SPRINKLER IRRIGATION SYSTEM UPGRADE/REPLACEMENT REQUIREMENTS

INTRODUCTION:

The NRCS is interested in and is authorized to provide eligible landowners with cost-share incentives to save water applied on irrigated cropland through the increased irrigation system efficiency. Landowners can improve irrigation system efficiency through upgrading their existing irrigation system or by replacing their existing irrigation system with a more efficient one.

This policy provides criteria that the Oregon NRCS will use in providing cost-share assistance for upgrading or replacing an existing irrigation system.

EXISTING IRRIGATION SYSTEM AGE:

Only irrigation systems that are more than 15 years old will be eligible for replacement or upgrade. The system age shall be documented by one of three ways:

- System proof of purchase information provided to the landowner at the time of purchase by the irrigation equipment dealer.
- Government system payment information that is typically found in a Cooperator File.
- If neither of the above is available, the landowner can sign a sworn statement that the system he/she is requesting an upgrade or replacement for is more than 15 years old.

UPGRADED OR REPLACED SYSTEM EXTENDED LIFE SPAN AND EFFICIENCY:

Once a system has received NRCS funds for upgrade or replacement it will not be eligible for another upgrade or replacement for 15 years after the replacement/upgrade is implemented.

DEFINITION OF SYSTEM UPGRADE AND SYSTEM REPLACEMENT:

1. SYSTEM UPGRADES

   Replace components of an existing system with components that utilize the latest in sprinkler technology and result in increased irrigation system efficiency and associated water savings:

   - **Hand-line sprinkler laterals**: sprinkler nozzles, sprinkler heads, sprinkler risers
   - **Side-roll sprinkler laterals**: sprinkler nozzles, sprinkler heads, counter-balance sprinkler levelers
   - **Center-pivot sprinkler laterals**: low-pressure sprinkler heads, pressure regulators, drop tubes
   - **Pumps**: Impeller overhaul or replacement necessary for high- to low-pressure sprinkler conversion
   - **Pump motors**: Overhaul or replacement if power requirement is less than 70 percent of original

   Other components including seals, gaskets, drain valves, bent pipe sections, and mover components are considered to be part of normal maintenance and are not eligible for payment as system upgrade components.

2. SYSTEM REPLACEMENT

Replace a system that has exceeded its normal useful life of 15 years or more with a system with improved irrigation system efficiency and associated water savings.

EFFICIENCY INCREASE REQUIREMENTS:

In order to be eligible for financial assistance for a system upgrade or replacement, a minimum increase in efficiency of 14% will be required as determined by the Oregon Irrigation Water Savings Estimator. Irrigation Water Management will be required to assure the effective operation of the system upgrade.

EFFICIENCY INCREASE DETERMINATION AND DOCUMENTATION:

Efficiency increases will be determined and documented using the Oregon NRCS Water Savings Estimator which contains a database of irrigation system efficiencies for existing and state-of-the-art systems, including the effects of irrigation water management. An on-site system evaluation will be done in order to determine the condition of the existing system. The results of the evaluation will be used as input into the Oregon NRCS Water Savings Estimator to determine the potential for water savings as a result of system upgrade or replacement. This evaluation will be done by a qualified independent irrigation professional. If, due to a system upgrade, the resulting change in system flow rate and/or operating pressure will affect pump performance, a pump upgrade may be required. Irrigation system and/or pump evaluations may be paid for by the landowner or the NRCS through the Conservation Activity Plan process.

SYSTEM UPGRADE OR REPLACEMENT PAYMENT:

The Practice Payment Schedule will reflect different payments for system upgrades and system replacement. The PPS will reflect a greater payment percentage for a system upgrade than for system replacement.

SALVAGE VALUE OF THE REPLACED SYSTEM:

The NRCS will not evaluate whether the original irrigation system was originally purchased with assistance from NRCS (SCS) or its salvage value. Since the original system has met or exceeded its design life, and the Government's investment in water savings has been realized, it will be the landowner's decision regarding disposal of the replaced system. The Practice Payment Schedule will account for the salvage value of the replaced system.

DRAFT NRCS Worksheet
Recommendations for sprinkler system upgrade components

Landowner/Operator: _____

Job Location: _____

County: _____ SWCD: _____ Farm/Tract No.: _____

Referral No.: _____ Prepared by: _____ Date: _____

The purpose of this form is to provide recommendations sprinkler system components as candidate items for irrigation system upgrade and replacement and associated support, including NRCS cost-share.

The following components can be considered for NRCS Practice Payment as system upgrades in order to achieve increased irrigation system efficiency with associated water savings:

- **Hand-line sprinkler laterals**: sprinkler nozzles, sprinkler heads, sprinkler risers
- **Side-roll sprinkler laterals**: sprinkler nozzles, sprinkler heads, counter-balance sprinkler levelers
- **Center-pivot sprinkler laterals**: low-pressure sprinkler heads, pressure regulators, drop tubes
- **Pumps**: Impeller overhaul or replacement necessary for high- to low-pressure sprinkler conversion
- **Pump motors**: Overhaul or replacement if power requirement is less than 70 percent of original

Other components including seals, gaskets, drain valves, bent pipe sections, and mover components are considered to be operation and maintenance items and are not eligible for payment as system upgrade components.

Note the components included in the system

Sprinkler lateral(s)

- ☐ Hand line
- ☐ Wheel line
- ☐ Center pivot
- ☐ Other → Note: _____

Mainline

- ☐ PVC plastic
- ☐ HDPE plastic
- ☐ Steel
- ☐ Aluminum

Pump

- ☐ Centrifugal
- ☐ Turbine from sump
- ☐ Turbine from well

System component upgrade/replacement recommendations:

The following recommendations are based on in-field observations of the existing system components.

Check appropriate components for upgrade	Note specific recommendations for all components checked
Hand-line components ☐ Sprinkler nozzles ☐ Sprinkler heads ☐ Risers ☐ Recommend entire hand-line replacement	
Side-roll components ☐ Sprinkler nozzles ☐ Sprinkler heads ☐ Self-leveling risers ☐ Recommend entire side-roll replacement	
Center-pivot components ☐ Sprinkler package ☐ Pressure regulators ☐ Drop tubes ☐ Recommend entire center-pivot replacement	
If, due to a system upgrade, the resulting change in system flow rate and/or operating pressure will affect pump performance, a pump upgrade may be required. Pump Components Pump performance must be verified (and tested if needed – see following page). ☐ Impeller overhaul or replacement ☐ Recommend pump replacement ☐ Recommend motor overhaul or replacement	

Estimated water savings associated with the recommended component upgrades are documented by the accompanying Oregon Water Savings Estimator.

Recommended by: _____ Date: _____

Field Office: _____

Telephone: _____

Evaluation Reviewed By: _____ Date: _____
signature

Water Savings Estimator for Irrigation System Planning and Ranking

NRCS Natural Resources Conservation Service OREGON

Applicant: Ima Irrigator
Farm/Tract ID: 12345
Date: 3/30/07

County: Baker
Field ID: ABC
Evaluator: NRCS

Climatic Region: Region17 Bend

EXISTING

Crop Rotation		Annual Net Irrig Reqt (in)	Peak ET Rate (in/day)
Year 1:	Pasture	24.7	0.24
Year 2:	Grain (Spring)	17.6	0.25
Year 3:	Grain (Spring)	17.6	0.25
Year 4:			
Year 5:			

Average: **19.9**

Alternative NIR Value:

PLANNED

	Annual Net Irrig Reqt (in)	Peak ET Rate (in/day)
Alfalfa Hay	22.0	0.23
Alfalfa Hay	22.0	0.23
Grain (Spring)	17.6	0.25
Potatoes	20.0	0.27

Average: **20.4**

Alternative NIR Value:

Water right (ac-in/ac): 48

Application System

Application System Predominant Soil: Sandy Loam

Existing Application System: Hand/Wheel Line - old

Planned Application System: Hand/Wheel Line

Conveyance System

Conveyance System Predominant Soil: Silt Loam

Existing Conveyance System: None

Planned Conveyance System: No Change

IWM

Planned Level of IWM: Non-intense

Estimated Water Savings

Water right = 48 ac-in/ac

Estimated EXISTING water use: 36.9 acre-in/acre

Estimated PLANNED water use: 29.8 acre-in/acre

Annual Water Savings Estimate: 7.1 acre-in/acre

Annual Water Savings Estimate: 19.3%

Total Annual Water Savings Acres: 60

Estimated savings for this field **ONLY**: 35.7 acre-ft

Quality Criteria

	Existing System	Planned System
System Efficiency:	54%	68%
Quality Criteria Potential Efficiency:	65%	68%
Quality Criteria Met?	**Yes**	**Yes**

Now is the time to enter an example for the water savings estimator sheet to see if the word /line wrap really works.