Land Reclamation, Toxic Discharge Control

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 455

DEFINITION

Toxic Discharge Control is reducing acid or otherwise toxic aqueous discharge from abandoned mines or mine waste.

PRACTICE INFORMATION

This practice is used in areas that have been mined where acid or toxic drainage is degrading the natural resources.
The purposes of controlling toxic discharge from these sites are to:

- Improve water quality
- Improve fish and wildlife habitat
- Eliminate unsightly residues and odors
- Reduce erosion by improving vegetation potential
- Restore the area to a beneficial use

Four primary methods of toxic discharge control are:

- Mine sealing - Reducing water entry into the mine
- Infiltration control - Drainage and sealing the surface
- Daylighting - Surface mining coal seams and treating the disturbed areas to reduce toxic discharge
- Neutralizing - Treating discharge water with alkaline material, or other appropriate chemicals

Detailed descriptions of the above are included in the NRCS national practice standard.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 455 Land Reclamation, Toxic Discharge Control	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	moderate reduction in classic gully erosion
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	situational concerning soil mass movement
ROADBANK/CONSTRUCTION	moderate decrease in roadbank construction erosion
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	situational concerning contam. from salts
• ORGANICS	situational concerning organic contaminates/soil
• FERTILIZERS	situational concerning soil contam./fertilizer
• PESTICIDES	situational concerning soil contam./pesticides
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	situational regarding seep development
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	insignificant
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	insignificant
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	moderate improvement in onsite drainage
• OFFSITE	moderate improvement in offsite drainage
RESTRICTED STORAGE	moderate reduction in sedimentation of H20 stroage

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	situational regarding GWater contam./pest.
• NUTRIENTS AND ORGANICS	facilitating
• SALINITY	facilitating
• HEAVY METALS	facilitating
• PATHOGENS	situational concerning GWater contam./pathogens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	situational concerning SWater contam./pesticides
• NUTRIENTS AND ORGANICS	moderate reduction in SWater contam./nutri.,organ.
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	situational concerning SWater contam./low oxygen
• SALINITY	situational concerning SWater contam./salinity
• HEAVY METALS	situational concerning SWater contam./heavy metals
• WATER TEMPERATURE	situational concerning SWater contam./H2O temp.
• PATHOGENS	situational concerning SWater contam./pathogens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	situational - airborn sediment/conveyance problems
AIRBORNE CHEMICAL DRIFT	sign. decrease in airborn chem. drift
AIRBORNE ODORS	sign. decrease in airborn odors
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	sign. improvement in plant nutrient management
PESTS	situational concerning plant pest mgt.
THREAT/ENDANGERED PLANTS	situational concerning threat/endanged plants
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational concerning threat./endangered animals
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	moderate risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	