CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	10/14/2008
PRACTICE: Waste Treatment Lagoon 359		Baseline Setting:			
		Appropriate Land Use(s): Headquarters			

RESOURCES, CONSIDERATIONS AND CONCERNS	PHYSICAL EFFECTS	RATIONALE
SOIL - EROSION		
Sheet and Rill	Not Applicable	Not applicable.
Wind	Not Applicable	Not applicable.
Ephemeral Gully	Not Applicable	Not applicable.
Classic Gully	Not Applicable	Not applicable.
Streambank	Not Applicable	Not applicable.
Shoreline	Not Applicable	Not applicable.
Irrigation Induced	Not Applicable	Not applicable.
Mass Movement	Not Applicable	Not applicable.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
SOIL – CONDITION		
Organic Matter Depletion	Slight Improvement	The action will allow waste application at rates and times to address the resource concern.
Rangeland Site Stability	Not Applicable	Not applicable.
Compaction	Slight Improvement	Storage will allow better management of waste as to rate and timing of application, which allows application when compaction is least likely.
Subsidence	Not Applicable	Not applicable.
Contaminants:		
• Salts and other Chemicals	Not Applicable	Not applicable.
• Animal Waste and other Organics - N	Slight to Substantial Improvement	Treatment reduces organic contaminants in wastes.
• Animal Waste and other Organics - P	Slight to Substantial Improvement	Treatment reduces organic contaminants in wastes.
• Animal Waste and other Organics - K	Slight to Substantial Improvement	Treatment reduces organic contaminants in wastes.
• Commercial Fertilizer - N	Slight to Substantial Improvement	Treatment reduces organic contaminants in wastes.
• Commercial Fertilizer – P	Slight to Substantial Improvement	Treatment reduces organic contaminants in wastes.
• Commercial Fertilizer – K	Slight to Substantial Improvement	Treatment reduces organic contaminants in wastes.
• Residual Pesticides	Not Applicable	Not applicable.
Damage from Sediment Deposition	Not Applicable	Not applicable.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Neutral	Theoretically there will be an increase in infiltration at pond site.
Excessive Runoff, Flooding, or Ponding	Neutral	Polluted runoff is collected and stored, but less likely than

		storage facility.
Excessive Subsurface Water	Neutral	Theoretically there will be an increase in infiltration at pond site.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Not Applicable	Not applicable.
Inefficient Water use on Irrigated Land	Slight Improvement	Lagoon contents will provide limited source of moisture.
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
Reduced Capacity of Conveyances by Sediment Deposition	Not Applicable	Not applicable.
Reduced Storage of Water Bodies by Sediment Accumulation	Not Applicable	Not applicable.
Aquifer Overdraft	Neutral	Reduced infiltration at lagoon site could slightly increase overdraft.
Insufficient Flows in Water Courses	Neutral	Polluted runoff will be captured before it reaches water course, but less likely than storage pond.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	There could be some increase in infiltration of soluble contaminants in the case of seepage.
• Excessive Salinity	Slight Improvement	Storage provides flexibility in rate, timing, and location of waste application; however, there could be some increase in infiltration of soluble contaminants at storage site.
• Harmful Levels of Heavy Metals	Slight Improvement	Heavy metals are rarely associated with manure; however, storage provides flexibility in rate, timing, and location of waste application. There could be some increase in infiltration of soluble contaminants at storage site.
• Harmful Levels of Pathogens	Slight to Moderate Improvement	Storage provides flexibility in rate, timing, and location of waste application, reducing the potential for pathogen contamination.. Increased infiltration of pathogens at storage site is possible. Treatment tends to encourage die-off of bacteria.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Moderate to Substantial	Storage provides flexibility in

	Improvement	rate, timing, and location of waste application, with the potential for reductions of contaminants available for transport.
• Excessive Suspended Sediment and Turbidity	Neutral	Better timing of waste application due to storage will minimize risk of runoff.
• Excessive Salinity	Slight to Moderate Improvement	Storage provides flexibility in rate, timing, and location of waste application, with the potential for reductions of contaminants available for transport.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Moderate to Substantial Improvement	Storage provides flexibility in rate, timing, and location of waste application, with the potential for reductions of contaminants available for transport.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
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	Neutral	There is a decrease in potential ozone precursor emissions.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Slight to Moderate Improvement	Anaerobic conditions provide for a temporary sequestration of carbon. Field management of nutrients optimizes the storage of soil carbon.
• N_20 (Nitrous Oxide)	Slight to Moderate Improvement	Reduction in N in waste results in less N volatilization
• CH_4 (Methane)	Slight Worsening	Breakdown and decay of organic material is conducive to the formation of CH4
Ammonia (NH_3)	Slight to Moderate Improvement	Proper nutrient management reduces NH3 production.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Slight Worsening	Type of lagoon and location will determine odor production, however, a correctly sited and managed facility will be relatively odor free.
Reduced Visibility	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABLIITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.

PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Moderate Improvement	Storage allows nutrient application at a rate, time, and location most suited to the plant needs.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed for Listing Under the Endangered Species Act	Not Applicable	Not applicable.
• Declining Species, Species of Concern	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.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Not Applicable	Not applicable.
Inadequate Cover/Shelter	Not Applicable	Not applicable.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Not Applicable	Not applicable.
Habitat Fragmentation	Not Applicable	Not applicable.
Imbalance Among and Within Populations	Not Applicable	Not applicable.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
• Declining Species, Species of Concern	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Not Applicable	Not applicable.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Not Applicable	Not applicable.
HUMAN – ECONOMICS		
Land - Change in Land Use	Not applicable.	Not applicable.
Land – Land in Production	Slight decrease	Slight decrease, structure build on cropland.
Capital – Change in Equipment	Substantial increase.	
Capital - Total Investment Cost	Substantial.	Substantial.
Capital – Annual Cost	Moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate increase	Slight to moderate increase due to bi-annual pumpouts.
Labor – Change in Management Level	Moderate to substantial increase	Moderate to substantial increase for timing and management of

		waste.
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Moderate to Substantial Increase	Moderate to substantial increase because of design criteria.
Risk - Timing	Substantial Increase	Substantial increase, depending on state and/or federal laws.
Risk – Cash Flow	Substantial Increase	Substantial increase due to implementation costs.
Profitability – Change in Profitability	Slight to moderate decrease.	
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction impacts (mechanical); inundation.
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	No Effect	Regular maintenance of this practice requires pumping; however it facilitates benefits from fertilizer credits.
Underutilization of Non-Fossil Energy Resources	Slight to Moderate Increase	Potential methane production is not utilized.

Human Considerations Explanation

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