

## CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	
<b>PRACTICE: Land Reclamation, Toxic Discharge Control 455</b>		Baseline Setting:			
		Appropriate Land Use(s): Mined			
<b>RESOURCES, CONSIDERATIONS AND CONCERNS</b>		<b>PHYSICAL EFFECTS</b>		<b>RATIONALE</b>	
<b>SOIL - EROSION</b>					
Sheet and Rill		Slight to Moderate Improvement		Establishing vegetation on areas where the soil surface is exposed can reduce erosion from water.	
Wind		Slight to Moderate Improvement		Establishing vegetation on areas where the soil surface is exposed can reduce erosion from wind.	
Ephemeral Gully		Slight to Moderate Improvement		Establishing vegetation on areas where the soil surface is exposed can reduce erosion from water.	
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		Slight to Moderate Improvement		Control of surface water reduces erosion.	
<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		Slight to Moderate Improvement		The action reduces salts and toxic chemicals both on and off-site.	
• 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		Not Applicable		Not applicable.	
<b>WATER – QUANTITY</b>					
Rangeland Hydrologic Cycle		Not Applicable		Not applicable.	
Excessive Seepage		Slight to Substantial Improvement		Control of onsite water reduces seepage.	
Excessive Runoff, Flooding, or Ponding		Slight Improvement		Site modification reduces ponding and runoff.	
Excessive Subsurface Water		Slight to Moderate Improvement		Control of onsite water reduces subsurface water.	

Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Not Applicable	Not applicable.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
Reduced Capacity of Conveyances by Sediment Deposition	Slight to Moderate Improvement	Increased stability will reduce erosion and sediment load.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Moderate Improvement	Increased stability will reduce erosion and sediment load.
Aquifer Overdraft	Not Applicable	Not applicable.
Insufficient Flows in Water Courses	Not Applicable	Not applicable.
<b>WATER – QUALITY</b>		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Salinity	Slight to Moderate Improvement	The action reduces infiltration into spoils containing contaminants.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	The action reduces infiltration through spoils containing heavy metals.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Suspended Sediment and Turbidity	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Moderate to Substantial Improvement	Control of discharge and reduction in infiltration reduces off-site movement of contaminated water.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• 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> )	Neutral	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Slight to Moderate Improvement	Reduces toxic discharge, slows surface wind velocities, and reduces particulate generation and movement.

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	Substantial Improvement	When species are selected for stabilization, they are adapted and suited.
<b>PLANTS - CONDITION</b>		
Productivity, Health, and Vigor	Moderate to Substantial Improvement	Vegetative cover species will be selected and maintained at optimal conditions for the intended purpose.
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	Moderate to Substantial Improvement	Vegetation is installed and managed to control undesired species.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
<b>ANIMALS - FISH AND WILDLIFE</b>		
Inadequate Food	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more food for wildlife.
Inadequate Cover/Shelter	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more food for wildlife.
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:		
<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	Not Applicable	Not applicable.
Stress and Mortality	Not Applicable	Not applicable.
<b>HUMAN – ECONOMICS</b>		

Land - Change in Land Use	Not applicable.	Not applicable.
Land – Land in Production	Not applicable.	Not applicable.
Capital – Change in Equipment	Moderate to substantial increase.	
Capital - Total Investment Cost	Substantial.	
Capital – Annual Cost	Moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Moderate to substantial increase.	
Labor – Change in Management Level	Moderate to substantial increase.	
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Substantial Decrease	Substantial decrease in risk due to improved public safety and environment.
Risk - Timing	Substantial Increase	Substantial increase - practice must be applied to eliminate hazards.
Risk – Cash Flow	Moderate to Substantial Increase	Moderate to substantial increase due to design considerations.
Profitability – Change in Profitability	Situational	Substantial decrease or increase.
<b>HUMAN - CULTURAL</b>		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Consider if mine is historic structure.
<b>HUMAN – ENERGY</b>		
Depletion of Fossil Fuel Resources	Not Applicable	Not Applicable
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.