

GRANT CONTRACT NO. SWRR123

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 2,073.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, John Breedlove certify that I received a grant of \$ 2,073.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

John Breedlove
Signature

6/11/90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Steven P. Brownlee

ADDRESS: 230 West Main Street

Amboy, IL

ZIP CODE: 61310

COUNTY: Lee

TELEPHONE NO: 815/857-2233

FEIN or S.S. NO: 352-60-4545

GRANT CONTRACT NO. SWRR120

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 4,000.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Steven P. Brownlee, certify that I received a grant of \$ 4,000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Steven P. Brownlee
Signature

6-15-90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Robert Cassens

ADDRESS: R.R. 1

Prophetstown. IL

ZIP CODE: 61277

COUNTY: Henry

TELEPHONE NO: 815/537-5679


FEIN or S.S. NO: 361-07-1577

GRANT CONTRACT NO. SWRR 141

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Robert Cassens, certify that I received a grant of \$ 4.000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.



Signature



Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Robert Coleman

ADDRESS: 1323 Bollman Road
Harman, IL

ZIP CODE: 61042

COUNTY: Lee

TELEPHONE NO: 815/251-4731

FEIN or S.S. NO: 318-40-3380

GRANT CONTRACT NO. SWRR 130

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 660.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Robert Coleman, certify that I received a grant of \$ 660.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Robert G. Coleman
Signature

8/25/90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Dave Didier

ADDRESS: 674 Meyers Rd.
Amboy, IL

ZIP CODE: 61310

COUNTY: Lee

TELEPHONE NO: 815/857-3889

FEIN or S.S. NO: 324-50-7608

GRANT CONTRACT NO. SWRR112

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 1,540.80 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Dave Didier, certify that I received a grant of \$ 1,540.80 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Dave Didier
Signature

7/16/90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: EGAN BROTHERS
Attn: Doug Egan

ADDRESS: 39369 Yates Road
Deer Grove. IL

ZIP CODE: 61243

COUNTY: Whiteside

TELEPHONE NO: 815/438-3615

FEIN or S.S. NO: 336-60-5163

GRANT CONTRACT NO. SWRR 148

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 2,339.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Doug Egan, certify that I received a grant of \$ 2,339.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Egan Brothers by Doug Egan
Signature

10/25/00
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Tim Fanter

ADDRESS: R.R. 1. Box 43A
Kilbourne, IL

ZIP CODE: 62655

COUNTY: Mason

TELEPHONE NO: 309/543-2307

FEIN or S.S. NO: 329-54-1609

GRANT CONTRACT NO. SWRR 144

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 2,520.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Tim Fanter, certify that I received a grant of \$ 2,520.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Tim Fanter
Signature

9/10/03
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Arthur E. Finch

ADDRESS : R.R. #2

Chandlerville, IL

ZIP CODE: 62627

COUNTY: Mason

TELEPHONE NO: 309/546-2353

FEIN or S.S. NO: 326-30-7979

GRANT CONTRACT NO. SWRR111

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 2,650.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Arthur E. Finch, certify that I received a grant of \$ 2,650.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Arthur E. Finch
Signature

5-11-90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Randall R. Fornoff

ADDRESS: R.R. #1. Box 1

Havana. IL

ZIP CODE: 62644

COUNTY: Mason

TELEPHONE NO: 309/543-3516

FEIN or S.S. NO: 325-50-6980

GRANT CONTRACT NO. SWRR117

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 3,760.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Randall R. Fornoff, certify that I received a grant of \$ 3,760.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Randall R. Fornoff
Signature

6-11-90
Date

NAME: Keith Friedrich

ADDRESS: R.R.2

Havana. IL

ZIP CODE: 62644

COUNTY: Mason

TELEPHONE NO: (309) 543-2980

FEIN or S.S. NO: 462-50-0300

GRANT CONTRACT NO. SWRR 14 6

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$1,288.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Keith Friedrich, certify that I received a grant of \$ 1,288.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Keith Friedrich

Signature

8 1 9.

Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Russell J. Friedrich

ADDRESS: R.R. 2

Havana, IL

ZIP CODE: 62644

COUNTY: Mason

TELEPHONE NO: (307) 535-2870

FEIN or S.S. NO: 345-30-5539

GRANT CONTRACT NO. SWRR 147

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Russell J. Friedrich, certify that I received a grant of \$ 1,488.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Russell J. Friedrich
Signature

1-1-81
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Robert L. Garlisch

ADDRESS: R.R. 3. Box 60

Forest City, IL

ZIP CODE: 61532

COUNTY: Mason

TELEPHONE NO: 309/968-7659

FEIN or S.S. NO: 329-42-1274

GRANT CONTRACT NO. SWRR 119

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 1,587.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Robert L, Garlisch, certify that I received a grant of S 1,587.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Robert L. Garlisch
Signature

11-1-80
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Don Hahn
Hahn Farms, Inc.

ADDRESS: R.R. 1. Box 386
Havana. IL

ZIP CODE: 62644

COUNTY: Mason

TELEPHONE NO: 309/543-4660

FEIN or S.S. NO: 37-1186070

GRANT CONTRACT NO. SWRR 145

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 1,550.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Don Hahn, certify that I received a grant of \$ 1,550.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Don Hahn

Signature

8/8/90

Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Vernon Heve

ADDRESS: R.R. #1

Bath, IL

ZIP CODE: 62617

COUNTY: Mason

TELEPHONE NO: 309/546-2266

FEIN or S.S. NO: 336-32-2442

GRANT CONTRACT NO. SWRR 136

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 679.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Vernon Heve, certify that I received a grant of \$ 679.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Signature

Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Ralph Kreiling

ADDRESS: R.R. #3. Box 78

Forest City, IL

ZIP CODE: 61532

COUNTY: Mason

TELEPHONE NO: 309/597-2143

FEIN or S.S. NO: 320-24-1256

GRANT CONTRACT NO. SWRR117

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 1.704.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Ralph Kreiling, certify that I received a grant of \$ 1.704.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Ralph Kreiling
Signature

6-11-90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Alan Landis

ADDRESS: 7112 Hickory Hills Rd.

Rock Fall3. IL

ZIP CODE: 61071

COUNTY: Whiteside

TELEPHONE NO: 815/438-3871

FEIN or S.S. NO: 341-40-4313

GRANT CONTRACT NO. SWRR 135

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 4,000.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Alan Landis, certify that I received a grant of \$ 4,000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, (and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Alan Landis
Signature

July 16, 1982
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Alvin Landis

ADDRESS: 11109 Hoover Road

Rock Falls. IL

ZIP CODE: 61071

COUNTY: Whiteside

TELEPHONE NO: 815-625-2414

FEIN or S.S. NO: 334-05-9219

GRANT CONTRACT NO. SWRR 138

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 4,000.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Alvin Landis, certify that I received a grant of \$ 4,000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Alvin Landis
Signature

July 16, 1971
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Edward Mead

ADDRESS: 1214 Amboy Rd.
Amhoy. IL

ZIP CODE: 61310

COUNTY: Lee

TELEPHONE NO: 815/857-2198

FEIN or S.S. NO: 355-22-6390

GRANT CONTRACT NO. SWRR 140

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 4,000.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Edward Mead, certify that I received a grant of \$ 4,000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Edward Mead

Signature

1/20/01

Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Thomas E. Mead

ADDRESS: 731 Walton Rd.

Amboy. IL

ZIP CODE: 61310

COUNTY: Lee

TELEPHONE NO: 815/857-2343

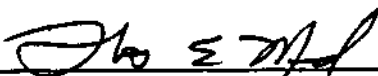
FEIN or S.S. NO: 318-44-7489

GRANT CONTRACT NO. SWRR 139

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 4,000.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Thomas E. Mead, certify that I received a grant of \$ 4,000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.



Signature

8/25/90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Marvin Miller

ADDRESS: R.R. 1. Box 39
Bath, IL

ZIP CODE: 62617

COUNTY: Mason

TELEPHONE NO: 309/546-2621

FEIN or S.S. NO: 357-38-4295

GRANT CONTRACT NO. SWRR 143

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 1,512.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Marvin Miller, certify that I received a grant of \$ 1,512.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Marvin Miller
Signature

8/2/77
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Darrell Pfeiffer

ADDRESS: R.R.1
Foreat City, IL

ZIP CODE: 61532

COUNTY: Mason

TELEPHONE NO: 309/597-2386

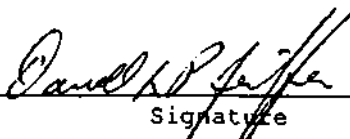
FEIN or S.S. NO: 333-40-2289

GRANT CONTRACT NO. SWRR114

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 3,998.40 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Darrell Pfeiffer, certify that I received a grant of \$ 3,998.40 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.


Signature

6-14-80
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Dean Pfeiffer

ADDRESS: R.R. 1. Box 10

Bath, IL

ZIP CODE: 62617

COUNTY: Mason

TELEPHONE NO: 309/546-2222

FEIN or S.S. NO: 333-40-2288

GRANT CONTRACT NO. SWRR116

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 3,998.40 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Dean Pfeiffer, certify that I received a grant of \$ 3,998.40 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, , and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.


Signature

6/14/90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Leo Pfeiffer

ADDRESS: R.R. 1

Forest City, IL

ZIP CODE: 61532

COUNTY: Mason

TELEPHONE NO: 309/597-2115

FEIN or S.S. NO: 336-32-4158

GRANT CONTRACT NO. SWRR115

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you receive a grant of \$ 3,999.20 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Leo Pfeiffer, certify that I received a grant of \$ 3,999.20 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Leo Pfeiffer
Signature

6/14/90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME : Terry Poci

ADDRESS: 9342 Buell Road

Rock Falls, IL

ZIP CODE: 61071

COUNTY: Whiteside

TELEPHONE NO: 815/626-7956

FEIN or S.S. NO: 354-48-5249

GRANT CONTRACT NO. SWRR 137

Recently you **were** approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 4,000.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Terry Poci, certify that I received a grant of \$ 4,000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Terry Poci
Signature

8-27-10
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT P??AM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: J.D. Proehl

ADDRESS: R.R. 1, Box 49
Manito. IL

ZIP CODE: 61546

COUNTY: Tazewell

TELEPHONE NO: 309/968-6780


FEIN or S.S. NO: 352-38-6467

GRANT CONTRACT NO. SWRR108

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program.. The federal rules concerning thi3 program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 414.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, J.D. Proehl, certify that I received a grant of \$ 414.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.


Signature

June 25, 90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME : Kenneth Ringhouse

ADDRESS: R.R. 1

Easton. IL

ZIP CODE: 62633

COUNTY: Mason

TELEPHONE NO: 309/563-7278

FEIN or S.S. NO: 37-1020897

GRANT CONTRACT NO. SWRR109

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 2,486.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Kenneth Rinahouse, certify that I received a grant of \$ 2,486.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.

Kinghouse Inc
Kenneth E Ringhouse
Signature

6-25-90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Doug Schmitt

ADDRESS: 30788 Plautz Road

Rock Falls, IL

ZIP CODE: 61071

COUNTY: Whiteside

TELEPHONE NO: 815/626-4449

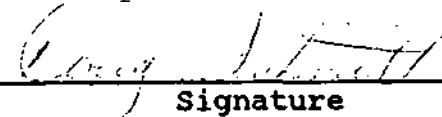
FEIN or S.S. NO: 333-60-6024

GRANT CONTRACT NO. SWRR 142

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 4,000.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Doug Schmitt, certify that I received a grant of \$ 4,000.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.


Signature

11/10/80
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Loren A. Thomas

ADDRESS: R.R.2. Box 123

Havana. IL

ZIP CODE: 62644

COUNTY: Mason

TELEPHONE NO: 309/535-3720

FEIN or S.S. NO: 350-24-5169

GRANT CONTRACT NO. SWRR110

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 984.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Loren A. Thomas, certify that I received a grant of \$ 984.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project, has been completed.

Loren A. Thomas
Signature

6-11-90
Date

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: Steve Vandike

ADDRESS: R.R. 1

Geneseo, IL

ZIP CODE: 61254

COUNTY: Henry

TELEPHONE NO: _____

FEIN or S.S. NO: 344-40-7816

GRANT CONTRACT NO. SWRR 131

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ _____ to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, Steve Vandike, certify that I received a grant of \$ 2,572.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.



Date

7/13/90
Signature

ILLINOIS IRRIGATION ENERGY CONSERVATION GRANT PROGRAM
SERVICE AND/OR INSTALLATION CERTIFICATION

NAME: John A. Whitaker

ADDRESS: R.R.3, Box 61

Forest City, IL

ZIP CODE: 61532

COUNTY: Mason

TELEPHONE NO: 309/968-6405

FEIN or S.S. NO: 354-28-4681

GRANT CONTRACT NO. SWRR122

Recently you were approved for an energy conservation grant under the Illinois Irrigation Energy Conservation Grant Program. The federal rules concerning this program requires that you certify that the money you received was spent for the purchase and installation of the energy conservation measures indicated by your application.

Our records show that you received a grant of \$ 3,752.00 to install equipment and/or purchase services as specified in your grant program application to the Illinois Irrigation Energy Conservation Grant Program.

I, John A. Whitaker, certify that I received a grant of \$ 3,752.00 for the purchase of services and/or installation of equipment to modify my agricultural irrigation system, and that no more than 40% of the project cost was financed by the proceeds of this grant. The services and/or installation of equipment for this project has been completed.


Signature

6-20-90
Date

