

**DEPARTMENT OF CONSERVATION AND RECREATION RECOMMENDATIONS  
TO THE VIRGINIA SOIL AND WATER CONSERVATION BOARD IN RESPONSE TO  
THE APRIL 30, 2005 AD HOC DAM SAFETY REPORT**

**Thursday, July 21, 2005  
Soil and Water Conservation Board Meeting  
Richmond, Virginia**

**Preliminary Dam Safety Regulatory Amendment Discussion Document**

At the May 19, 2005 meeting of the Virginia Soil and Water Conservation Board, the Board unanimously passed a motion that accepted the report of the Ad Hoc Dam Safety Study Committee and directed staff to provide further information regarding Alternatives #1 and #2 at the July meeting. Pursuant to that directive, the Department offers the following general recommendations:

- 1) That the Department seek authorization from the Board to submit a Notice of Intended Regulatory Action (NOIRA) to consider changes and solicit recommendations related to the Board's Virginia Impounding Structures Regulations.
- 2) That the Board Chairman and Department Director assemble a special Board chaired workgroup composed of staff and a subset of the Ad Hoc Dam Safety Study Committee to develop a draft regulatory concepts (strawman) document for consideration by stakeholders and the interested public during the subsequent public review process following the NOIRA public comment period.
- 3) That the Department continue to research strategies employed by other states to regulate dams and to fund their repairs.
- 4) That with the Board's support, that the Department consider the development of a legislative proposal(s) that would 1) develop a funding source for providing loans and grants to dam owners through the existing Flood Prevention and Protection Assistance Fund or other mechanism, 2) add a greater suite of enforcement tools (such as lowering the pool, authority to cease construction activities on dams, etc.), especially needed to administer Alternative #2 if adopted, and 3) develop penalty measures and due process procedures for non-compliant dam owners to be applied at the Department's recommendation and the Board's approval.
- 5) That with the Board's support, that the Department develop a budget decision package to support additional dam safety engineers that would focus on evaluating and determining the status of those dams that became regulated in July 2002 [as required by Chapter 92 of the 2001 Virginia Acts of Assembly (SB1166)], performing locality outreach on dam break inundation zone protections, and assisting with regulatory development and implementation of an alternatives analysis necessary under Alternative # 2.
- 6) That the Department establish and promote a dam break inundation zone model ordinance for local governments to consider.

## **SPECIFIC RECOMMENDATIONS IN RESPONSE TO THE AD HOC COMMITTEE REPORT**

### **1. Ad Hoc Committee report: The first Ad Hoc Committee recommended alternative is to “Treat New & Existing Dams Alike – Formalize Current Practice”.**

The committee discussion included 3 points for the Board’s consideration:

A. “First, Section 50 of the regulations states that Table 1 applies to new dams (“For new impounding structures, the spillway[s] capacity shall perform at a minimum to safely pass the appropriate spillway design flood as determined in Table I”). Alternative 1 would require that this regulatory language be changed to refer to all dams.”

- **THE DEPARTMENT AGREES AND RECOMMENDS THAT THE REGULATIONS BE AMENDED SO THAT ALL DAMS WILL BE TREATED PER TABLE 1 UNLESS OTHERWISE SPECIFIED.**

B. “Second, Sections 130 and 140 of the regulations refer to existing dams constructed either before July 1, 1982 (section 130) or having a construction permit issued after July 1, 1982 (section 140). Alternative 1 would change the regulations to drop this date distinction and simply refer to all dams.”

- **THE DEPARTMENT AGREES AND RECOMMENDS THAT TERMINOLOGIES SUCH AS EXISTING AND NEW SHOULD BE REMOVED FROM THE ACT AND REFERENCES TO DATES BE ELIMINATED.**

C. “Third, Sections 130 A. and 140, as they currently exist, would be repealed. The provisions of 130B would be applicable to all existing dams. This would have the effect of affirming the current practice of requiring those existing dams that don’t qualify for a reduced spillway design flood based on an incremental analysis to meet the requirements of Table I.”

- **THE DEPARTMENT AGREES AND RECOMMENDS THAT SECTIONS 130A AND 140 SHOULD BE REPEALED. FURTHER, THE DEPARTMENT RECOMMENDS THAT LANGUAGE CURRENTLY IN SECTION 130A BE AMENDED AND INCLUDED IN SECTION 4 VAC50-20-50 TO APPLY TO ALL DAMS AND THAT THE PROVISIONS OF SECTION 130B ALSO BE MADE APPLICABLE TO ALL DAMS [INCREMENTAL ANALYSIS].**

D. Additionally, the Committee noted that “the current regulations are difficult to interpret - words such as ‘significantly’ and ‘reasonable’ as well as the threshold at which ‘probable’ becomes ‘possible’ are not defined”.

- **THE DEPARTMENT RECOMMENDS THAT THIS ISSUE BE INCLUDED IN THE NOTICE OF INTENDED REGULATORY ACTION (NOIRA) FOR INPUT FROM THE INTERESTED PUBLIC.**

**2. Ad Hoc Committee report: The second Ad Hoc Committee recommended alternative is to “Provide an Alternate Procedure for Existing Dams” which allows spillway design floods (SDF) less than the PMF in cases where there would be no significant increase in downstream hazard.**

In addition to those recommendations that existed in Alternative 1, the committee discussion included the following points for the Board’s consideration:

A. “Dams that qualified for a reduced spillway capacity under Section 130 B’s allowance for incremental damage assessment analysis would be expected to explore that possibility before proceeding with the process described below [alternative procedures].”

- **THE DEPARTMENT AGREES AND RECOMMENDS THAT A DECISION MATRIX BE DEVELOPED AS PART OF THE STATE REGULATORY PROCESS THAT WOULD MOVE AN APPLICANT THROUGH:**
  - **THE BASIC PROGRAM PROVISIONS IN SECTION 4 VAC50-20-50 AND TABLE 1,**
  - **AN INCREMENTAL ANALYSIS, AND**
  - **FOR CLASS 1 AND 2 HIGH HAZARD DAMS, OWNERS MAY ALSO INVESTIGATE THE POSSIBILITY OF LOWERING THE SDF FROM TABLE 1, UP TO A CUMULATIVE MAXIMUM OF 25 PERCENT, BUT NO LOWER THAN ½ PMF UTILIZING AN ALTERNATIVES PROCEDURES PROCESS.**

B. “Alternative 2 would require that the default spillway design flood for both new and existing dams would be as specified in Table I. However, for existing dams, there would also be an alternate procedure available. A SDF less than the PMF could be allowed in cases where there would be no unreasonable hazard to life and property.”

- **THE DEPARTMENT AGREES AND RECOMMENDS THAT A REGULATORY PROCESS BEGIN TO DEVELOP FOR CLASS 1 AND 2 HIGH HAZARD DAMS, AN ALTERNATIVE PROCEDURES PROCESS, WHICH MAY BE PERFORMED FOR THOSE DAMS WHERE THERE WILL BE NO UNREASONABLE HAZARD TO LIFE AND PROPERTY.**

C. “When considering spillway capacity for existing dams that are in a size and hazard classification currently requiring passage of a full PMF, the SDF would be presented as a range from ½ PMF to PMF for existing dams (statutory bounds). The selection of SDF would default to the full PMF, but could be considered for downward adjustment based upon the owner’s historic compliance with regard to all other dam safety requirements and taking into account meaningful site specific factors, such as:

- maximum depth and duration of overtopping
- robustness of the dam’s construction
- potential structural/operational changes
- number and type of structures and transportation corridors in the inundation zone
- number of people at risk
- flood wave travel time to impact areas
- simplicity or complexity of evacuation provisions
- existence of a well coordinated and regularly exercised Emergency Action Plan
- public education program
- flood recurrence and frequency data for relevant nearby streams

- likelihood of prior flooding from other nearby streams or rivers affecting the inundation zone
- other possible site-specific factors relating to the level of risk, potential impacts of a failure and mitigating circumstances.

This listing is not intended to be comprehensive, but rather to be indicative of the types of information and analysis that may be required for this process.”

“In no case would the spillway design flood be reduced to less than ½ of the PMF (except as is considered acceptable based on 4VAC50-20-130 B [an incremental analysis]).”

- **THE DEPARTMENT AGREES AND RECOMMENDS THAT AFTER AN APPLICANT COMPLIES WITH BASIC PROGRAM PROVISIONS IN SECTION 4 VAC50-20-50 AND TABLE 1, AND AN INCREMENTAL ANALYSIS HAS BEEN PERFORMED AND THE SDF STILL EXCEEDS ½ PMF (AND ANY REDUCTIONS HAVE NOT EXCEEDED 25% OF THE PMF), THAT FOR CLASS 1 AND 2 HIGH HAZARD DAMS, THAT AN ALTERNATIVE PROCEDURES PROCESS BE DEVELOPED BY REGULATION WHICH MAY BE CONSIDERED WHERE THERE WILL BE NO UNREASONABLE HAZARD TO LIFE AND PROPERTY.**
- **FURTHERMORE, AS RECOMMENDED IN THE AD HOC COMMITTEE REPORT, THE DEPARTMENT STAFF WILL WORK WITH A SPECIAL BOARD CHAIRED WORKGROUP TO DEVELOP A DRAFT REGULATORY CONCEPTS (STRAWMAN) DOCUMENT FOR CONSIDERATION BY STAKEHOLDERS AND THE INTERESTED PUBLIC DURING THE SUBSEQUENT PUBLIC REVIEW PROCESS.**

D. “No less important, this approach would require a significant increase in dam safety staffing and credentials to provide for in-depth reviews of documents and analyses presented to justify a reduction in the SDF, to accommodate proactive involvement by dam safety regulators in negotiating and adjudicating SDF considerations (requiring significant qualitative judgments relating to risks and impacts), and to support periodic reviews of justifying conditions to assess the need for updating a negotiated SDF basis.”

- **THE DEPARTMENT RECOGNIZES THAT THERE WILL BE SIGNIFICANT ADDITIONAL COSTS ASSOCIATED WITH IMPLEMENTING THIS NEW APPROACH AND RECOMMENDS THAT, WITH THE BOARD’S SUPPORT, THE DEPARTMENT DEVELOP A BUDGET DECISION PACKAGE TO SUPPORT ADDITIONAL DAM SAFETY ENGINEERS AND DEVELOP A REASONABLE FEE SCHEDULE ASSOCIATED WITH AN ALTERNATIVES REVIEW THAT WILL BE BORNE BY THE APPLICANT. DCR IS ALREADY UNDERSTAFFED FOR ITS EXISTING DAM SAFETY RESPONSIBILITIES.**

[NOTE: Staff Resources - The Dam Safety Program is currently understaffed to properly administer the existing program requirements. To date, Virginia’s engineers are responsible for 277 dams each, while staff in 10 East Coast States average 130 dams per employee. The 2002 regulatory definition change is substantially increasing the number of dams under Virginia regulatory jurisdiction, constituting a dire need for additional staff. Should the Alternate Procedures become a part of the dam classification process, it, too, would dictate a significant increase in staff resources.]

**3. Ad Hoc Committee report: Additional Ad Hoc Committee recommendations include the following:**

A. "... the Committee also recommends that efforts be made to increase the degree to which dam safety is recognized and considered by the public and local officials as they make land use and development decisions. Although not part of the specific charge by the Board to this Committee, the Committee believes that misunderstanding and lack of awareness on the part of the public and local officials of the potential impact of future land use changes on the classification of a dam lies at the heart of the problem that brought this Committee together and recommends that some positive action be taken by the Board to initiate steps to foster more complete communication connecting the classification of each dam with the land use downstream that affects its classification."

"As a minimum, the Committee believes that the downstream potential inundation area needs to be made a matter of public record so that this information is available to land owners and policy makers. All dam owners need to know that their dam is subject to evolving design standards tied to downstream development. The Committee also believes that land use zoning needs to be adopted or adjusted to take the inundation area into account."

- **THE DEPARTMENT CONCURS AND RECOMMENDS THAT THE DEPARTMENT ESTABLISH WITHIN THE NEXT YEAR A DAM BREAK INUNDATION ZONE MODEL ORDINANCE FOR ADOPTION BY LOCAL GOVERNMENTS.**
- **THAT WITH THE BOARD'S SUPPORT, THAT THE DEPARTMENT DEVELOP A BUDGET DECISION PACKAGE TO SUPPORT ADDITIONAL DAM SAFETY ENGINEERS THAT WOULD FOCUS ON EVALUATING AND DETERMINING THE STATUS OF THOSE DAMS THAT BECAME REGULATED IN JULY 2002 [AS REQUIRED BY CHAPTER 92 OF THE 2001 VIRGINIA ACTS OF ASSEMBLY (SB1166)], PERFORMING LOCALITY OUTREACH ON DAM BREAK INUNDATION ZONE PROTECTIONS, AND ASSISTING WITH REGULATORY DEVELOPMENT AND IMPLEMENTATION OF AN ALTERNATIVES ANALYSIS NECESSARY UNDER ALTERNATIVE # 2.**

B. "...a program that would assist dam owners through state grants and loans was suggested."

- **THE DEPARTMENT CONCURS THAT FUNDING FOR DAM REPAIRS IS A CRITICAL ISSUE AND RECOMMENDS THAT THE BOARD RECOMMEND THE DEVELOPMENT OF LEGISLATION TO ADDRESS FUNDING NEEDS.**
- **THAT WITH THE BOARD'S SUPPORT, THAT THE DEPARTMENT CONSIDER THE DEVELOPMENT OF A LEGISLATIVE PROPOSAL(S) THAT WOULD 1) DEVELOP A FUNDING SOURCE FOR PROVIDING LOANS AND GRANTS TO DAM OWNERS THROUGH THE EXISTING FLOOD PREVENTION AND PROTECTION ASSISTANCE FUND OR OTHER MECHANISM, 2) ADD A GREATER SUITE OF ENFORCEMENT TOOLS (SUCH AS LOWERING THE POOL, AUTHORITY TO CEASE CONSTRUCTION ACTIVITIES ON DAMS,**

**ETC.), ESPECIALLY NEEDED TO ADMINISTER ALTERNATIVE #2 IF ADOPTED, AND 3) DEVELOP PENALTY MEASURES AND DUE PROCESS PROCEDURES FOR NON-COMPLIANT DAM OWNERS TO BE APPLIED AT THE DEPARTMENT'S RECOMMENDATION AND THE BOARD'S APPROVAL.**

**VIRGINIA SOIL AND WATER CONSERVATION BOARD**

July 21, 2005 Meeting  
at the Natural Resources Conservation Service  
Richmond, Virginia

**Motion to authorize and direct the filing of Notice of Intended Regulatory Actions (NOIRA) related to the Board's Virginia Impounding Structures Regulations and other associated actions:**

The Board authorizes the Director of the Department of Conservation and Recreation and the Departmental Regulatory Coordinator to prepare and submit a NOIRA to consider changes and solicit recommendations related to the Board's Virginia Impounding Structures Regulations. The changes may include, but not be limited to amendments:

- to address the Ad Hoc Dam Safety Committee's recommendations relative to Classes of Impounding Structures (§ 4 VAC50-20-40), Performance Standards Required for Impounding Structures (§ 4 VAC50-20-50), and the attendant Table 1 established in the 2004 Virginia Impounding Structures Regulations;
- to clarify vague words/wording (e.g. possible, probable, reasonable, appropriate, etc.);
- to make Table 1 more understandable and consistent in application;
- to eliminate the reference to "new" and "existing" dams;
- to establish alteration permit requirements similar to construction permit requirements;
- to remove DCR forms currently contained in the regulations; and
- to make other technical or administrative amendments necessary to improve and clarify the regulations.

As part of this process, the Board further authorizes a public meeting to be held by the Department not less than 30 days after publication of the NOIRA in the Virginia Register of Regulations, that a technical committee be established to make recommendations to the Director and the Board on potential regulatory changes, that the Department hold other stakeholder group meetings as it deems necessary, and that the Department prepare a draft proposed regulation for the Board's review and consideration.

This authorization is related to those changes that are subject to the Administrative Process Act and to the Virginia Register Act. The Department shall follow and conduct actions in accordance with the Administrative Process Act, the Virginia Register Act, the Board's Regulatory Public Participation Procedures, the Governor's Executive Order 21 (2002) on the "Development and Review of Regulations Proposed by State Agencies", and other technical rulemaking protocols.

This authorization extends to, but is not limited to, the drafting and filing of the NOIRA, the holding of public meetings, the development of the draft proposed regulation and other necessary documents and documentation as well as the coordination necessary to gain approvals from the Department of Planning and Budget, the Secretary of Natural Resources, the Governor, the Attorney General, and the Virginia Registrar of Regulations.

The Board requests that the Director or the Regulatory Coordinator report to the Board on these actions at subsequent Board meetings and for the Department to work with the Board's Dam Safety subcommittee during the regulatory process as deemed appropriate.

Motion made by: Linda S. Campell

Motion seconded by: Jean R. Packard

Action: Motion Carried

David L. Moyer  
David L. Moyer  
Chairman  
(Signatures on file)

Joseph H. Maroon  
Joseph H. Maroon  
Secretary