

United States  
Department of  
Agriculture

Natural  
Resources  
Conservation  
Service

# National Operation and Maintenance Manual

For Conservation Practices Installed With NRCS Assistance

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## **Part 500 – Operation and Maintenance**

### **Subpart A – Overview and Responsibilities**

#### **500.00 Overview**

- A. The Natural Resources Conservation Service (NRCS) provides technical and financial assistance to land users, sponsors, and units of government for the planning and installation of a wide variety of conservation practices. These practices vary in complexity from single land treatment practices to more complex systems of practices, such as wetland restoration, animal waste management, and flood mitigation. With few exceptions, all practices require maintenance; and, in some cases, specific operational procedures to function as planned, prevent health and safety hazards, prevent property or environmental damage, and accrue intended benefits.
- B. NRCS also manages land easements that include conservation practices with requirements for maintenance, monitoring, and enforcement. In some programs, the State Conservationist is responsible for enforcing easement provisions, including operation and maintenance (O&M) and easement monitoring.
- C. Refer to the Conservation Programs Manual, the National Watershed Manual, National Engineering Manual and other program manuals for additional policy on monitoring, enforcement, and O&M responsibilities for practices installed under specific programs.
- D. Refer to the O&M section of the Conservation Practice Standards and Specifications in the Field Office Technical Guide (FOTG) for O&M requirements for specific practices to be installed.

#### **500.01 Purpose and Scope**

- A. This Manual contains policies and procedures related to the O&M requirements for all structural, vegetative, and management practices installed with NRCS financial and/or technical assistance.
- B. The term “O&M”, as used in this manual, shall collectively include operation, maintenance, repair, and/or replacement, as defined in 500.02.
- C. O&M does not include correcting problems resulting from an error or misjudgment during planning, design, or installation of a practice.
- D. O&M does not include rehabilitation of a dam installed under watershed programs (see National Watershed Manual, Subpart 508E).

## **500.02 Definition of Terms**

### **Decommission**

Taking a practice out of service in an environmentally sound and safe manner, or converting it to another purpose.

### **Design Life**

The intended period of time that the practice will function successfully with only routine maintenance; determined during design phase.

### **Emergency Action Plan**

A plan of action to be taken to reduce the potential for property damage and loss of life in an area affected by failure of a dam or other potentially hazardous practice.

### **Hazard Classification**

A system that categorizes dams according to the degree of adverse incremental consequences of a failure or improper operation of the dam. NRCS classifies dams as “low”, “significant”, or “high”, formerly hazard class a, b, or c, respectively. See National Engineering Manual.

### **Job Sheets**

Technical guidance documents which contain information about installation, construction, operation, or maintenance of a specific practice.

### **Maintenance**

The recurring activities necessary to retain or restore a practice in a safe and functioning condition, including the management of vegetation, the repair or replacement of failed components, the prevention or treatment of deterioration, and the repair of damages caused by flooding or vandalism.

### **Operation**

The administration, management, and performance of non-maintenance activities necessary to keep a practice safe and functioning as planned.

### **Potentially Hazardous Practices**

Practices such as dams, diversions, dikes, grade stabilization structures, waste storage facilities, and waste treatment lagoons, which could endanger human life or cause significant property or environmental damage if they should fail.

### **Practice**

A specified treatment, such as a structural or land management measure, which is planned and installed according to NRCS standards and specifications.

### **Program**

Any congressionally authorized activity used to implement and carry out goals, actions, and objectives contained within the authorizing legislation.

### **Program Life**

The period of time in a contract, conservation plan, or measure plan during which the conservation practice or conservation system shall be maintained and used for the intended purpose; determined by program requirements.

### **Qualified Engineer**

An individual competent in the investigation, design, construction, and operation of a specific conservation practice. For NRCS employees, the State Conservation Engineer shall determine qualifications. Non-NRCS engineers shall be registered/licensed in the state where the practice is located.

### **Rehabilitation**

The completion of all work necessary to extend the service life of the practice or component and meet applicable safety and performance standards.

### **Repair**

The actions to return a deteriorated, damaged, or failed practice or component to an acceptable and functional condition.

### **Replacement**

The removal of a practice or component and installation of a similar, functional practice or component.

### **Service Life**

The actual period of time after installation of a practice, during which the practice functions adequately and safely with only routine maintenance; determined by on-site review.

### **Sponsor/Land User**

The party or parties responsible for providing operation and maintenance of installed conservation practices. Due to the variety of conservation programs, the responsible party may be as large as a unit of government or as small as an individual land user.

## **500.03 Natural Resources Conservation Service Responsibilities**

Following are the responsibilities by management level within NRCS:

The Chief shall:

- Develop and implement policy to ensure O&M is an integral part of program delivery;
- Monitor national program implementation to ensure O&M requirements are met and enforced in accordance with statutes, policy, rules, and regulations; and
- Ensure that O&M requirements are defined in all conservation practice standards.

The Regional Conservationist shall:

- Monitor program implementation within the region to ensure O&M requirements are met and enforced in accordance with statutes, policy, rules, and regulations;
- Provide coordination and assistance to states concerning O&M activities; and
- Work with the State Conservationists to take corrective actions for non-compliance with statutes, policy, rules and regulations.

The State Conservationist shall:

- Develop State policies and procedures to ensure that O&M requirements are planned and implemented for all practices installed with NRCS assistance;

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- Define the design life of each practice in the NRCS Field Office Technical Guide;
- Ensure that O&M requirements are clearly defined for all practices contained in the NRCS Field Office Technical Guide;
- Establish policy to investigate and take action on all suspected violations of O&M requirements;
- Ensure that the Sponsor has the required financial resources to adequately carry out the requirements of the O&M Plan, for all practices installed with assistance from programs that require an O&M Agreement;
- Identify practices that are potentially hazardous and ensure that O&M requirements are defined;
- Determine which potentially hazardous practices require formal inspections;
- Determine the amount of NRCS resources that will be made available to assist sponsors/land users with O&M activities;
- Actively pursue correction of all violations of O&M requirements; consult with the Office of General Counsel before pursuing legal remedies;
- Ensure that an Emergency Action Plan is prepared prior to the execution of fund obligating documents for construction of dam or similar structure where failure may cause loss of life;
- Establish policy and procedures for the State Conservation Engineer to determine qualifications for NRCS employees to conduct formal inspections;
- Notify appropriate authorities of emergency situations that may result in risks to public health and safety as described in 500.14; and
- Ensure that O&M Agreements are reviewed with sponsors at least once every five years.

The District Conservationist shall:

- Ensure that sponsor/land users are provided information on O&M requirements for all practices installed with NRCS assistance;
- Provide assistance to sponsors/land users for requested training, site-specific O&M recommendations, financial needs for O&M, and O&M inspections, in accordance with the policies established by the State Conservationist;
- Report suspected O&M violations according to policy and procedures;
- Review O&M Agreements with sponsors at least once every 5 years; and
- Maintain O&M records for NRCS assisted practices, as required by specific programs.

### **500.04 Sponsor/Land User Responsibilities**

The Sponsor/Land User shall:

- Operate and maintain practices in accordance with the O&M Agreement and/or O&M Plan, program requirements, and Federal, State, local and tribal laws and regulations;
- Inspect all practices as specified in the O&M Plan;
- Request NRCS assistance as needed for training, site-specific technical assistance, and O&M inspection of practices;
- Prepare and execute financial plans for O&M activities included in O&M Agreements;

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- Obtain NRCS approval prior to making modifications to a practice during the program life;
- Prepare and update Emergency Action Plans for high hazard dams and other potentially hazardous practices consistent with State and local regulations; and
- Notify authorities of emergency situations that may result in risks to public health and safety.

## **Part 500 – Operation and Maintenance**

### **Subpart B – General Requirements**

#### **500.10 Overview**

- A. O&M is the responsibility of the sponsor/land user and requires labor, funds, and management.
- B. O&M requirements shall be discussed and agreed to with the sponsor/land user during the planning process. Written O&M requirements shall be provided to the sponsor/land user prior to the installation of the practice. In some instances, these requirements may refer to or include manufacturer instructions and operator manuals specific to the products being installed.
- C. O&M requirements are determined by the complexity of the practice, program requirements, safety concerns, and special requirements for potentially hazardous practices.
- D. Practices shall be operated and maintained in accordance with:
- Requirements stated in the O&M Agreement and/or O&M Plan.
  - Federal, State, local and tribal laws and regulations.
  - Conditions in real property instruments.
  - Procedures that will not result in adverse impacts on the environment.
  - Zoning and land use regulations.
  - A plan of operation for withdrawal of water from structures, as specified in a project plan, landrights instruments, or other legal documents.

#### **500.11 Duration of Operation and Maintenance Responsibilities**

- A. O&M responsibilities begin when practice installation is completed, as determined by NRCS, and shall continue until the end of the program life of the practice. The sponsors/land users shall be encouraged to continue O&M throughout the service life of the practice.
- B. For potentially hazardous practices, O&M shall continue as long as the hazard exists or until the practice is decommissioned or as may be required by Federal, State, local and tribal laws and regulations.

#### **500.12 Practices on Federal Land**

For practices installed on Federal lands, an agreement between the Federal agency administering the lands and NRCS shall be prepared to address O&M requirements for the planned practices.

### 500.13 Monitoring and Enforcement

A. Monitoring and enforcement of O&M activities are necessary to ensure public health and safety, and to protect the public investment in the conservation of natural resources. See Subparts C, D, and E for guidance on documentation requirements.

B. Several United States Department of Agriculture (USDA) programs include easements or cost-share agreement provisions that require the landowner, NRCS, or another agency to perform specific monitoring or O&M related activities. Refer to specific program manuals for monitoring and O&M requirements.

### 500.14 Violations

A. The State Conservationist shall establish policy to ensure that all suspected violations of O&M Agreements, O&M Plans, easements, or contracts are immediately investigated. If the State Conservationist determines that a violation has occurred that may prevent the practice from functioning as intended, create a health or safety hazard, or prevent the accrual of intended benefits, the sponsor/land user shall be notified in writing of the determination and provided with the following information:

- The nature of the violation;
- Specific actions the sponsor/land user must take to correct the violation;
- The timeframe for the sponsor/land user to complete the corrective actions;
- A statement that failure to complete the corrective action within the prescribed time may result in further action by the government under the terms of the applicable O&M Agreement, O&M Plan, easement, or contract; and
- The sponsor/land user's right to appeal the State Conservationist's determination of violation.

B. If the State Conservationist determines that the sponsor/land user is in violation of the O&M Agreement, O&M Plan, easement, or contract and fails to take corrective action after being notified of the violation, the State Conservationist shall decide what action should be taken to protect the interests of the government and the general public. The State Conservationist should consult with the field office of the Office of General Counsel, and others as appropriate, when making this decision. The following are possible actions to be considered and taken as appropriate:

- Withhold all future technical and financial assistance;
- Require the sponsor/land user to reimburse the government for the USDA financial assistance provided for the practice that was not operated and maintained as required by the O&M Agreement, O&M Plan, easement, or contract and appropriate portions of the USDA financial assistance for other practices that will be adversely affected by the violation;
- After consultation with the Office of General Counsel, correct the deficiencies and recover all costs from the sponsor/land user as allowed by the specific program and/or easement;
- Initiate action that will result in the loss of USDA program benefits as authorized by law or regulation;
- Bring legal action against the sponsor/land user for specific performance of the terms and conditions of the O&M Agreement and/or O&M Plan; and/or

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- Take additional actions as authorized by law or regulation that may be available to protect the interests of the government and general public.

C. If NRCS becomes aware of an emergency situation that could result in loss of life or major property damage if not immediately addressed, the State Conservationist shall immediately notify the sponsor/land user and the State or local authorities having jurisdiction. The notification may be verbal if needed to expedite action, but shall be made in writing within 48 hours after the emergency situation is known.

## Part 500 – Operation and Maintenance

### Subpart C – Operation and Maintenance Agreement

#### 500.20 Overview

A. Practices installed under the Watershed and Flood Prevention Act of 1954 (PL 83-566), the Flood Control Act of 1944 (PL 78-534), and the Resource Conservation and Development program (PL 97-98), require an O&M Agreement to ensure that practices will be properly operated and maintained. Long term contracts (LTC's) executed under the authority of the above statutes, do not require O&M Agreements, but O&M requirements are included in separate O&M Plans (500.31).

B. The O&M Agreement shall be prepared and signed before NRCS executes fund obligating documents for real property acquisition, relocation assistance, or installation of the practices.

C. The O&M Agreement shall be reviewed by the sponsors and the NRCS District Conservationist at least once every 5 years. The purpose of the review is to discuss sponsor responsibilities, status of financial needs, availability of funds, unforeseeable developments, and potential need for revision of the O&M Agreement. The O&M Agreement may only be revised by mutual consent of all of the signatories of the original agreement.

#### 500.21 Content

The O&M Agreement shall include:

- The practice(s) covered by the agreement;
- The sponsor(s) who will be responsible for inspecting, performing, and financing the O&M of each practice;
- The duration of the agreement;
- A schedule for performing inspections;
- A statement that incorporates the O&M Plan(s) for specific practices;
- A financial plan;
- Provisions for preparation and review of the Emergency Action Plan (EAP), if applicable;
- Provisions that the sponsor will be responsible for O&M at the completion of the installation of each practice (the initial establishment of vegetation is not defined as O&M);
- All terms and conditions of easements and other landrights documents that may impact O&M of the practice.
- A list of the records that the sponsor will provide to NRCS;
- Provisions for review of the O&M Agreement and associated O&M Plans at least once every 5 years; and
- A statement that the O&M Agreement is a legally binding contract which will be enforced to protect the interests of the government and the general public. If the State Conservationist determines that the sponsor/land user has not complied

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with the terms and conditions of the O&M Agreement and O&M Plan, consequences may include reimbursement of all financial assistance provided by NRCS as well as taking further actions NRCS deems necessary.

The O&M Agreement shall be signed by a duly authorized official of each sponsor and the State Conservationist.

See 500.60 for a sample Operation and Maintenance Agreement.

### **500.22 Financial Plan**

A. A financial plan shall be prepared by the sponsor for all projects/practices requiring an O&M Agreement in order to assure sufficient financial resources are available to implement O&M tasks. The financial plan shall be attached to or incorporated into the O&M Agreement.

B. The financial plan shall include:

- Sources of financing O&M requirements during the program life of a project or practice;
- Provisions to assure the State Conservationist that the sponsor will have adequate resources available;
- An estimate of the costs of materials, equipment, services, and facilities required to operate a project or practice, maintain the components, and provide replacements necessary to ensure that the practices perform as planned; and
- Provisions for periodically updating costs to account for inflation.

C. If requested by the sponsor/land user, NRCS may assist in estimating costs of O&M work and recommending priorities for expenditures.

D. Sponsors/land users are encouraged to establish a reserve, sinking fund, or similar instrument to be used for both anticipated and unexpected maintenance items or the replacement of structural components during the service life of the project.

## Part 500 – Operation and Maintenance

### Subpart D – Operation and Maintenance Plan

#### 500.30 Overview

A. Written operation and maintenance (O&M) plans are required for all practices installed with NRCS assistance. The O&M Plan shall include the O&M requirements for specific conservation practices found in Section IV of the Field Office Technical Guide.

B. The O&M Plan may be in the form of a job sheet, a narrative statement in the conservation plan, or other written form, as appropriate for the scope and complexity of the practice. O&M Plans shall be prepared during planning and design and prior to the installation of the practice.

C. The O&M Plan shall be periodically reviewed by the sponsor/land user, with the assistance of NRCS, to assure that all elements of the plan are still applicable and to incorporate revisions as needed, by mutual consent.

#### 500.31 Content

The content and format of O&M Plans are dependent on program requirements. Programs such as the Watershed Protection and Flood Prevention Act (PL 83-566) require O&M Plans to be a part of an O&M Agreement (see 500.20). Other programs such as the Environmental Quality Incentive Program require O&M Plans in conjunction with program documents. Each O&M Plan shall be tailored to the specific practice(s) to which it applies.

- **O&M Plans without an O&M Agreement:**

The O&M Plan for practices installed with assistance from programs using long term contracts or conservation plans will be documented as part of a job sheet, conservation plan narrative, or contract provisions and shall include the following elements:

- The practice(s) to which a particular plan applies;
- A description of the O&M requirements for the practice(s);
- The duration of the O&M requirements;
- The operating requirements to ensure the practice functions as planned; such as retention and release of water for irrigation, sequence and method for clean-out of waste storage facilities, and stop log removal for wetland management practices;
- Requirements of Federal, State, local, and tribal laws and regulations;
- Requirements included in manufacturer instructions and operator manuals specific to the products being installed;
- Environmental and cultural resource concerns that shall be considered during maintenance activities;

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- A requirement that the floodplain downstream from “low” and “significant” hazard dams is evaluated at least once every 5 years to determine the current hazard classification;
- Documentation required by NRCS program policy; and
- A description of the hazards associated with potentially hazardous practices.

See 500.62 - 500.64 for sample O&M Plans for conservation practices.

- **O&M Plans with an O&M Agreement:**

The O&M Plan as part of an O&M Agreement shall include the following elements:

### **General**

- The practice(s) to which a particular plan applies;
- Brief description of the practice;
- The duration of the O&M requirements; and
- An estimate of average annual O&M costs.

### **Operation**

- The operating requirements to ensure the practice functions as planned; such as retention and release of water for irrigation, sequence and method for clean-out of waste storage facilities, and stop log removal for wetland management practices;
- Requirements of Federal, State, local, and tribal laws and regulations;
- Requirements included in manufacturer instructions and operator manuals specific to the products being installed; and
- Environmental and cultural resource concerns that shall be considered during operation activities.

### **Maintenance**

- A description and schedule of the maintenance requirements for the practice(s); and
- Environmental and cultural resource concerns that shall be considered during maintenance activities.

### **Inspections**

- A schedule for conducting inspections;
- Types of inspections (see 500.41); and
- A requirement that the downstream floodplain of all “low” and “significant” hazard dams is evaluated at least once every 5 years to determine the current hazard classification.

### **Records**

- The types of documents the sponsor/land user shall retain and when to provide them to NRCS;
- Description of O&M actions performed;
- The cost and date maintenance work was performed; and
- Copies of as-built drawings.

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### **Hazard Concerns**

- A description of hazards associated with failure of practices or operational features that could endanger human life or cause significant property or environmental damage; and
- A requirement for an annual review of Emergency Action Plans (EAP), if applicable.

### **Violations**

- A statement that the provisions of the O&M Plan shall be enforced as provided in the O&M Agreement.

### **Signatures**

- The O&M Plan shall be signed by the State Conservationist and a duly authorized official of each sponsor with O&M responsibilities for the specific practice.

See 500.61 for a sample O&M Plan for practices installed with assistance from programs that require an O&M Agreement.

## Part 500 – Operation and Maintenance

### Subpart E - Inspections

#### 500.40 Overview

A. Inspections of installed practices are necessary to ensure that they are functioning properly and safely. Inspections shall accomplish the following:

- Assess performance of the practice;
- Determine compliance with the O&M Plan;
- Assess the adequacy of previous O&M activities;
- Identify O&M needs;
- Identify conditions that may threaten life and property;
- Identify any changed conditions that may affect the hazard classification; and
- Develop a schedule to address O&M needs.

B. The sponsor/land user shall be responsible for making inspections. Special, annual, and formal inspections shall be performed by personnel trained in conducting the inspections.

C. NRCS shall assure that sufficient information is provided to the sponsor/land user to enable them to complete inspections. If requested by the sponsor/land user, NRCS may:

- Participate in inspections;
- Provide training to ensure that the sponsor/land user understands inspection techniques and the importance of completing corrective action; and
- Provide technical assistance to address specific O&M needs.

D. If an inspection reveals an imminent threat to life or property, the sponsor/land user shall immediately notify all emergency management authorities.

#### 500.41 Inspection Types and Frequency

Four types of inspections may be required over the life of a practice:

- **Monitoring** of all practices should be routinely conducted to observe operation and assess performance. On-site monitoring may be accomplished by anyone, including landowners, operators, O&M personnel, and NRCS personnel.
- **Special** inspections shall be made during or immediately following the occurrence of major events such as floods, earthquakes, vandalism, and the initial filling of a reservoir.
- **Annual** inspections shall be performed on all structural practices to determine if they are functioning as designed. For “significant” and “high” hazard dams, a qualified engineer shall assist with the annual inspection and sign/certify the inspection report for at least each of the first 3 years after the structure is installed and accepted by NRCS. The downstream floodplain that could be inundated by the failure of all “low” and “significant” hazard dams shall be evaluated at least once every 5 years to determine the current hazard classification.

- **Formal** inspections shall be conducted under the leadership of a qualified engineer at least once every 5 years for “significant” and “high” hazard dams and class I and II dikes. The State Conservationist shall determine if inspections are required for other potentially hazardous practices. See 500.44 for formal inspection requirements.

## **500.42 Equipment**

A. Equipment necessary to conduct inspections shall be selected according to the type of practice to be inspected, type of inspection, environmental conditions, and documentation requirements. An evaluation shall be made of potential hazards that may be encountered during the inspection or associated with the use of certain equipment. Personal protective equipment shall be used to reduce the risk of injury during inspections.

B. Photographs shall be taken to document deficiencies or conditions that may have an adverse impact on the performance of a practice. Photographs should also be taken to document well-maintained practices in accordance with the O&M Plan.

## **500.43 Inspection Documentation**

A. When inspection documentation is a requirement of a program or State or local laws and regulations, O&M Plans shall include provisions for inspections and inspection reports. The sponsor/land user shall maintain a record of all inspections that contains the following:

- Date(s) of inspection;
- Names of inspectors and participants;
- Features of the practice that were inspected;
- Description of conditions observed , including photographic documentation;
- Maintenance work required; and
- A schedule to address O&M needs.

B. In addition, the sponsor shall prepare and maintain written records of O&M activities completed. See 500.31.

C. Copies of inspection records (and any subsequent investigation reports) shall be provided to NRCS, if requested or required by program policy.

See 500.65 for sample inspection documentation.

## **500.44 Formal Inspections**

The purpose of a formal inspection is to determine the structural integrity of the practice and determine whether the practice meets current NRCS criteria and applicable regulatory criteria. Formal inspections are required for all “significant” and “high” hazard dams, Class I and II dikes, and other potentially hazardous structures as determined by the State Conservationist. Formal inspections shall be conducted under the leadership of a qualified engineer with specialists involved as necessary. The State Conservationist shall establish policy and procedures for the State Conservation Engineer to determine qualifications for NRCS employees who conduct formal inspections.

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### A. Data Review and Analysis

- Review all data related to practice design and construction. Data that is unavailable, inadequate, or questionable should be noted.
- Determine if the practice is in compliance with current NRCS, State dam safety agency, and other applicable criteria and policy.
- Review the O&M Plan, previous inspection reports and O&M history.
- Review the Emergency Action Plan, if applicable.

### B. Field Examination

- Complete a thorough visual inspection of all components of the practice. Underwater inspections may sometimes be necessary.
- For dams, inspect the principal spillway. A remotely controlled camera may be necessary to inspect some conduits.
- Evaluate the downstream area to determine the current hazard classification.
- Perform inspections in accordance with OSHA requirements.
- Determine compliance with requirements of easements and landrights documents.

### C. Contents of inspection report

- Summary of data reviewed and analyzed.
- Visual inspection findings, including the inspection checklist.
- Photographs, sketches, and maps, as appropriate.
- Current hazard classification.
- Adequacy of the Emergency Action Plan, if applicable.
- Evaluation of data collected.
- Determination if the practice meets current NRCS and regulatory criteria.
- Required corrective action(s).

### D. Review and distribution of inspection report

- Formal inspection reports completed by NRCS shall be submitted to the State Conservation Engineer for review and approval. If approved by the State Conservation Engineer, the report shall be provided to the sponsor/land user.
- A copy of formal inspection reports completed by non-NRCS employees shall be provided to the State Conservationist.
- Reports indicating serious deficiencies shall be forwarded to the State Conservationist for appropriate action as outlined in 500.14.
- A copy of each formal inspection report shall be filed and maintained with the NRCS case file for the practice.

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### Subpart F – Emergency Action Plan

#### 500.50 Overview

A. An Emergency Action Plan (EAP) outlines procedures to minimize risks to downstream life and property when the integrity of a dam or similar structure may be in jeopardy. The EAP shall consider all potential emergency situations, both natural and man made, and shall identify appropriate responses. Typical situations include:

- Occurrence or prediction of extreme rainfall or snowmelt;
- Occurrence of earthquakes;
- Structural malfunction such as gate failure;
- Hydraulic malfunction such as pipe blockage;
- Malicious human activity such as sabotage, vandalism, or terrorism; and
- Excessive seepage or embankment sloughing.

B. An EAP shall be prepared for each dam or similar structure where failure may cause loss of life or as required by state and local regulations. See the National Engineering Manual and applicable State and local regulations for additional guidance on developing an Emergency Action Plan.

#### 500.51 Responsibility

A. The sponsor/land user shall:

- Prepare and implement the Emergency Action Plan;
- Coordinate with the police, fire department, emergency management agency, and the state dam safety agency during all phases of the EAP preparation and implementation;
- Review and revise the EAP annually; and
- Assure training is provided for all persons with specific responsibilities so that they can execute their duties in a timely manner.

B. NRCS shall:

- Provide technical data;
- Prepare or review breach inundation maps;
- Assist in the preparation or review of the EAP if requested by the sponsor/land user; and
- Determine that an adequate Emergency Action Plan is prepared prior to the execution of fund obligating documents for construction of the structure.

#### 500.52 Content Guidelines

A. The Emergency Action Plan shall identify site-specific conditions that require action, specify the actions to be taken, and designate responsibility for the specified actions. Small

dams may have brief Emergency Action Plans. Large or complex dams may require more elaborate plans, including instrumentation, automatic warning devices, and coordination with several agencies or groups.

B. "Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners," published by the Federal Emergency Management Agency (FEMA), shall be used as guidance for content and format of the EAP's. These guidelines are oriented toward larger more complex dams. Many components are applicable to smaller NRCS-assisted dams as well.

See 500.76 for a sample Emergency Action Plan.

C. All EAP's for NRCS-assisted dams shall contain the minimum content and suggested format as follows. The format may be adjusted for consistency as required by State and local procedures. See the referenced FEMA document for details and applicable information.

- **Title Page/Cover Sheet**

The document cover shall identify it as an Emergency Action Plan and specify the dam for which it is developed. Each high hazard dam shall have its own EAP with its own procedures to be followed.

- **Table of Contents**

The Table of Contents shall list all major items, including flow charts, maps and tables.

- **Notification Flowchart**

A notification flowchart shall identify who is to be notified, by whom, in what priority, and who is responsible for deciding on emergency actions to be taken.

- **Statement of Purpose**

The purpose and scope of the EAP shall be stated concisely.

- **Project Description**

A description of the project and its location shall include the following:

- a project or vicinity map;
- a simple drawing showing project features;
- any significant upstream or downstream dams; and
- downstream communities potentially affected by a dam failure or by flooding as a result of large operational releases.

- **Emergency Detection, Evaluation, and Classification**

The EAP shall indicate procedures for timely and reliable detection, evaluation and classification of an existing or potential emergency condition. The conditions, events or measures for detection of an existing or potential emergency shall be listed. Procedures, instructions, and provisions for evaluation of information and data to

assess the severity and magnitude of an existing or potential emergency shall be discussed.

An emergency classification system shall classify emergencies according to their severity and urgency. The following classification system shall be used for NRCS-assisted dams unless other systems convey the same urgency and help maintain consistency within a State.

- **Non-failure Concern** - This classification indicates a situation is developing, however, the dam is not in danger of failing, but flooding is expected downstream from the dam. Downstream residents need to be notified if flooding increases and life and property are threatened.
- **Potential Failure** - This classification indicates that a situation is developing that could cause the dam to fail. Residents in affected areas shall be alerted that an unsafe situation is developing. A reasonable amount of time is available for analysis before deciding on evacuation of residents.
- **Imminent Failure** - This classification indicates dam failure is occurring that may result in flooding that will threaten life and property. When the sponsor/land user determines that there is no longer time available to implement corrective measures to prevent failure, an order for evacuation of residents in potential inundation areas shall be issued.
- **Preparedness**

Preparedness actions shall be identified to respond to an emergency and to help reduce the effects of a dam failure. Preparedness actions that may be taken include arrangements for equipment, labor, and materials for use in emergency situations.
- **Breach Inundation Maps**

Inundation maps shall delineate areas that would be flooded as a result of a dam failure. Inundation maps shall be developed according to policy contained in the National Engineering Manual.
- **Reviews**

A requirement that the EAP be reviewed and updated annually shall be included.
- **Training and Exercising**

Provisions shall be included that require all persons involved in the EAP to be trained to ensure that they are thoroughly familiar with the elements of the plan, availability of equipment, and their responsibilities and duties under the plan.
- **Appendices**

An appendix section shall be included that contains information that supports and supplements the EAP. Additional information may be included as required by State and local emergency management agencies.
- **Approval of the EAP**

This section shall include signatures by all parties involved in the plan, where they indicate their approval of the EAP and agree to their responsibilities for its execution.

### **500.53 Distribution**

All individuals or groups who are signatory parties to the EAP shall receive copies of the EAP. Copies shall be provided to the State Dam Safety Officer and other Federal, State, local, and tribal authorities with responsibilities identified in the EAP. Large-scale maps needed for evacuation purposes for some projects shall be provided to the authorities responsible for evacuation operations. The EAP should not be distributed beyond the preparers and emergency service personnel, to minimize the potential for improper use of information contained in the plan.

### **500.54 Reviews**

The EAP shall be reviewed and updated annually by the sponsor/land user to assure that names and contact information are current for all Federal, State, local, and tribal authorities with responsibilities identified in the EAP. Procedures and schedules shall be established for testing the flood warning system and EAP. Special procedures for those aspects of the warning system and EAP not susceptible to direct testing should be established and periodic simulation carried out.

### **500.55 Training and Exercising**

A. The sponsor/land user shall be responsible for assuring all persons involved in the EAP are trained to ensure that they are thoroughly familiar with the elements of the plan, availability of equipment, and their responsibilities and duties under the plan. The level of detail involved in training is dependent on the size and complexity of the project. Personnel shall be trained in problem detection and evaluation, and corrective measures. This training is essential for proper evaluation of developing situations at all levels of responsibility, since most situations will be based on onsite observations. NRCS may assist with the training, if the sponsor/land user requests it.

B. A tabletop exercise shall be conducted at least once every 5 years. The tabletop exercise involves a meeting of the dam owner and State, local, and tribal emergency management officials in a conference room environment. The exercise begins with a description of a simulated event and proceeds with discussions by the participants to evaluate the EAP and response procedures, and to resolve concerns regarding coordination and responsibilities.

### **500.56 Reporting of Emergency Situations**

When a situation develops that involves potential implementation of the EAP, the District Conservationist shall immediately notify the State Conservation Engineer of the developing situation and actions being taken.

## Part 500 – Operation and Maintenance

### Subpart G – Exhibits

#### 500.60 Sample O&M Agreement

[Click here for a copy of Sample O&M Agreement](#)

#### 500.61 Sample O&M Plan that is part of an O&M Agreement

[Click here for a copy of Sample O&M Plan](#)

#### 500.62 Sample O&M Plans for Conservation Practices

[Click here for a copy of O&M Pond - Embankment - Code 378](#)

[Click here for a copy of O&M Pond - Embankment - Code 378](#)

[Click here for a copy of O&M Grassed Waterway – Code 412](#)

[Click here for a copy of O&M Irrigation System – Sprinkler – Code 442](#)

[Click here for a copy of O&M Wetland Restoration – Code 657](#)

#### 500.63 Sample Practice Narrative with O&M Requirements

332 Contour Buffer Strips - Establish narrow strips of permanent, herbaceous vegetative cover across the slope, alternating down the slope with parallel, wider cropped strips. Location and strip width of the area in sod will be determined during layout by NRCS personnel. Lime, fertilizer and seed will be applied according to soil test and the VEGETATION PLAN, AL-ECS-1. Eliminate weeds and brush by mechanical (mowing) or chemical weed control. The purpose of this practice is to reduce sheet and rill erosion. Operation & Maintenance - Time mowing of the buffer strips to maintain appropriate vegetative density and 4 to 6 inch height for optimum trapping of sediment from upslope cropped strips during erosion period(s). Mow sod turn strips and waterways at least annually. Fertilize buffer strips according to soil test recommendations. Spot seed or renovate buffer strip area damaged by herbicide application after residual action of herbicide is complete. Redistribute sediment accumulations as needed to maintain uniform sheet flow along the crop/buffer boundary. Renovate vegetated headlands or end row areas as needed to keep ground cover above 65%.

(Adapted from Alabama NRCS)

## **500.64 Sample Job Sheet with O&M Requirements**

[Click here for a copy of Sample Job Sheet](#)

## **500.65 Sample Inspection Checklists**

[Click here for a copy of Sample Inspection Checklist for Dams](#)

[Click here for a copy of Sample Inspection Checklist for Channels](#)

[Click here for a copy of Sample Inspection Checklist for Waste Management Systems](#)

## **500.66 Sample Emergency Action Plan**

[Click here for a copy of Sample Emergency Action Plan](#)