

## CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	10/10/2008
<b>PRACTICE: Irrigation Regulating Reservoir 552</b>		Baseline Setting: Appropriate Land Use(s): Crop, Forest, Grazed Forest, Grazed Range, Hay, Headquarters, Mined, Native or Naturalized Pasture, Natural Area, Pasture, Recreation, Urban, Watershed Protection, Wildlife			
<b>RESOURCES, CONSIDERATIONS AND CONCERNS</b>		<b>PHYSICAL EFFECTS</b>		<b>RATIONALE</b>	
<b>SOIL - EROSION</b>					
Sheet and Rill		Not Applicable		Not applicable.	
Wind		Not Applicable		Not applicable.	
Ephemeral Gully		Not Applicable		Not applicable.	
Classic Gully		Slight to Substantial Improvement		Due to stabilization gully from embankment construction.	
Streambank		Slight Improvement		Reduced peak flows downstream from reservoir.	
Shoreline		Slight to Moderate Worsening		Increase in shoreline.	
Irrigation Induced		Not Applicable		Not applicable.	
Mass Movement		Not Applicable		Not applicable.	
Road, Roadsides, and Construction Sites		Not Applicable		Not applicable.	
<b>SOIL – CONDITION</b>					
Organic Matter Depletion		Not Applicable		Not applicable.	
Rangeland Site Stability		Not Applicable		Not applicable.	
Compaction		Not Applicable		Not applicable.	
Subsidence		Not Applicable		Not applicable.	
Contaminants:					
• Salts and other Chemicals		Not Applicable		Not applicable.	
• Animal Waste and other Organics - N		Not Applicable		Not applicable.	
• Animal Waste and other Organics - P		Not Applicable		Not applicable.	
• Animal Waste and other Organics - K		Not Applicable		Not applicable.	
• Commercial Fertilizer - N		Not Applicable		Not applicable.	
• Commercial Fertilizer – P		Not Applicable		Not applicable.	
• Commercial Fertilizer – K		Not Applicable		Not applicable.	
• Residual Pesticides		Not Applicable		Not applicable.	
Damage from Sediment Deposition		Slight to Moderate Improvement		Sediment contained in tailwater return flows is trapped in the reservoir.	
<b>WATER – QUANTITY</b>					
Rangeland Hydrologic Cycle		Not Applicable		Not applicable.	
Excessive Seepage		Slight Worsening		Possible seepage from Reservoir.	
Excessive Runoff, Flooding, or Ponding		Slight to Moderate Improvement		Peak flows are reduced.	
Excessive Subsurface Water		Slight Worsening		Seepage from reservoir.	
Drifted Snow		Not Applicable		Not applicable.	
Inadequate Outlets		Slight Improvement		Regulated downstream flows.	
Inefficient Water use on Irrigated Land		Slight to Substantial Improvement		Reservoir allows better control	

		and use of water.
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
Reduced Capacity of Conveyances by Sediment Deposition	Moderate Improvement	Sediment is trapped in reservoir.
Reduced Storage of Water Bodies by Sediment Accumulation	Neutral	Limited sediment deposited in reservoir.
Aquifer Overdraft	Slight Improvement	Seepage from the reservoir impacts recharge.
Insufficient Flows in Water Courses	Slight Worsening	Water is used for irrigation reduces flows in water courses.
<b>WATER – QUALITY</b>		
In Groundwater:		
• Harmful Levels of Pesticides	Slight to Moderate Improvement	Seepage that may contain pesticide residues is controlled .
• Excessive Nutrients and Organics	Slight Worsening	Nutrients impounded could contaminate groundwater.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight to Moderate Improvement	The action retains pesticide residues for degradation.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	When used to store irrigation tailwater, sediments and sediment-attached nutrients settle out.
• Excessive Suspended Sediment and Turbidity	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Neutral	May increase because of aquatic animal feed or decaying vegetation.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
<b>AIR – QUALITY</b>		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Not Applicable	Not applicable.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Not Applicable	Not applicable.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO <sub>2</sub> (Carbon Dioxide)	Not Applicable	Not applicable.
• N <sub>2</sub> O (Nitrous Oxide)	Not Applicable	Not applicable.
• CH <sub>4</sub> (Methane)	Not Applicable	Not applicable.
Ammonia (NH <sub>3</sub> )	Not Applicable	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Not Applicable	Not applicable.
Reduced Visibility	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.

Adverse Air Temperature	Not Applicable	Not applicable.
<b>PLANTS – SUITABILITY</b>		
Plants not Adapted or Suited	Not Applicable	Not applicable.
<b>PLANTS - CONDITION</b>		
Productivity, Health, and Vigor	Slight to Substantial Improvement	Increased water availability and access enhances plant growth, health and vigor.
Threatened or Endangered Plant Species:		
<ul style="list-style-type: none"> <li>Plant Species Listed or Proposed for Listing Under the Endangered Species Act</li> </ul>	Not Applicable	Not applicable.
<ul style="list-style-type: none"> <li>Declining Species, Species of Concern</li> </ul>	Not Applicable	Not applicable.
Noxious and Invasive Plants	Not Applicable	Not applicable.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
<b>ANIMALS - FISH AND WILDLIFE</b>		
Inadequate Food	Not Applicable	Not applicable.
Inadequate Cover/Shelter	Not Applicable	Not applicable.
Inadequate Water	Slight Improvement	Water will be temporarily available in the reservoir.
Inadequate Space	Slight Worsening	Reservoirs reduce existing space used by wildlife.
Habitat Fragmentation	Neutral	Reservoirs are typically limited in extent.
Imbalance Among and Within Populations	Slight Improvement	Reservoirs and adjacent areas provide variety and diversity for wildlife communities.
Threatened and Endangered Fish and Wildlife Species:		
<ul style="list-style-type: none"> <li>Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act</li> </ul>	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
<ul style="list-style-type: none"> <li>Declining Species, Species of Concern</li> </ul>	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
<b>ANIMALS – DOMESTIC</b>		
Inadequate Quantities and Quality of Feed and Forage	Not Applicable	Not applicable.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Moderate to Substantial Improvement	Reservoirs can also provide stock water.
Stress and Mortality	Moderate to Substantial Improvement	Available water reduces stress and mortality.
<b>HUMAN – ECONOMICS</b>		
Land - Change in Land Use	Slight to Substantial	N/A if no change in crops irrigated, substantial if water use changes.
Land – Land in Production	Slight decrease	
Capital – Change in Equipment	Substantial increase.	

Capital - Total Investment Cost	Substantial.	
Capital – Annual Cost	Slight to moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate increase.	
Labor – Change in Management Level	Slight to moderate increase.	
Risk - Yield	Slight to Moderate Decrease	Slight to moderate decrease due to increased irrigation efficiency.
Risk - Flexibility	Substantial Decrease	Substantial decrease because of assurance of water supply for irrigation.
Risk - Timing	Substantial Increase	Substantial increase - practice must be applied prior to need for irrigation.
Risk – Cash Flow	Moderate to Substantial Increase	Moderate to substantial increase due to construction cost.
Profitability – Change in Profitability	Slight to moderate increase.	
<b>HUMAN - CULTURAL</b>		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction impacts (mechanical).
<b>HUMAN – ENERGY</b>		
Depletion of Fossil Fuel Resources	Slight to Substantial Decrease	This practice facilitates gravity flow of irrigation water, reducing pumping requirements due to collection and reuse of tailwater.
Underutilization of Non-Fossil Energy Resources	Not Applicable	Not applicable.

## Human Considerations Explanation

<b>Considerations</b>	<b>Physical effects indicate:</b>
<b>Land - Change in Land Use</b>	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
<b>Land - Land in Production</b>	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
<b>Capital - Change in Equipment</b>	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
<b>Capital - Total Investment Cost</b>	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
<b>Capital - Annual Cost</b>	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice.
<b>Capital - Credit &amp; Farm Program Eligibility</b>	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices.
<b>Labor – Labor</b>	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations.
<b>Labor - Change in Management Level</b>	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
<b>Risk – Yield</b>	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.
<b>Risk – Flexibility</b>	The degree to which risk, as related to the flexibility of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.
<b>Risk – Timing</b>	The degree to which risk, as related to the timing of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
<b>Risk - Cash Flow</b>	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
<b>Profitability - Change in Profitability</b>	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
<b>Cultural Resources and/or Historic Properties Present or Suspected to be Present</b>	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
<b>Depletion of Fossil Fuel Resources</b>	Inefficient use of fossil-originated energy sources (diesel, gasoline, propane, natural gas, coal), lubricants, and other materials.
<b>Underutilization of Non-Fossil Energy Sources</b>	Available and cost-effective alternative energy sources (solar, wind, biofuel, hydroelectric, geothermal) are not being used or are being used inefficiently.