

2.1 Scope. BIA SOD Program dams include all dams that meet the criteria in the National Dam Inspection Act. This includes all dams which impound or divert water and are 25 feet or more in height from the natural bed of the watercourse, measured from the downstream toe (or lowest elevation) of the dam to the top (crest) of the dam, or which have an impounding capacity at maximum water storage elevation of 50 acre-feet or more. This does not include dams which are less than six feet in height, regardless of storage capacity, nor dams having a storage capacity at maximum water elevation of less than 15 acre-feet, unless downstream hazards to life or property exist.

2.2 Downstream Hazard Classification. A Downstream Hazard Classification (High, Significant, or Low) will be determined for each BIA SOD Program dam in accordance with the Bureau of Reclamation's Assistant Commissioner-Engineering Research Technical Memorandum No. 11, Downstream Hazard Classification Guidelines.

2.3 Applicability.

A. SOD Program requirements in this Chapter apply to all BIA dams with a High or Significant Downstream Hazard Classification.

B. BIA SOD Program funding is available only for dams with a High or Significant Downstream Hazard Classification.

C. For BIA dams with a Low Downstream Hazard Classification, further application of any SOD Program technical requirements in this Chapter and the SOD Program Handbook to activities conducted with non-SOD Program funding is at the discretion of the Regional SOD Officer based on the specific conditions at each Low Hazard dam.

2.4 Operation and Maintenance for Existing Dams includes the operation and maintenance activities for the dams and appurtenant structures and the emergency management activities undertaken to safely operate and maintain dams.

A. Standing Operating Procedures. Standing Operating Procedures must be established for each High or Significant Hazard dam. The procedures permit responsible persons, knowledgeable in reservoir operations, but who are unfamiliar with the conditions at a particular dam, to operate the dam and reservoir during emergency situations and at times when the regular operator is not available to perform normal duties. Additional details on Standing Operating Procedures are contained in the BIA SOD Handbook. Copies of the Standing Operating Procedures are maintained at the Agency Office and the dam site, if an on-site facility exists.

B. Documentation. A documented history of the field exploration programs, design, construction, operation, maintenance, instrumentation data monitoring, periodic examinations, corrective actions, repairs, and remedial work will be established and maintained by the Regional SOD Officers so that data relating to the dam are preserved and readily available for reference. This documentation will commence with the initial site investigation for the dam and continue through the life of the structure.

C. Training. Personnel involved in the operation and maintenance of BIA dams will be

trained to detect, evaluate, and appropriately respond to emergency and non-emergency situations. Regional SOD Officers and Agency Superintendents are to identify training needs for the personnel under their supervision and request such training from appropriate sources.

2.5 Emergency Management.

A. Emergency Action Plan. This plan will be developed for all High or Significant Hazard dams as required by 753DM1.5. An Emergency Action Plan (EAP) is prepared to aid the facility manager and operations and maintenance personnel during an emergency situation or unusual occurrence. It provides information on detection of problems, immediate steps to take, whom to notify, what decisions to make, steps to take in the event of loss of communications, and other appropriate measures.

B. Inundation Maps. Inundation maps will be developed for each High or Significant Hazard dam. The inundation maps include, as a minimum, delineation of flooded areas to the point where the subject flood no longer poses a risk. The inundation maps will be included in the EAP.

C. Warning and Evacuation Plans. The Regional SOD Officer is responsible for identifying all entities, including local, state, tribal, and federal, who would be impacted during a dam failure or large operational releases. These entities should be encouraged to develop their own Warning and Evacuation Plans for each dam. The EAP must be coordinated with these Warning and Evacuation Plans.

D. Incident Response. Following an incident or emergency event, an incident report will be prepared by the Regional SOD Officer and submitted to the Regional Director and the BIA SOD Officer.

E. Early Warning Systems (EWS). EWS instrumentation will be installed, operated, and maintained at High or Significant Hazard dams and in the upstream basin when early detection of hydrologic events would provide additional time needed for emergency management activities.

2.6 Monitoring of Non-Bureau of Indian Affairs Dams. The Regional SOD Officer will be aware of the safety status of dams which are not under the jurisdiction of the BIA, but pose a potential hazard to persons or property on trust lands. The Regional SOD Officer will ensure that the EAP for these dams provides adequate notification to the BIA in the event of a dam failure or other emergency event.

2.7 Evaluation of Existing Dams.

A. Safety Evaluation of Existing Dams (SEED) Examination Program. The BIA SEED Examination Program is an onsite examination to document the structural integrity of High or Significant Hazard dams and appurtenant structures. SEED examinations will be conducted according to the BIA SOD Handbook.

B. Deficiency Verification Analysis (DVA) Report. A Deficiency Verification Analysis will

be performed on each High or Significant Hazard dam to determine if the dam has deficiencies which could lead to the failure of the dam. The results of this analysis will be included in the DVA Report and will serve as the technical documentation of any deficiencies that must be resolved or mitigated.

2.8 Short-term Remediation Actions. Examination and evaluation activities could reveal deficiencies or potential deficiencies which, if uncorrected, could eventually lead to failure or misoperation of a dam. The following actions may be taken under the direction of the Regional SOD Officer when conditions warrant. Some actions may involve NEPA compliance.

A. Emergency Corrective Action. Emergency corrective action is required for deficiencies which could result in failure of the dam within a short period of time. The BIA SOD Officer and Regional Director will be notified immediately by the Regional SOD Officer of any dams that are in this condition, and informed as to what action is being taken to remove the threat;

B. Interim Actions. Measures considered necessary to protect the public during the time between a safety examination and the safety modifications will be implemented at the earliest possible time after completion of the onsite examination. Interim actions could include implementing reservoir level restrictions, temporary breach, operational changes, installation of early warning systems, or specific monitoring of instrumentation at the dam site; or

C. Non-emergency Corrective Action. Non-emergency corrective action is taken when there is no immediate threat to the safety or operation of the dam, or any threat to life or property downstream. The corrective action should be scheduled in advance of the fiscal year in which the work is to be done to allow time for planning, funding through the normal budgeting process, and arrangements for special reservoir operations when required.

2.9 Design Process for New Dams and for Modifications to Existing Dams. The design of new dams and modifications to existing dams contain the same elements, which include:

A. Conceptual Designs. The initial phase of the design process, which leads to the selection of a preferred design alternative, must include the following:

- (1) National Environmental Policy Act compliance will be initiated and substantially completed during this phase of the design process in accordance with 40 CFR 1500-1508;
- (2) National Historic Preservation Act compliance will be conducted in accordance with 36 CFR 60 and 36 CFR 80;
- (3) Native American Graves Protection and Repatriation Act and Archaeological Resources Protection Act compliance will be conducted as required;
- (4) A Conceptual Design Report will be prepared to document all viable alternatives for a new dam or for resolving or mitigating verified deficiencies at an existing dam; and
- (5) A Value Engineering study, if required, will be completed during this phase of the design process in accordance with the Department of the Interior Value Engineering Guidance

Handbook, No. VE-1.

B. Final Design. Final design, including assumptions, calculations, drawings and specifications will be completed for the selected alternative.

(1) Appropriate and practical state-of-the-art design methods and procedures will be incorporated into the final design;

(2) A Design Summary Report will be prepared which includes complete written documentation of all data, computations, and the decision making process, including the rationale supporting the design decisions;

(3) Construction specifications, including all bidding, award, and contract documents, will be in accordance with current Federal Acquisition Regulations and other applicable laws and regulations; and

(4) An environmental compliance review will be conducted by Regional environmental and archeological personnel.

C. Independent Technical Review. An independent technical review is required for every modification or construction project. The review will be:

(1) Arranged by the Regional SOD Officer;

(2) Performed early in the final design process, preferably not later than at the 30 percent completion milestone of the final design; and

(3) Conducted by qualified engineers and other experts not otherwise involved in the project, including Regional environmental and archeological personnel.

2.10 Construction of New Dams and Modifications to Existing Dams. BIA personnel play a key role in several elements of the construction process, including:

A. Construction Management. During the construction phase, close coordination between the BIA, design personnel, construction personnel, and Regional safety and environmental officers is required to assure that the project design intent is carried out, that new field information is incorporated into the construction, and that the cost and time schedules are being met. This includes site inspections.

B. Documentation, Records, and Drawings. Complete written and photographic documentation of the construction will be developed and maintained by the project construction engineer and the Regional SOD Officer. This includes, but is not limited to, records of the foundation excavation and treatment, revised drawings to show "as built" conditions, and complete records of all construction inspections.

C. First and Subsequent Fillings. All aspects of the dam and reservoir performance must

be monitored and evaluated by the project construction engineer and the Regional SOD Officer from visual observation and instrumentation data during first filling. First filling must be conducted according to the first fill plan developed during the design phase.

D. Completion Report and Project Acceptance.

(1) Upon completion of construction, the project construction engineer will prepare a completion report in consultation with design and environmental personnel that documents compliance with specifications and drawings;

(2) A detailed inspection of the constructed project will be conducted or arranged by the Regional SOD Officer, and upon approval and acceptance of the project, the facility will be transferred from a construction to an operation and maintenance status; and

E. Final Project Report.

(1) After construction and the first and subsequent successful fillings and monitoring, all identified deficiencies in the DVA Report from pre-construction will be examined to determine if the deficiencies are corrected. A Final Project Report will be prepared by the Regional SOD Officer that documents the status of these deficiencies; and

(2) After the Final Project Report is submitted, the dam will transfer to an operation and maintenance status. The periodic SEED examination and analysis process will resume once the dam is in this status.

F. Post-Construction Activities. The Regional SOD Officer will critique and evaluate design, construction, and administrative activities to assist in improving future designs and construction methods for dams. The Regional SOD Officer will determine which post-construction activities are appropriate for each project and whether a written report is warranted.