

APPENDIX A

Common Best Management Practices Implemented In Utah

Best management practices (BMP's) may be defined as methods, measures, or combinations of measures that are determined by an agency after problem assessment to meet its nonpoint source (NPS) pollution control needs. They include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures.

The diffuse nature of nonpoint source pollution complicates the issue of control. Apparent solutions are not necessarily effective, and the implementation of a control measure at one point may create a more serious problem at another. BMP's must be flexible and suited to the specific location at which they are to be implemented. Each site has different characteristics of soil, slope, vegetative cover, precipitation, and other variables that must be considered before control practices may be prescribed.

There is no practical way to achieve 100% control of NPS pollution problems. The goal is to restore beneficial uses and achieve a cost-effective control level. In many cases, the cost to control NPS pollution may exceed monetary benefits of the project. However, a large measure of control may often be gained at small cost by using commonsense solutions. In simpler terms, the goal is not to implement a set of BMP's across the state, but rather to effect improvements in water quality. Measures that accomplish this goal in a cost-effective manner should be emphasized.

Best management practices cannot be viewed in isolation. They must be seen as a management strategy, an approach, or a system. Seldom is one practice sufficient to resolve a nonpoint source problem. A combination of practices is usually required, along with a management philosophy of commitment to reducing nonpoint pollution. It is rarely sufficient to install a practice and forget it. BMP's and systems require an ongoing maintenance and management effort that must be recognized at the outset.

The best management practices are intended for use on state, federal, and private lands throughout Utah. These practices are not intended to supercede the judgment of public land managers. Public land management agencies will be expected to continue to operate through the established procedures in the Memoranda of Agreement with the State Planning Coordinator and State Department of Environmental Quality. When other federal BMPs, for example those used by the Forest Service or BLM, fall below minimum standards established by the NRCS's Field Office Technical Guide, the NRCS's standards shall take precedence.

Many BMP's are already in use by agencies and legal subdivisions of the State of Utah. The practices of those agencies will be considered adequate unless they are shown to be deficient. These practices will be evaluated by the Division of Water Quality.

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

The following agencies have developed formal best management practices (BMP) to resolve NPS issues. These BMP's have been determined to meet the minimum acceptable standards as provided in the NRCS's Field Office Technical Guide.

1. USDA-Forest Service Forest Service Handbook 2509.22 Soil and Water Conservation Practices Handbook
2. USDA-Natural Resources Conservation Service Field Office Technical Guide
3. Utah Department of Transportation Manual of Instruction, Part 4, Roadway Drainage
4. U.S. Army Corps of Engineers (Utah Division of Water Rights) State of Utah, Administrative Rules for Stream Channel Alterations
5. Local Governments Uniform Building Code, Chapter 70

These agencies also have formal working agreements with the state which provide for periodic review of BMPs. BMPs will be reviewed for adequacy as deemed necessary by agency staff. On-site inspection and monitoring for water quality objectives will be included in the review for selected BMPs. Updates to agency manuals shall become a part of this plan. Modifications to BMPs may also become a part of this plan after recommendation of the Task Force and an opportunity for public review. Additional BMPs may be added by the same process. Special practices may also be included for use in specific areas after review by the appropriate Task Force and the public.

NPS pollution control can best be addressed through a locally led watershed planning process. This process is based on the premise that decision makers will make and implement acceptable resource use and treatment decisions if they understand the causes of the problems and the effects of their decisions.

The planning process is designed for skilled technicians to assist decision makers determine how to improve and maintain soil, water, animal, plant, and air (SWAPA) resources. It provides a consistent and orderly method for determining objectives and reaching and implementing decisions. The programs can be used for either planning and/or implementation.

Nonpoint source water quality contaminants should be considered in the planning process and coordinated with all SWAPA resources as an integral part of the resource management system (RMS). An RMS is a combination of conservation management practice that, when installed, will protect the resource base. Acceptable standards for SWAPA components must be applied for an RMS to occur.

NPS pollution control cannot generally be obtained by one conservation practice. A combination of management, vegetative, or structural practices is usually required to achieve protection of SWAPA resources. BMPs become a system that may be all or a portion of a complete RMS. The RMS identifies problems and treatments during the planning process.

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Special consideration must be given to groundwater before implementing best management practices. Many BMPs are designed to reduce impacts on surface waters by increasing infiltration into the soil. This increased infiltration may have an undetermined impact on groundwater. Chemicals and nutrients may be carried through the soil into the parent material and geologic layers below, or percolating waters may contact a geologic formation, leading to quality degradation. Degradation is readily apparent in many areas of Utah where groundwater contacts saline layers and water quality is reduced. In other areas, fertilizers or hazardous chemicals may be transported to aquifers.

The potential impacts on groundwater are largely unquantified, and important groundwater resources have not yet been fully identified. It is incumbent upon those who prescribe BMP's that groundwater resources are given due consideration. The following steps should be followed in determining the mix of BMP's to ensure that groundwater resources have been adequately considered:

- a. Determine if the BMP or set of BMP's has the potential to impact groundwater resources.
- a. Determine the potential for BMP's to impact a locally or regionally important aquifer. (Important aquifers should be identified in the State Groundwater Plan or consult local planning agencies).
- b. If the BMP's have the potential to impact groundwater quality and an important aquifer exists in the vicinity, then BMP's should be modified to the greatest extent practicable to prevent groundwater contamination. More detailed investigation may be required and the value of the surface versus ground-water resources should be considered before making adjustments to practices that provide a "best fit" in the local circumstance. Additional technical assistance from participating agencies may also be necessary.

BMP's fall into three categories for implementation: 1) Those the state intends to encourage, 2) those which will be assisted through financial cost share or loans and 3) those which will be enforced through regulations. Any of the BMPs referenced in this plan could be enforced on an individual case by case basis. While it is not the intent of the state to develop new regulations, communities and counties in the state will be encouraged to adopt regulations to control urban construction and development activities, including road construction. Agriculture and grazing practices may be eligible for cost-sharing through USDA conservation programs or the Agriculture Resource Development Loan Program. Technical assistance and education will be provided to the maximum extent feasible on practices for all nonpoint sources.

The following section lists the BMP's available for NPS control in Utah. They are described in general terms, and then specific practices are included by reference. The physical location of the reference material is also included.

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Resource Management Systems Format

Definition:

This section describes the general control category and application of the best management practice. A suitable combination of Best Management Practices.

Purpose:

This section describes the goal and desired results of implementing the Resource Management System.

Conditions Where Practice Applied:

Defines the physical constraints on practice application.

Specification Guides:

BMP specification guides which may be needed to develop and implement an appropriate Resource Management System (RMS).

Reference:

Includes technical references for detail on specific practices. These references should be used in determining site specific applications. (The physical location of the reference is also included in parentheses.) References may be obtained by contacting the agency cited or by contacting the Utah Department of Agriculture & Food at 538-7177, 350 N. Redwood Road, Salt Lake City, Utah, 84116.

| | | |
|---|--|---|
| <u>STATE OFFICE</u> 125 South State Street Salt Lake City, UT 84138-1100 (801) 524-4550 (801) 524-4403 fax | <u>Ogden Area Office</u> 2871 South Commerce Way Ogden, UT 84401 (801) 629-0580 (801) 629-0574 fax | <u>Coalville Field Office</u> Dearden Building 30 Main Street PO Box 526 Coalville, UT 84017 (435) 336-5853 (435) 336-2132 fax |
| <u>North Logan Field Office</u> 1860 North 100 East Logan, UT 84341-1784 (435) 753-5616 (435) 755-2117 fax | <u>Ogden Field Office</u> 2871 South Commerce Way Ogden, UT 84401 (801) 629-0580 (801) 629-0574 fax | <u>Provo Field Office</u> 302 East 1860 South Provo, UT 84606-7317 (801) 377-5580 (801) 356-1237 fax |
| <u>Randolph Field Office</u> 195 North Main PO Box 97 Randolph, UT 84064 (435) 793-3905 (435) 793-2745 fax | <u>Tooele Field Office</u> 185 North Main Street Tooele, UT 84074 (435) 882-2276 (435) 882-0429 fax | <u>Tremonton Field Office</u> 85 South First East Tremonton, UT 84337 (435) 257-5403 (435) 257-1930 fax |
| <u>Richfield Area Office</u> 340 North 600 East Richfield, UT 84701 (435) 896-6441 (435) 896-9339 fax | <u>Beaver Field Office</u> 620 North Main Street PO Box 640 Beaver, UT 84713-0640 (435) 438-5092 (435) 438-2168 fax | <u>Cedar City Field Office</u> Blackrock Village 2390 West Highway 56 Suite 14 Cedar City, UT 84720 (435) 586-2429 (435) 586-0649 fax |

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

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|---|--|--|
| <u>Fillmore Field Office</u> 65 West 100 North PO Box 506 Fillmore, UT 84631 (435) 743-6655 (435) 743-5117 fax | <u>Manti Field Office</u> 50 South Main Suite #3 Manti, UT 84642 (435) 835-4111 (435) 835-4113 fax | <u>Nephi Field Office</u> 635 North Main Nephi, UT 84648 (435) 623-0342 (435) 623-2368 fax |
| <u>Panguitch Field Office</u> Riley & Carter Office Building 225 East Center Street PO Box 277 Panguitch, UT 84759-0362 (435) 676-8021 (435) 676-8432 fax | <u>Richfield Field Office</u> 340 North 600 East Richfield, UT 84701 (435) 896-6441 (435) 896-9339 fax | <u>Price Area Office</u> 540 West Price River Drive Price UT 84501 (435) 637-0041 (435) 637-3146 fax |
| <u>Aneth Service Center</u> East Highway 262 Aneth, UT 84534 (435) 651-3493 | <u>Castle Dale Field Office</u> 1090 North Des-Bee-Dove Rd. PO Box 758 Castle Dale UT 84513 (435) 381-2300 (435) 381-5696 fax | <u>Monticello Field Office</u> 32 South 1st East PO Box 639 Monticello UT 84535 (435) 587-2481 (435) 587-2104 fax |
| <u>Price Field Office</u> 540 West Price River Drive Price UT 84501 (435) 637-0041 (435) 637-3146 fax | <u>Roosevelt Field Office</u> Nile Chapman Building 240 West Highway 40, 333-4 Roosevelt UT 84066 (435) 722-4621 (435) 722-9065 fax | <u>Vernal Field Office</u> 80 North 500 West Vernal UT 84078 (435) 789-1338 (435) 789-4160 fax |

A. Agriculture and Grazing - Best Management Practices

Grazing Management on Rangeland

Definition:

Grazing at an intensity that will maintain enough cover to protect the soil and maintain or improve the quantity and quality of desirable vegetation.

Purpose:

To: (1) increase the vigor and reproduction of key plants; (2) accumulate litter and mulch necessary to reduce erosion and sedimentation and improve water quality; (3) improve or maintain the condition of vegetation; (4) increase forage production; (5) maintain natural beauty; (6) reduce the hazard of wildfire; and (7) improve wildlife habitats.

Conditions Where Practice Applies:

On all rangeland, grazeable woodland, and grazed wildlife land.

Specification Guides:

Specification Guides are available in NRCS Field Office Technical Guides.

Management specification includes but is not limited to:

Access Roads 560
 Firebreak 394
 Fence 382

Prescribed Grazing 556 & 528A
 Proper Woodland Grazing 530
 Spring Development 574

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Heavy Use Area Protection 561
Pipeline 516

Trough's or Tank 614
Use Exclusion 412

Note: Numeric codes following a practice coincide with NRCS standards and specification numbers.

Reference:

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).
- 2) Natural Resources Conservation Service (NRCS), Field Office Technical Guide.

B. Soil Stabilization on Rangelands

Definition:

Stabilizing soils on rangelands to reduce soil erosion, control surface runoff, and minimize groundwater contamination through vegetative management and structural practices.

Purpose:

To: (1) prevent excessive soil and water loss and improve water quality; (2) produce more forage for grazing or browsing animals on rangeland or land converted to range from other uses; and (3) improve the visual quality of grazing land.

Conditions Where Practice Applies:

On rangeland, grazable woodland and grazable wildlife land.

Specification Guides:

Specification guides are available in NRCS Field Office Technical Guides.

Management specification includes but is not limited to:

Animal Trails & Walkways 575
Brush Management 314
Critical Area Planting 342
Diversion 362
382 Spring Development 574
Stream Channel Stabilization 584
Streambank Protection 580

Prescribed Burning 338
Prescribed Grazing 528
Range Planting 550
Seeding Stock Trail and Walkway Fence
Filter Strip 393
Grazing Land Mechanical Treatment 548
Grade Stabilization Structures 410

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Water & Sediment Containment Basins 638 Heavy Use Area Protection 561
Waterspreading 64 Wildlife Water Facility 648

Note: Numeric codes following a practice coincide with SCS standards specification numbers.

Reference:

- 1) Natural Resources Conservation Service Field Office Technical Guide.
- 2) Technical Report 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).

C. Riparian Area Management

Definition:

Managing the riparian zone to minimize damage to streambanks, ground water recharge areas, shoreline and surface water quality from animal wastes, stomping and over-grazing.

Purpose:

To prevent surface and groundwater pollution from animal wastes, prevent excessive streambank and stream channel erosion, improve water quality, and maintain wildlife and fisheries habitat.

Conditions Where Practice Applies:

On all rangeland, pastureland and wildlife upland.

Specification Guides:

Specification Guides are available in NRCS Field Office Technical Guides.

Management Specification Includes but Is Not Limited To:

Fence 382
Filter Strip 393
Nutrient Management 590
Pipeline 516
Prescribed Grazing Use 528
Range Planting 550
Restoration & Mgt of Declining Habitat 643
Riparian Herbaceous Cover 390
Riparian Forest Buffer 391A

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Tree/Shrub Establishment 612
Trough or Tank 614
Streambank Protection 580
Stream Channel Stabilization 584
Use Exclusion 472

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

Reference:

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).
- 2) Natural Resources Conservation Service (NRCS), Field Office Technical Guide.

D. Riparian Area Stabilization

Definition:

Using vegetation or structures to stabilize and protect banks of streams or excavated channels against scour and erosion.

Purpose:

This standard applies to measures to stabilize and protect the aggradation or degradation in a stream channel and stream bank for one or more of the following purposes: (1) to prevent the loss of land or damage to utilities, roads, buildings, or other facilities adjacent to the channel banks; (2) to control channel meander that would adversely affect downstream facilities; (3) to reduce sediment loads causing downstream damages and pollution and; (4) to improve the stream for recreation or as a habitat for fish or wildlife.

Conditions Where Practice Applies:

This practice applies to natural or excavated channels undergoing damaging aggradation or degradation.

Specification Guide:

Management specification includes but is not limited to:

| | |
|--|----------------------------------|
| Channel Vegetation 322 | Riparian Herbaceous Cover 390 |
| Ditch and Canal Lining 428 | Sediment Basins 350 |
| Floodwater Diversion and Floodway 400,404 | Streambank Protection 580 |
| | Stream Channel Stabilization 584 |

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Grassed Waterways 412
Grade Stabilization Structure 410
Maintenance of Flow for Channel Stability

Wildlife Watering Facility 648

Note: Numeric code following practice coincides with NRCS standards and specification number.

Reference:

- 1) Natural Resources Conservation Service Field Office Technical Guide, Codes 322, 400, 404, 410, 412, 428, 580 and 584 (NRCS Field Office)
- 2) State of Utah Administrative Rules for Stream Channel Alterations (Utah State Engineer, Division of Water Rights).

E. Cropland Management

Definition:

Developing and maintaining residues or establishing temporary or a permanent cover crop to reduce runoff and increase the infiltration of water.

Purpose:

To improve or maintain good physical, chemical, and biological conditions of the soil; reduce erosion; improve water use efficiency and water quality; improve wildlife habitats; and/or break reproduction cycles of plant pests.

Conditions Where Practice Applies:

On all cropland or other lands where agricultural crops are grown.

Specifications Guides:

Specification Guides are available in NRCS Field Office Technical Guide.

The management specification includes but is not limited to:

Chiseling and Subsoiling 324
Conservation Cover 327
Conservation Crop Rotation 328
Cover and Green Manure Crop 340
Critical Area Planting 342
Filter Strip 393
Grassed Waterway 412
Heavy Use Area Protection 561
Irrigation Water Management 499
Irrigation System 442, 443, 444

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Mulching 484
Nutrient Management 590
Pasture and Hayland Planting 512
Pest Management 595A
Pipeline 430
Residue Management Use 329A, 329B
Strip Cropping Contour 585
Strip Cropping Field 586

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

Reference:

- 1) Natural Resources Conservation Service Field Office Technical Guide.

F. Soil Stabilization in Croplands

Definition:

Stabilizing soils on croplands to reduce soil erosion, control surface runoff, and minimize groundwater contamination through vegetative management and structural practices.

Purpose:

To prevent sediment and other pollutants from entering the surface and subsurface waters.

Conditions Where Practice applies:

On all the agricultural lands where the slope grade and length are significant because of soil type and local precipitation conditions.

Specification Guides:

Specification Guides are available in NRCS Field Office Technical Guide.

Management specification for this practice includes but is not limited to:

Conservation Cover 327
Cover and Green Manure Crop 340
Contour Farming 330
Critical Area Planting 342
Filter Strip 393
Field Border 386

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Grassed Water Way 412
Nutrient Management 590
Pest Management 595A
Residue Management 329A, 329B
Terraces 600
Windbreak/Shelter belt 380

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

Reference:

- 1) Natural Resources Conservation Service Field Office Technical Guide.
- 2) Technical Report 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).

G. Drainage Modification in Croplands

Definition:

Subsurface diversion and other similar practices (interception drains) to prevent the movement of deep percolated waters from cropland to groundwater.

Purpose:

To prevent groundwater pollution caused by the deep percolated waters.

Conditions Where Practice Applies:

On fields where the infiltration rate is very high (sandy soils) or the water table level is close to the surface and there is a likelihood of groundwater contamination from cultural practices. (This practice is intended for use on existing cropland and not for the purpose of bringing new land into production.)

Specification Guides:

Specification Guides are available in NRCS Field Office Technical Guides.

Management specification for this practice includes but is not limited to:

Bedding 310
Diversion 362
Mole Drain 482
Pumped Well Drain 532

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Subsurface Drain 606
Surface drainage 607,608
Vertical Drain 630
Water Table Control 641

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

Reference:

- 1) Natural Resources Conservation Service Field Office Technical Guide.

H. Agricultural Waste Management

Definition:

Minimizing the transport of nutrients from confined animal feeding operations to surface and groundwater through vegetative and structural practices.

Purpose:

To prevent surface and subsurface water pollution from animal wastes.

Conditions Where Practice Applies:

On feed lots, dairies, hog farms, poultry farms, and other concentrated animal feedlots.

Specification Guide:

Management specification includes but is not limited to:

Composting Facility 317
Filter Strips 393
Nutrient Management 590
Riparian Forest Buffer 391A
Roof Management System 570
Roof Runoff Management 558
Use Exclusion 472
Waste Management Systems 312
Waste Storage Pond 425
Waste Storage Facility 313
Waste Treatment Lagoon 359
Waste Utilization 633

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Note: Numeric code following a practice coincides with NRCS standard and specification number.

Reference:

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental
- 2) Natural Resources Conservation Service Field Office Technical Guide, Codes.

I. Agricultural Pesticide Management

Definition:

Managing pesticide applications to minimize the transport of chemicals and chemical residue to surface and groundwater through the utilization of alternative pesticides, alternative crops, proper timing, application rates, of pesticides. The term pesticides refers to all insecticides, herbicides, and fungicides.

Purpose:

To reduce pesticide loss to the surface and ground water.

Condition Where Practice Applies:

On all cropland or on other lands where pesticides are applied (e.g., rangeland).

Specification Guide:

Pest control actions include monitoring pest increases, the judicious use of a pesticide, or effective communication that no action is necessary.

Management specification includes but is not limited to:

Soil Testing
Planting Time Optimization
Use of Alternative Pesticides
Timing of Applications
Application Rate Adjustment
Timing of Field Tillage Operation
Use of Alternative Methods of Pest Control
Use of Insect and Disease- Resistant Crop Varieties
Pest Management 595A

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Reference:

- 1) Planning Guide for Evaluating Agricultural Nonpoint Source Water Quality Controls. USEPA, 1982, Athens, GA. (Utah Department of Agriculture & Food)
- 2) Technical Report 15, Best Management Practice for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality)
- 3) Natural Resources Conservation Service Field Office Technical Guide.

J. Agricultural Fertilizer Management

Definition:

Managing fertilizer and manure applications to minimize the transport of nutrients to surface and groundwater through the utilization of proper timing and application rates.

Purpose:

To reduce fertilizer and manure loss to the surface and groundwater.

Conditions Where Practice Applies:

On all cropland or other lands where fertilizers or manure are applied.

Specification Guides:

Management specification includes but is not limited to:

Application Timing
Composting Facility 317
Nutrient Management 590
Optimizing the Planting Time
Proper Application Rates
Soil Testing
Tillage Operation Timing
Use of Adapted Fertilizers
Waste Management System 312
Waste Storage Facility 313
Waste Treatment Lagoon 359
Waste Utilization 633

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Reference:

- 1) Planning Guide for Evaluating Agricultural Nonpoint Source Water Quality Controls. USEPA, 1982, Athens, GA. (Utah Department of Agriculture & Food)
- 2) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1077 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality)
- 3) Natural Resources Conservation Service Field Office Technical Guide.

K. Urban Best Management Practices

Wetland Management in Urban Areas

Definition:

Managing wetlands to control and trap pollutants and minimize the potential for transport of pollutants to surface and groundwater.

Purpose:

To control pollution from urban stormwater runoff through the construction and stabilization of wetland storm water basins

Conditions Where Practice Applies:

On any residential or nonresidential area where a wetland storm water basin is needed.

Specification Guides:

Management specification includes but is not limited to:

Streambank and Shoreline Protection 580
Structures for Water Control 587
Water Table Control 641
Wetland Creation 658
Wetland Enhancement 659
Wetland Restoration 657
Wetland Wildlife Habitat Management 644

Reference:

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

- 1) Maryland Department of Natural Resource, "Guide for Constructing Wetland Storm-Water Basins," March 1987, (Utah Department of Agriculture & Food).
- 2) State of Utah Administrative Rules for Stream Channel Alteration (Utah State Engineer, Division of Water Rights).
- 3) "Guiding Principles for Constructed Treatment Wetlands: Providing Water Quality and Wildlife Habitat" (U.S. Fish and Wildlife Service, Utah Field Office, Salt Lake City)

L. Water Quality Protection in Urban Areas

Definition:

Minimizing the transport of sediments, organic materials, pathogenic organisms, chemicals, and toxins to surface and groundwater from urban stormwater runoff through management and structural practices.

Purpose:

To protect surface and subsurface water quality from contamination carried by storm water.

Conditions Where Practice Applies:

In all urbanized areas.

Specification Guide:

Management specification includes but is not limited to:

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| Altering Time of Runoff | Street Paving |
| Concentration Community Pride | Sewerage System |
| Garbage and Trash Collection | Storm Water Collection System |
| Good Housekeeping Practices | Storage Basin |
| Grade Stabilization Structure 410 | Street Cleaning |
| Grassed Waterways 412 | Street De-icing |
| Heavy Use Area Protection 561 | Tree Planting 612 |
| Infiltration Fields | Water and Sediment Containment Basin 638 |
| Local Ordinance | Water Spreading 640 |
| Lined Waterway or Outlet 468 | |
| Mulching 484 | |
| Pet Ordinances | |
| Runoff Management System 570 | |
| Sediment Basin 350 | |
| Septic Tanks | |
| Stream Banks | |

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Streambank and Shoreline Protection 580

Reference:

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food and Utah Department of Environmental Quality).
- 2) Maryland NRCS/WRA for Soil Erosion and Sediment Control, April 1983 (Utah Department of Agriculture & Food).
- 3) Maryland NRCS/WRA for Infiltration, February 1984 .
- 4) Maryland NRCS/WRA for Soil Erosion and Sediment Control, April 1983.
- 5) Design and Construction of Urban Stormwater Management Systems, Water Environment Federation and American Society of Civil Engineers, 1992.
- 6) Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs, Metropolitan Washington Council of Governments, 1987.

M. Irrigation Water Management

Definition:

Determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner.

Purpose:

To effectively use available irrigation water supply in managing and controlling the moisture environment of crops to promote the desired crop response, to minimize soil erosion and an undesirable migration of chemicals (pesticides, nutrients, and salts), to control undesirable water loss, and to protect water quality.

Conditions Where Practice Applies:

This practice is suited to all areas that are suitable for irrigation and that have water supply of suitable quality and quantity.

Specification Guides:

The management specification includes but is not limited to:

Application Rate
Irrigation Scheduling
Tailwater Control
Recycling Irrigation Runoff
Salinity Control
Drainage Water Re-use
Irrigation and Sediment Removal

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Optimal integration of water and chemical application
Site-specific guidelines

Reference:

- 1) Natural Resources Conservation Service, Field Office Technical Guide, Code 449, 570, and 573 (NRCS Field Office).
- 2) Planning Guide for Evaluating Agricultural Nonpoint Source Water Quality Controls. USEPA, 1982, Athens, GA. (Utah Department of Agriculture & Food)
- 3) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).

N. Silviculture-Forest Water Quality Guidelines

These guidelines are described in Appendix H of the Nonpoint Source Management Plan. These guidelines are available by contacting the Division of Forestry, Fire and State Lands or the Division of Water Quality.

O. Best Management Practices for Hydrologic Modification

These BMPs are described in the document entitled “State of Utah Nonpoint Source Management Plan for Hydrologic Modification,” and is included by reference as a part of this NPS Plan revision (See Appendix G). This document is available by contacting the Division of Water Quality.

P. UDOT Transportation Facilities - Best Management Practices

Definition:

Incorporate Best Management Practices (BMPs) to control erosion, sediment and other pollutants.

Purpose:

To minimize the discharge of pollutants off the project site to downstream receiving waters and to comply with state and federal environmental regulations.

Conditions Where Practice Applies:

Projects where sensitive environmental resources are adjacent to the project site and projects that disturb one or more acres of ground surface.

Best Management Practices:

UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Check Dam
Drop Inlet Barrier
Fiber Roll
Flexible Channel Liner
Gutter Inlet Barrier
Pipe Inlet Barrier
Top Soil and Seeding
Sediment Trap
Silt Fence
Slope Drain
Stabilized Construction Entrance
Steep Slope Erosion Control
Straw Bale Barrier
Temporary Berm
Temporary Environmental Fence
Wood Fiber Mulch

Reference:

- 1) UDOT Standard Specification 01571 “Environmental Controls”
- 2) UDOT EN Series Standard Drawings (EN1-EN7)
- 3) UDOT Erosion and Sediment Control Field Guide
- 4) UDOT Storm Water Pollution Prevention Plan
- 5) Utah Storm Water General Permit for Construction Activities: Permit No. UTR300000