

Virginia Department of Conservation and Recreation
Public Meeting on 4 VAC 50-20-10 et seq.
Impounding Structures Regulations
February 9, 2006; 2:00 p.m.
Department of Forestry
900 Natural Resources Drive
Charlottesville, Virginia 22903

Meeting Officer: David C. Dowling
Policy, Planning and Budget Director
Department of Conservation and Recreation

Opening:

Mr. Dowling: Good afternoon. I would like to call this meeting to order. I am David Dowling, the Policy, Planning and Budget Director for the Department of Conservation and Recreation. I will be serving as the meeting officer this afternoon, certainly as long as my voice holds out. I would like to welcome you to this public meeting on the Virginia Soil and Water Conservation Board's Impounding Structure Regulations.

First, I would like to thank the Department of Forestry for allowing us to use this facility. With us this afternoon is one member of the Soil and Water Conservation Board. This Board is the responsible authority for the Impounding Structure Regulations or as we will refer to them today, the Dam Safety Regulations. The Board member present with us today is Mr. Michael Russell.

Michael Russell: Thank you.

Mr. Dowling: Additionally with me this afternoon, I have Bill Browning, the Director for the Department's Dam Safety and Flood Plain Management Division. Bill will serve as our technical presenter today. Also with me is Michael Fletcher, DRC's Director of Development. Michael will be audio taping our meeting and developing a set of minutes of the comments received today. Other DCR staff with this afternoon include Christine Watlington, our Policy and Budget Analyst and Jim Robinson, our Dam Safety Program Manager, also in our Dam Safety and Flood Plain Management Division.

I hope that all of you have registered on our attendance list. If not, please do so. We want a complete record of everyone that was here today and those wishing to speak should note that also on the attendance list. Please also make sure that your contact information is legible and complete as we will be utilizing it to keep you informed on the status of this regulatory action.

With that, I would like to cover the purpose of the meeting here today. The purpose of this meeting is to receive input from interested citizens on the DCR Notice of Intended Regulatory Action on the Department's Dam Safety Regulations. These regulations not

only impact dam owners but also impact the growing number of Virginians living downstream from dams.

The Virginia Soil and Water Conservation Board authorized and directed the Department's filing of this NOIRA relating to the Board's Virginia Impounding Structures Regulations at its July 21, 2005 meeting. The Department is to consider changes and solicit recommendations relating to these Regulations. I want to clarify that there are no amended regulations that have been drafted as of this date or that will be considered today. We are still at the stage of hearing from the public what should be concluded in this Regulation amendments.

The Notice of Intended Regulatory Action is a mechanism to inform the public that the agency is considering developing, amending, or repealing the regulations in accordance with the Administrative Process Act. The current public comment period and this public meeting serve as an opportunity for the public to provide the Board and the Department with data, viewpoints, and recommendations regarding their thoughts about whether to, or how to, revise the Dam Safety Regulations. A copy of the NOIRA, these regulations, and the public comment procedures are available on the side tables in the folders if you need copies.

The Board is also seeking information regarding impacts on small businesses. Information may include: (1) Projected reporting, recordkeeping and other administrative costs, (2) Probable effect of the regulation on affected small businesses, and (3) Description of less intrusive or costly alternative methods of achieving the purpose of the regulation.

The Department, as authorized by the Board, will be using a public participatory process to develop the proposed regulations. The Department will be forming a Technical Advisory Committee to consist of relevant stakeholders to assist in the development of proposed regulations for the Board's consideration. Persons interested in participating on the advisory committee should provide their name, address, phone number, e-mail address, and the name of the organization or affected group that they represent in writing to the Regulatory Coordinator for consideration no later than 5:00 pm on February 24, 2006.

Today is only the very beginning of a public process with opportunities for the public to be engaged in the development of the regulatory changes throughout the process. In general, the process involves, upon the close of this public comment period, the development of proposed regulations utilizing a technical advisory committee and discussions with and direction from the Board, a 60-day public comment period and a series of public hearings across the State on the proposed regulations, and the development of final regulations. This process will take approximately another 18 months. We encourage each of you to remain engaged throughout the regulatory process.

This concludes my introductory remarks. I would like to introduce Bill Browning, DCR's Director of Dam Safety, who will explain in more detail what we are proposing to do with the regulations. Bill—

Mr. Browning: Thank you, Dave.

The Department is considering modifications to the dam safety regulations and as Dave said, the packages over on the side table contain those regulations that we are talking about. These Regulations and the Virginia Dam Safety Act were promulgated to protect the health, safety, and welfare of citizens. Amendments to the regulations considered during this action will continue to support and advance this important public safety function.

The purpose of this regulatory action is to consider amendments to the Virginia Soil and Water Conservation Board's Dam Safety Regulations that would:

- (i) establish an alternative procedure, that's a matrix which would allow for the evaluation of spillway design floods less the probable maximum flood where there would be no unreasonable or significant increase in hazard to life and property;
- (ii) establish alteration permit requirements similar to construction permit requirements;
- (iii) expand the requirements of an Emergency Action Plan to meet federal requirements;
- (iv) amend references to new and existing dams to clarify that the regulations refer to all dams unless otherwise specified;
- (v) improve the applicability and consistency of Table 1 in 4 VAC 50-20-50 and improve the risk classification system;
- (vi) establish permit application fees for the administration of the dam safety program;
- (vii) amend or remove the forms that are incorporated by reference;
- (viii) clarify the meanings of terminologies such as "significantly," "appropriate," and "reasonable" as well as the threshold at which "probable" becomes "possible"; and so forth,
- (ix) revise the Impounding Structure Regulations, as needed, to improve the administration and implementation of the Virginia Dam Safety Program.

Additional specifics on these elements are as follows:

(i) As part of the regulatory process, there will be a consideration of establishing an alternative procedure or decision matrix which would allow for the evaluation of spillway design floods less than the probable maximum flood where there would be no unreasonable or significant increase in hazard to life and property. An Ad Hoc Dam Safety Study Committee, formed at the request of the Board, issued a report on April 30, 2005 that recommended the consideration of such amendments. The Board at their July 21, 2005 meeting authorized regulatory action in response to this report. It is unclear at this time what the details of these provisions might be and the Department welcomes

suggestions in this regard. However, an alternative procedure will need increased enforcement options and staffing for the Department which will likely result in increased costs to applicants who choose to pursue the alternative approach.

(ii) The existing Virginia Impounding Structures Regulations will be amended to allow the Department to define “alteration” and enable the Department to monitor and inspect alteration activities in a manner similar to construction activities. Ensuring compliance with alteration plans and permits will ensure impounding structures remain safe and structurally sound.

(iii) Current Virginia requirements for an Emergency Action Plan have been determined by a special workgroup of the Board to be deficient at an October 20, 2005 meeting and will be examined and expanded as needed to meet federal requirements. The Emergency Action Plan requires “a method of providing notification and warning to persons downstream, other affected persons or property owners and local authorities in the event of a flood hazard or impending failure of the impounding structure.” Such amendments would include, but not be limited to, more rigorous regular reviews and the exercising and testing of the plan.

(iv) As recommended by the Virginia Soil and Water Conservation Board, changes to the Regulations will be considered to ensure that all impounding structures be structurally sound and safe, and that the regulations apply to all dams, regardless of age, unless otherwise specified.

(v) The dam hazard/risk assessment table [Table 1 (4 VAC 50-20-50)] of the Regulations is difficult to understand and allows for significant interpretations to be made in its use. Modifications to the table will improve the applicability of its information and increase consistency in its use.

(vi) The Appropriation Act currently carries language that specifies that “The Department of Conservation and Recreation is authorized to develop a cost recovery system, the funds from which shall be used to support the direct costs of providing inspections, plan review, administrative review, and certifications of non-Soil and Water Conservation District dams. The system shall employ a sliding scale, if practical, and shall be based on factors that directly relate to the costs of the dam inspection program. Total costs recovered from the new system shall not exceed 90% of the actual program cost.” Amendments to the regulations will be considered to establish permit application fees for the administration of the Dam Safety Program.

(vii) Removing the Dam Safety forms from the regulations will allow for more frequent revisions as federal and state requirements warrant. These forms are currently outdated and do not meet all federal and state requirements. Vague words and definitions will also be amended.

(viii) The Virginia Soil and Water Conservation Board and their Ad Hoc Advisory Group requested amendments to clarify the meanings of terminologies such as “significantly,”

“appropriate,” and “reasonable” as well as the threshold at which “probable” becomes “possible.”

(ix) Other provisions to the Impounding Structure Regulations will be considered, as needed, to improve the administration and implementation of the Virginia Dam Safety Program.

Thank you for the opportunity to give you an explanation of this action.

Mr. Dowling: Thank you, Bill. I hope that the explanation of our intentions regarding this regulatory action just provided by Mr. Browning will address some of the questions you had when you came here this afternoon and let you know that this is only the beginning of a public process. Before we begin receiving comments, I would like to stress that this is an information gathering meeting. Everyone wishing to speak will be heard. I think, however, due to the number of individuals present we ask you to try to limit your comments to five minutes. We also ask you to address information that others may not have already covered. If necessary, we may ask speakers questions concerning their remarks or to request additional information concerning a subject believed to be important to the process in order to help clarify and properly capture your comments.

We will now begin the public comment portion of the meeting. When I call your name, please come to the front podium, please state your name and who you represent and if you have an extra copy of your comments, I will be happy to accept it. The first person I will call is Mr. Neal Buttimer.

Neal Buttimer: Good afternoon, I am Neil Buttimer. I'm the President of the Lake of the Woods Association. These comments are presented in response to the NOIRA. Lake of the Woods Association is a private Homeowners Association representing over 4,200 property owners and over 7,000 residents. We have two lakes; one of our lakes is 550-acre lake and it's probably the dam that we're most concerned about. As many of you know, I encouraged participation by other dam owners and we have also notified all of the residents who are property owners who are downstream of our dam and in the danger zone so they know that we are involved in the process as well as our position on the process.

LOWA strongly believes it is unreasonable public policy to require arbitrary and costly structural modifications to existing dams that were designed in accordance with the standards in effect at the time of construction and which are properly operated and maintained, unless it is determined specifically that they pose an unreasonable hazard to life and property.

The basis for many current decisions is the Probable Maximum Flood or PMF which is the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are possible in the drainage basin. Despite the phrasing, it is not a probable event. Rather, it is a theoretical event assuming an astounding rainfall of 38 inches in 24 hours. In 1985, the National Research Council suggested that the return period

for a PMF for the purpose of computing risk costs would be one million years. Thus it would be 10,000 times less likely to occur than the 100-year flood.

The PMF may be justified as a standard for new dams, as the marginal cost to achieve that standard during construction is relatively small. However, the dollar cost to retrofit an existing dam to meet the full PMF is significant, in some cases exceeding the cost of a new dam. In our case, the modification for our dam would or may cost more than six million dollars. In addition, disturbing the integrity of a well-maintained existing dam to upgrade the spillway carries inherent risks, which may be far greater than the likelihood of the dam being overtopped by a PMF event. It is our belief that more realistic estimates should be used as the standard for assessing whether existing dams pose an unreasonable hazard to public safety.

Many other states have established criteria that permit consideration of less than a full PMF spillway capacity, especially for existing dams. A permissible standard of 0.5 PMF are common in several states.

We recommend that Virginia regulations provide for establishing an alternate procedure or decision matrix which has been outlined in the NOIRA. Specifically, NOIRA will recommend changes to the Impounding Structure Regulation [4 VAC 50-20-40, 4 VAC 50-20-50 and 4 VAC 50-20-130] to provide for a decision matrix as an alternate procedure for evaluating existing dams. Specific recommended language for the changes is provided in our written comments which we will mail in probably tomorrow. We believe our recommended process is more appropriate for evaluating existing dams than rigidly applying the standards that are specifically cited for new dams in current Regulation [Table 1, 4 VAC 50-20-50].

The recommended alternative procedure calls for consideration of non-structural measures to enhance the public safety. Such measures would have a more immediate positive impact on public safety than costly spillway modifications or upgrades designed to accommodate that million-year theoretical flood event. These measures include an evaluation as to whether the dam has been maintained and operated properly; the likelihood of a flood event that would exceed the existing capacity of the spillway; whether there is an Emergency Action Plan in effect that provides for timely notification and, if necessary, evacuation of persons in the inundation zone; and on-going efforts to limit development in the inundation zone.

Additionally, in the review of dam safety regulations, we urge that consideration be given to what we believe is misleading terminology. The terms “probable maximum precipitation” and “probable maximum flood” are misleading as interpreted in the application of the regulations. Rather than “probable,” both are improbable events—theoretical maximums with a 1 to 1 million chance of occurring in any year. That is an important consideration when weighing the real and immediate costs of upgrading spillways of existing dams against the costs of damage resulting from a theoretical flood event with a very low probability of occurrence. Similarly, use of terms such as “possible,” “probable,” “excessive” and “appreciable,” without adequate clarification, result in inconsistent and

inexact exercise of judgment. This results in the expenditure of considerable public and private funds with virtually no increase in public safety.

Lake of the Woods appreciates the opportunity to comment, and respectfully requests that careful consideration be given to our recommended changes in the Virginia Impounding Structure Regulations [4VAC 50-20]. We stand ready to expand our comments and provide whatever assistance we can as you begin your difficult task to consider amendments to the Regulations. We hope that we will be able to work together to arrive at some common sense solutions to this very important public issue.

Thank you.

Mr. Dowling: Mr. Jim Hopkins—

Jim Hopkins: My name is Jim Hopkins. I live in Lake of the Woods and I'm speaking as an individual. A Possible Maximum Flood [PMF] is based on an extreme rainfall which has a 1 in 1 million chance of occurring in a single year. The amount of rainfall data used to compute a PMF is often less than 100 years. Therefore, it is almost impossible to predict with accuracy the biggest rain event in the last 1,000 years. At best, I would call it a well educated guess. But to ask anyone to predict the largest rainfall in the last million years does not seem to be reasonable. Dam engineers are in agreement on how to compute PMF but often use different assumptions in their projections. These differences tend to decrease the credibility and reliability of the results.

A full PMF is a risk-based decision and cannot be computed like a speed limit. A speed limit of 55 miles an hour means the same in all states. But a full PMF varies widely between states. These differences erode confidence in the results. Some states say the chance of a Possible Maximum Flood [PMF] is 1 in 10,000 to 1 in 1 million. That is quite a range from 10,000 years to a million years. It tends to suggest they are not really sure of the accuracy of the projection. Even using the greatest likelihood of 1 in 10,000, 10,000 years is a very long time! Most of us live less than 100 years so in human terms, 100 is a lifetime. Two thousand years ago, Jesus Christ was walking on the earth. Ten thousand years is five times that historical marker.

I agree with the state officials that public safety is the key issue. But there are risks in everything we do. Commercial airlines are said to be our safest mode of transportation. If we held the airlines to the same 10,000-year standard that is being applied to impound structures, there would be no airlines. To hold impound structures accountable for a rainfall that theoretically happened 8,000 years Before Christ seems unreasonable.

No single approach is capable of providing reliable estimates for a Possible Maximum Flood. Therefore, I have two recommendations for the Impounding Structures Regulations:

1. When computing a full PMF, several different methods should be applied. This would increase the credibility and confidence in the results.

2. The regulations should be flexible enough to permit a common sense solution less than the one full PMF if it would not significantly increase the hazard to life and property.

Thank you for considering my comments.

Mr. Dowling: Mr. Don Demetrius.

Mr. Don Demetrius: Good afternoon and greetings from Fairfax County. My name is Don Demetrius. I'm with the Department of Public Works and Environmental Services in Fairfax County. Specifically, I am the chief of that branch that manages the County's Dam Safety program. The County currently has what I think are about 25 facilities that fall under the Impoundment Safety Regs and most of these were brought in as a result of the latest amendments on dam height, dam volumes and so on. I'm a Virginia registered PE, masters in civil engineer specializing in water resources.

In general, the County applauds the efforts and supports these changes. However, there are two areas of concern we share and the first one is the impact that these proposed changes will have on existing facilities. To this regard, we strongly support recommendations of the Lakes of the Woods issue concerning the need for a methodology to determine the fixes that are required to beef up the capacities of emergency spillways and not depend solely on the possible maximum flood or PMF. We have for the last couple of years been trying to improve a couple of our facilities and I can tell you for sure that it's a costly prospect and that it would be good if there was built-in flexibility in that process.

Our second area of concern and this is a concern that we have never been able to quite get our hands around. It's the basic definition of dam height. Technically, the definition says you have to measure from the top of the dam, I think, to either to where the dam is projected in the bed of the channel and that causes some confusion, particularly to the people who submit plans to the County and they're not quite sure whether they should be coming to you first or us first. We need to come up with a simple definition that is easy to understand. For some reason we veer away from using the invert of the principal spillway at the outlet of a dam. I'm asking that we reconsider possibly if there is a principal spillway that outlets in a channel we'd be able to use that invert.

We definitely like to extend whatever help we can in helping the Board to go through this process and we will be definitely taking you up on the offer to have someone sit on your technical advisory committee. I don't have a prepared statement. We'll be sending you something in writing a little later.

I thank you for your time.

Mr. Dowling: Thank you, sir. Mr. Sal Odierno -

Mr. Sal Odierno: I'm here on the behalf of the Town of Wise. We're down in the southwest corner down in the mountains real close to Kentucky and in speaking from

personal experience, we had 6.13 inches of rain back in 2002. Our spillway didn't get to the point where we had to evacuate people, but there were other parts of Wise County that had to be evacuated. I'm just saying that as an example.

In 1977, there was a nearly catastrophic flood. There was anywhere from 5.1 to 8.4 inches of rain in 24 hours and over a three-day period there were mass evacuations particularly in the town of Appalachia. Alternate 58 runs between Appalachia and Big Stone Gap and that road was under four-and-half feet of water. Where we are, we didn't have that. I couldn't find any records on it. As far as I know we didn't have to evacuate anyone.

But if we had, for example, 25 inches of rain in a 24-hour period, it wouldn't matter whether or not if we had any water in that spillway or not, because the receiving stream is only about 15 or 20 feet wide and it's only about at most five feet deep and that little creek wouldn't be able to handle it. We do have an emergency action plan and we do know who the people are we would have to evacuate if the case arose.

What we'd like to see is an analysis on a case-by-case basis if we have a deficiency and we need to correct it. Just let us know about that and we'll go ahead and do that and we'd also like to see a cost benefit analysis.

I thank you very much.

Mr. Dowling: Thank you, sir. Mr. Davis Grant—

Mr. Davis Grant: Good afternoon. My name is Davis Grant. I'm the Operations Director for Lake Barcroft Watershed Improvement District. Lake Barcroft WID is a political subdivision of the Commonwealth that represents the Lake Barcroft Community which consists of 1,043 property owners and over 3,000 residents. This is in response to the NOIRA regarding proposed changes to the dam safety regulations.

The NOIRA identifies nine areas for amending or modifying the leading provisions of the Impounding Structure Regulations. The greatest concern that of the nine areas very few provide specific detail and definition. Rather, the amendments would allow the Department of Conservation and Recreation to define the terms, conditions and terminology as needed. The WID believes it to be of utmost importance for any proposed regulatory action to explicitly state the requirements of said position so that the proper and informed public comments can be submitted as intended by the NOIRA process.

The WID is aware and fully supports comments being submitted by the Lake of the Woods Association in their response to this subject NOIRA and supports their comments for action by the Virginia legislature. In specific, the WID reiterates that it is not a reasonable public policy to require costly structure modifications to existing dams which were designed in accordance with the standards in effect at the time of construction and which are properly operated and maintained unless it is determined that they pose an unreasonable hazard to the life and property. Requiring such modifications poses a substantial financial and administrative burden on both public and private dam owners in the state of Virginia.

Expenditures of millions of dollars of public and private funds on dam upgrades should be required of only those dams which after careful analysis are deemed to cause an unreasonable hazard to public safety.

Second, we are concerned that the basis for many decisions is the Probable Maximum Flood (PMF) in which the flood may be expected in the most severe combination of critical meteorological and hydraulic conditions that are possible in the drainage basin. It is not a probable event; it is a theoretical possible event. That the PMF may be justified as a standard for new dams, as a marginal cost to achieve that standard during construction is relatively small. However, the dollar cost to retrofit an existing dam to meet the full PMF is significant, in some cases exceeding the cost of a new dam. For the communities contiguous to dams, the disruption associated with construction can have severe social impact and affect property values. In addition, disturbing the integrity of a well-maintained existing dam to upgrade a spillway carries an inherent risk which may be far greater than the likelihood of the dam's failing during a PMF event.

The WID also recommends that the Virginia regulations provide for establishing an alternative procedure for decision makers which would allow for the evaluation of spillway design floods less than the probable maximum flood where there would be no unreasonable or significant increase in hazard to life and property. As noted in the NOIRA and in this alternative procedure, the WID also recommends that there be more emphasis on the awareness to identify and compare the hazards to life and property with the passing of the PMF with and without a dam breach.

Lake of the Woods has also recommended changes to 4 VAC 50-20-40, 4 VAC 50-20-40 and 4 VAC 50-20-133 to provide for a decision matrix for an alternative procedure for evaluating increasing dams. Recommending language for the changes is attached to the response. The WID agrees with Lake of the Woods and believes that the recommended processes are more applicable for evaluating existing dams than originally applying the standards for new dams contained in Table 1 of 4 VAC 50-20-50. In addition to the intent to clarify the meanings of terminology stated in Amendment 8, the WID urges that you give consideration to what we believe is misleading terminology. The terms probable maximum precipitation and probable maximum flood are misleading as interpreted in application of the regulations. Rather than probable, both are improbable events. Theoretical maximums with a reoccurrence level approaching 1 in 1 million in any single year. This is an important consideration in weighing the real and immediate costs for spillways and existing dams against the cost of damage resulting from a theoretical possible event with very little probability of occurrence.

Similarly, the use of the terms such as possible, probable, excessive and appreciable without adequate clarification will result in the inconsistent and inexact exercise of judgment. The WID appreciates the opportunity to comment and respectfully requests that careful consideration be given to the recommended changes in the Virginia Impounding Structure Regulations. We stand ready to expand our comments and provide whatever assistance we can as you begin your difficult task to consider amendments to regulations. Thank you.

Mr. Dowling: Mr. Ernest Meier—

Mr. Ernest Meier: I'm Ernie Meier from Lake of the Woods. I represent myself as a citizen of Lake of the Woods. In looking at the NOIRA I find an area that I am concerned about. The action titled "Notice of Intended Regulatory Action" reads, "Amend, modify, or delete provisions of Virginia's Impounding Structure Regulations to enhance the Dam Safety Program and to improve public safety." If our number one goal is to truly improve public safety, no matter what the cost, then there should be no major exemptions from complying with regulations.

Certainly there are some facts that would make impoundment structures fall outside of regulatory control. Some of these would include those with minimum height and acre-feet capacity. However, there are currently two major exemptions in the regulations that should be addressed. One is the exemption for impoundments used for primarily agricultural purposes. Even though capacity is addressed in the existing regulations, the current regulations go on to say that if ownership of an agricultural impoundment changes, the dam may become subject to regulation. As to public safety, that really doesn't make sense. Just because ownership of a dam changes, it becomes a safety issue to be regulated? How is this fair? Is it fair to the farmer? Is it fair to the new owner? Is it fair to the public? These questions are raised because unless we approach such issues with a common sense of purpose and apply the basic standard of public safety to all dams, and do so through a justifiable, science-based approach, then we will not be able to meet the objective set by the Board.

The regulations should include an alternative procedure for dam owners to pursue in order to justify a reduced Spillway Design Flood [SDF] and that the Spillway Design Flood requirement be determined on a case-by-case basis.

Thank you for the opportunity to make comments.

Mr. Dowling: Mr. Hughes Swain—

Mr. Hughes Swain: I am Hughes Swain. I live in Nelson County and to start off with, I want to let you know right up front I don't have a bull in this sale. I'm really not speaking from either side on this, but I would like to just speak to you a few minutes about the extreme devastation of a heavy rainfall.

I served as Flood Relief Coordinator in Nelson County after the Camille flood in 1969, serving in that capacity for a year. It is hard for me to describe the devastation and the devastation of that water. It had so much power you can't believe it. Who would believe that a county like Nelson County that runs from 4,000 feet in elevation to probably 3,000 feet down around the James River would ever be subject to a flood of Guinness World Book recognition. We had 31 inches of water up in the Montebello area in less than eight hours and when you have a devastation like that there is no way to cope for it.

Now, fortunately we didn't have any large dams in Nelson County. We have a lot of soil water conservation designed-dams and I don't know of any one of those dams that really did anything but overflow the spillway which was designed by the Soil and Water Conservation people at the time. I spent 20 years on the Thomas Jefferson Soil and Water Conservation Board some years ago and all I want to do here today is to bring to your mind how extremely devastating and catastrophic that that kind of flow of rainfall can be. You've seen all the pictures about Katrina. Of course, that's on an extremely wide range of scope, but we had those impacts at the outlets of mountain streams where homes were built close to streams—that's where people wanted to build them—totally devastated and cracked up into nothing but just lumber.

We lost 131 people, eight of whom have never been identified. They lie in cremated remains in Richmond. But they've never been identified or claimed. We also have 31 people that were never found, not even in the Chesapeake Bay, so I just want you to realize how important it is to try to picture in your mind the kind of water that flows from a 31-inch rainfall. Now, it didn't happen all over Nelson County. Where I live in Rockfish Valley, my gauge only showed about five or five-and-a-half inches that night. Yet, I had all the water gaps on my farm property washed out. The cows were all up against the fence around the house. Fortunately, I didn't lose any of them, but there was 12 feet of water in the low grounds on my farm. It covered all the treetops of some small trees. It's unbelievable to see it.

If you're really interested in this subject and want to think or change your mind maybe, get a copy of this book from your library. It's called *Torn Land*. It's the documentation written by two authors about the flood in Nelson County, about how it came about. Just think, I heard the weather forecast when I left the house about 12:30. There's a probability of snow on Saturday. Well, what does that probability mean? It means they don't know whether it's going to snow or not, so that's what the nature of weather does to us.

We talk about a 100-year flood and the flood in 1969. Camille was considered a 100-year flood. Now, what 100 years are we thinking about now? Are we on the next 100 years or are we finishing up the last 100? None of us know, so the reference to a sensible way to decide when you're going to get the next flood is just guesswork, purely guesswork, and I don't believe any meteorologist can predict weather accurately beyond about three days. None of us knew on the night of August 19, 1969 that we were going to get the kind of flood that we had and it happened at night. If it hadn't happened at night, we might not have lost so many people.

Just last month at Montebello, one of our mountain communities, we got 11 inches of rain in a storm. We had a lot of water come down out of Montebello that afternoon and evening and we had to evacuate some people. There were some roads that were washed over by some heavy water, so you never know when it's going to happen and I don't know how these guys are going to figure that out. They can write something in their regulations about it, but all they can write is some scientific way to make a dam that's safer than it is now if there's something wrong with it.

But my main purpose here is not to criticize or take sides with either of the groups that are trying to improve the dams or make better regulations to better withstand something like this, but just to remind you how terribly devastating a hard rainstorm can be. Is there anybody here from Madison County? They just had one there.

We try to prepare for it one way or another and I'm sure that we'll come up with a more satisfactory way to do it. There are a lot of interesting and horrible accounts of what happens when you get rained on at a catastrophic event and I guess it's probably the most catastrophic flood, catastrophic event, that has ever hit Virginia in, what, 200 years? I don't know. There seems to be some data that shows that there was a heavy flood in Nelson County in about the 1860s or ahead of the 1860s, so maybe that was our 100-year flood and we may be embarking on our next 100 years now. Can I answer any questions on that?

Mr. Dowling: We appreciate your comments. Thank you. Mr. Cameron Smith—

Mr. Cameron Smith: Good afternoon. My name is Cameron Smith. I'm the Vice President of Watershed Services. I think it's pretty safe to say that I've seen more dams than most people in this room. I have been inside and repaired and fixed more dams than anybody in this room and the situation I think we find ourselves in for everybody involved is pretty unfair. Dam owners are in a pretty unfair situation and they're put in that situation sometimes. The dam official comes and knocks on your door and they don't want to do this. This is one of the worst things they have to do is come and tell somebody that they're going to have to upgrade their dam and spend \$4 million.

The people that live downstream, they don't even know they are in an inundation zone. Sometimes they have to live there because it's cheaper and that's pretty unfair, too. Dams hold back lakes and lakes increase property value by 40 to 60%, but they have to pay taxes. You probably pay twice as much on taxes than I do which helps the State and the Governor. It provides benefits to the environment, recreation for the owners, and it benefits both the dam owner and the community.

I think we really need to focus, not so much on the regulations as we have some very intelligent people that are going to look at that, but I really think we need to look at some funding. We need to turn to our State and say, well, why should dam owners be the one to fully pay for the upgrade of their dams and I think we have a very powerful group of people in this room. We have news people, dam owners, State officials, engineers, and contractors. I don't see how we can't come together and try to get some funding from our State. If we can't do it, I'm not sure who can. New Jersey, Maryland, and other states have these funding programs set in place to assist dam owners with upgrading their dam.

Mr. Dowling: Mr. Austin Bander—

Mr. Austin Bander: I'm Austin Bander. I'm with Watershed Services. I don't live upstream of a dam or in an inundation zone as far as I can tell, but I have been to some of those dams with Cameron.

It's safe to say that everyone's primary concern here is with public safety and the protection of human life, but if we can put that aside and look at some of the other losses or risks involved with dam ownership it's a pretty interesting exercise. In a dam failure event, any competent lawyer could bring suit against the dam owner for any downstream damages and that suit would be particularly easy if that dam is substandard or on a conditional certificate. The obvious financial losses include downstream structures or roads, infrastructure, and public works. We're on dams everyday and there's rarely any that you can look across the dam and not see a road, interstate or something in the inundation zone. Also, in a dam failure event, the damages to the environment are able to be recouped under Acts and lawsuits. Litigation from victims or victim's families will be enormous and take decades to settle, probably never to be completely resolved, and the cost to repair a dam after being damaged in a flood or to replace the dam is huge.

This means the community will be responsible for these costs. The community on the lake or the dam may not be allowed to rebuild the dam after a catastrophic event like this so that means that these people who once lived around a beautiful expensive lake might wake up one day and live around a mud flat. That isn't quite as pleasant and it will reduce property values. Say, you have a 1,000-home community and the average home value is a million dollars. It decreases the property values by about 50%; that is half-a-million dollars per home. So immediately these homeowner's largest asset will become a liability. By virtue of them living in this community and owning part of the dam, they're tied into the liability. They will become part of the lawsuits so it doesn't really matter how much the house is worth. They will never be able to sell it since they are responsible for part of the liability. So now these homeowners that own the dam are being sued from everywhere, such as EPA, and downstream victims. Their million dollar houses are now half-million-dollar houses which they can't sell and they don't want to pass onto their children and you add onto this the danger to human life, the emotional damage, the environmental damage. You can see that we're gambling with a lot here.

Dam safety needs to have strict requirements and they need to be able to enforce them because not only are they protecting the downstream people from the catastrophic damage but also the upstream owners from a different but equally serious type of disaster. The risk is probably disputable of it happening here, whether it is 1 in a 1,000, 1 in a 100, 1 in 20, whatever you're going to say, but add up the cost of repairing a dam, making it safe in a storm divided by the number of people who pay, is it that big of a risk? Is it much more than a car payment for every household?

These storms, when it comes down to it, are statistical probabilities, probably not likely to happen. I'd just like to close by saying that I'm 23 years old and I've been rained on by a 500-year storm in Gaston. It's probably not going to happen, but what if? Thank you.

Mr. Dowling: Thank you. Mr. Doug Crain—

Mr. Doug Crain: Good afternoon. Thank you for letting us speak here. I'm Doug Crain. I live at Lake of the Woods. I'm just a resident at Lake of the Woods, trying to keep up with what is going on with our situation there.

The NOIRA addresses the changes that are being considered for the Impounding Structure Regulations and the existing regulations certainly need to be changed to clear up some confusing terminology and make clear that there is a distinction between existing dams and new dams. I'm going to repeat despite the admonition that I've got a lot of things that have been said before.

There is an immense difference between making an existing dam meet new regulations and designing or constructing a new dam to new regulations. For example, in the case of new dams, the builder can just basically wait until the regulations are far enough long to where he knows what he's doing when he starts design or construction. In that way, they can deal with new requirements fairly easily. In the case of an existing dam, a regulation may well cause or require the lowering of the lake or the impoundment due to the extent of the changes required. The direct loss of income for one to three years during the design/construction refill part is fairly easy to determine. The tough part is determining the impact on the community in terms of loss of property value, loss of sales potential, cost of controlling a pest generating bog, loss to the county in terms of real estate/personal property taxes and loss to the business community—realtors, business, builders, suppliers, repair shops, etc. This is on top of the design and construction costs of the modification or modifications. Then, subsequent to all these actions, the regulation process may make major changes in the requirements within a short period of time after they've been approved or even during the initial process and you kind of have to start all over again.

For this reason or for these reasons, no actions should be forced on an existing dam owner, unless the impounding structure can be shown to represent an imminent threat. In other situations, the existing dams should be subject to the normal, or even more stringent inspection requirement, but the dam owner should not be forced to initiate design/construction/refurbishment while legislation or regulatory processes are pending. There are activities that can be done while the legislation is pending that will tend to improve public safety. These activities include preparation of an Emergency Action Plan including identification, notification and evacuation in a timely fashion. Dam owners can seek to minimize economic impact by investigating flood insurance potential for the people downstream/upstream, and minimize development in the inundation zone.

In a nutshell, it is requested that the Virginia Soil and Water Conservation Board not force existing dam owners to initiate design or construction work when the regulation process is in a state of revision. Thank you very much.

Mr. Dowling: Mrs. Lisa Cahill—

Mrs. Lisa Cahill: Hi, I'm Lisa Cahill, with Watershed Services. I've heard quite a few of you quote the letters that you've received from Lake of the Woods and I commend Lake of the Woods for making the grassroots effort and getting a lot of people involved, but I hope you did some fact checking. That's what I spent a good deal of time doing the last couple of days since I've gotten ahold of these letters.

First of all, the probable maximum storm that's being quoted of 38 inches of rainfall in 24 hours is not the one typically used and doesn't actually present the greatest spillway loads even. Twenty-eight inches of rain in six hours is the appropriate figure. Camille damage, that Mr. Swain referenced, resulted from a probable maximum storm. It was classed as such. It does happen. It has happened in Virginia as recently as 1969. The rate of recurrence that's quoted here is 1 in a million years, 10,000 times less likely to occur than the 100-year flood.

Well, this same document that Lake of the Woods quotes actually says it's quite a bit more frequent than that. There're dam fails closer to half PMF which occurs much more frequently than a probable maximum flood. Also, the National Research Council in 1985 in their Safety Advance Publication tempts one to think that if a dam were just designed for the PMF estimate then there would be no risk of a dam overtopping, but that's not the case. The PMF estimate is indeed a very large flood, but it can be exceeded.

Lake of the Woods says that probable maximum precipitation and probable maximum flood are misleading and both talk about probable but they're actually improbable events. The Safety of Dams publication, the same one that they reference, says over the design life of the dam, and, remember, dams are there until they either fail or get removed, so over the design life of a dam which we'll say to be 100 to 200 years, there's a 10 to 20% percent chance that a PMF will occur, that that dam has up to a one in five chance in its life of experiencing this event.

Let me go back to my Lake of the Woods notes and find some other things. Oh, yes, the gentlemen, mentioned airplanes. That's a wonderful analogy. I did some checking within the aeronautics industry and actually they're held, as you might imagine, to a much higher standard, than dams. In fact, their least failure rate on critical items is 1 per 10 billion times. So, a landing gear, as an example, on an airplane, has to be able to land 10 billion times, and in that it can experience one failure, or the product can't go to market and it can't be installed on an aircraft, so that's far and away more than is expected of a dam and that's strange because when an airplane crashes, maybe 300 people are lost. Maybe if it hits some critical building on the ground rather, maybe another 300 will be killed. How many thousands of people can die from a dam, from an unexpected failure, a failure without warning?

Lake of the Woods says a whole lot about the disruption that can occur during construction. Construction can be a little disruptive. I know that one job I was involved in the community chose to protect their dam from being breached in a PMF. We had to close one lane of a road for a whole day, so it can be a little bit disruptive, but I also know that they have options that don't even involve lowering the lake. The risk that occurs to a dam during the time of construction is actually pretty minimal, especially if it's done in accordance with reasonable construction practices.

They mentioned all those states. It was a pretty impressive list of states. Of the 35 states, one state, Alabama as a matter of fact, does not have a dam safety program at all, so 49

states is the total here and the remaining 35 do require PMF be passed. Under the 14 states that they listed there, their dam would not be compliant under several of those.

There's a lot of talk about emergency action plans and there's a lot of misconception which I think that Mr. Swain kind of talked to, about this flood. If a dam breaks, it is an absolute roiling mass, a high wall of roiling debris. You're not calling anybody. You're barely taking your breath. By the time, you go, oooh, my God, the first house has been impacted. There is no time for any emergency action plan that requires human intervention. It simply isn't physically possible in a case where structures are very close downstream.

Even in a mechanical plan, they fail. You may have seen recently in the news the Taum Sauk Reservoir in Missouri that had a mechanical plan in place, the parts went bad and it failed. There was another case. This was just a simple place where people fished right downstream of the dam and a bell was supposed to sound when the gate was opened. The bell didn't work. They usually just open one gate but they opened five gates. Fortunately, everybody was able to scramble out of the way in time, but even with a mechanized system there's no guarantee that that's going to be successful.

I want to talk about another dam disaster, one that actually ended up giving birth to the Dam Safety Program as a whole. In early November 1977 near Toccoa Falls, Georgia, there was a storm, a thunderstorm. It wasn't a big storm by meteorological standards. Seven inches of rain fell in four days onto ground which was saturated from a similar event a few days previous. Three-and-a-half inches of rain fell between 6:00 p.m. and midnight on November 5th. Later that night, at 1:30 in the morning, in fact, the Kelly Barnes Dam collapsed sending a 20-foot high wall of water into the campus of Toccoa Bible College. Forty minutes later, the stream was back to its normal levels, but nothing else would be normal there for a long time. Nine houses, eighteen trailers, two college buildings and many vehicles were completely demolished. Another four houses and five college buildings were damaged and more importantly, 39 students were dead. A storm of the magnitude of the PMF is not required for a dam failure.

At that time, President Jimmy Carter sent Roslyn down to see the damage. This was in their home state, as you know. She saw the damage. She heard about recovering the bodies with every orifice plugged with mud, under piles of debris, and as Mr. Swain mentioned, some of those were not recovered, and she went back to Washington and said, Jimmy, this is not going to happen again. That was the birth of the National Dam Safety Program and that is the legacy that we're seeking to untie.

A lot of people talked about the collection of rainfall data and they're right. That's pretty new. The first settlement in Virginia was just 400 years ago. Rainfall data has been collected formally for about 50 years and a decent size to predict anything from really only for about the last 30 years, so what we're trying to do is to predict a 1,000 year or more storm with 30 years of rainfall data. That's a little problematic. The data is changing. Maybe it's changing because we are collecting it more accurately. Maybe it's changing because there's a global climate change or maybe it's changing because there are climate

cycles we can't recognize, maybe 50-, 100-year, or even 500-year cycles. We don't have the data yet to recognize things like that.

As I said, dams last until they fail. The design life of a dam is one to two hundred years, but during that length of time, what's the probability that the design flood will be exceeded one or more times? The National Oceanic and Atmospheric Administration says that 26 Probable Maximum Flood-sized storms occur each year in the United States.

The probability between a 200-year and a 1,000-year flood, which is approximately what people have estimated as a PMF recurrence period, somewhere between those numbers, says if your dam is going to be there a 100 to 200 years, you have between a 63% chance down to a 10% chance that it will, in its life, it will see a PMF.

So, what could send us that? Well, Hurricane Camille was a great example. It's pretty much got to be a tropical system or a thunderstorm that doesn't have any good steering currents and just stalls. Since 1955, Virginia has had 10 tropical storm systems come through and I wanted to mention two in particular because they were less than six days apart. Connie dropped up to 12 inches of rain. Less than a week later, Diane came through and dropped another 10. You can imagine in this one-two punch scenario what a dam's going to be going through and what the whole watershed is going to be going through. Camille, as I said, was a Probable Maximum Storm. They do happen and they have happened. Agnes had up to 19 inches reported locally and what it did was combine with a non-tropical low system that just happened to be there and it helped squeeze a lot of extra moisture out of it.

In 1995, right next to Lake of the Woods, in fact, in Madison County, there was just a thunderstorm. No reason for it to be exceptional except that the air was particularly humid that day and they had 20 inches of rain in 12 hours. One observer recorded 10 inches of rain in only two hours.

And I'm going to close with a quote here. This is from the person who was the director of dam safety in Pennsylvania in 1987. He says, "with the exception of nuclear power plants, no manmade structure has a greater potential for killing a larger number of people than a dam."

Mr. Dowling: Thank you. Mr. John Bailey—

Mr. John Bailey: This poster has on it over 1,400 impounding structures that fall under the Division of Dam Safety Regulatory Authority. Of that number, 283 are classified Class I or Class II; 174 of these are publicly owned and 109 are privately owned. The regulations that are being reviewed would govern all of these as well as the other 1,100-plus impoundments in the Commonwealth.

Needless to say, the results of this review will affect thousands of people and could mean the expenditure or savings of millions of dollars in private funds as well in public tax dollars. We believe that public safety is, indeed paramount, contrary to what Mrs. Cahill

has said. However, we also believe there are other ways to achieve this goal other than poured concrete which is what some engineering firms would probably say is the best way to handle this issue.

First of all, efforts to mitigate development downstream should be considered as a part of the regulatory process. Requiring the mapping of inundation zones of dam owners, requiring that such maps be on file with the county planning and zoning offices and working with the counties to develop zoning ordinances to prohibit development in an inundation zone to begin with.

Secondly, on emergency action plans. There have been statements that emergency plans are not worth the paper they're written on. Emergency action plans surround the Department of Emergency Management Services down in Richmond and over in Chesterfield. The State's current requirement of an emergency action plan is seven pages of black and white script on paper. There is not an entity in the Commonwealth, town, city, county, other private entity that has an emergency action plan that prepares for 20, 30, 38 inches of rain and, for that matter, general storm culverts are certainly not designed to handle that much rainfall. You will have a lot of flooding if you have a full PMF event regardless of whether you've got a dam or not.

The emergency action plan needs to be more thorough and follow the guidelines of FEMA 64 and the National Incident Management System as suggested in the NOIRA itself. Contact forms for each owner in the inundation zone and required updates on a yearly basis should be required. Specific mapping of the structures and residences in the inundation zones should also be required. This helps in determining the consideration of the number of structures and the number residences. Are there two homes below your dam or are there 35? Are there a thousand? Is the town of Johnstown below your dam? And that may need to be handled differently based upon what you have downstream. Is Route 1 or Route 3 or Interstate 95 or Highway 58 below your facility?

Emergency action plans should be yearly exercised and a demonstrated ability to communicate during those emergency action plans should also be looked at, be it radios, sirens, direct personal contact, do you have a security firm, do you not, do you have ability with your local sheriffs department or state police, versus 911, or other means? Other aspects of the decision matrix may include a site-specific PMP study. Those have been conducted throughout the United States by several different firms and we've been in contact with one of those ourselves.

The use of NOAA point precipitation and frequency estimates as found in the NOAA Atlas 14 is another scientifically based approach to determining rainfall amounts. The use of the air-flow system or other monitoring system devices to incorporate your downstream potential back into a system of monitoring and also evidence by an engineer that the structure is well maintained and operated should be considered. Applying the above combination of good science, solid engineering and practical administrative measures, we can insure the long-term integrity of Virginia's dams, best utilize the limited funding that is available both publicly and privately and still keep our citizens safe. Thank you.

Mr. Dowling: Thank you. Mr. Scott Cahill—

Mr. Scott Cahill: Thank you all. I'm Scott Cahill. I'm with Watershed Services also. Contrary to the way it may seem, we aren't in a great fight with Lake of the Woods. In fact, they're our friends. We've done work for them and we care very deeply for them.

I am an advocate of privately owned dams. I care very much about them. As Mr. Smith so eloquently put it, privately owned dams are put in an awfully unfair situation where there're mandates put forth with the best of intentions to make people safe and yet there is no funding available. I don't want you to guys to have to live with your spillway. You deserve to have the spillway that will take the PMF even if that may never happen and you don't deserve to pay for the whole thing. That's the way I feel.

I want very much to bring to bear public funding for dams in this State, be they public or private. If I have my way, that's what is going to happen here. There are a lot of powerful people in this room. There're a lot of powerful people at this desk and, by God, this crowd can make this happen. If we turn our energies in that direction, we can make that happen.

The situation now as I see it, with privately owned dams and I've heard all the arguments on both sides of this, such as it's a private dam, they're swimming there, I'm not allowed through the gate, how does this dam benefit me, and I don't want my tax dollars used to fix their dam. I completely absolutely disagree with that. This is an issue of public safety. I don't ever want to have to face you with your dam having broken and one person downstream being dead. I don't ever want to have to wake up at night and wonder if I couldn't have done something to stop this from happening and I truly believe that. I care about this.

The reason I care about it is I've spent a lot of time in a lot of mud and lot of concrete under a lot of dams. I've built a dozen of them. I've worked on a couple hundred of them. If we had to have a dam break, Lake of the Woods wouldn't be a horrible one, so it's not about Lake of the Woods. Lake of the Woods, if it broke, they'd never call their people that are downstream in time. They'd be dead. It's not a huge damage downstream of Lake of the Woods as a dam compared to many of the dams up in Arlington. The worst thing that could happen out of this, gentlemen, is that we are successful in mitigating these laws and then we collectively have to live with the results of that and watch an event take place in another dam where 1,500 or 2,000 lives are lost.

I'm thinking right now of a dam that's a Class I dam that would fall under these revised laws that would take out five schools, an airport, and two residential areas, 700 homes, so we have to be careful about what we do. I understand your considerations and theoretically I like them, that if we could have a matrix where each dam is looked at and the dams that are different are treated differently and Bill says to that, fine. Then we draft a situation where the wealthy landowner is considered in one way and the less wealthy are considered in another. Another inequitable situation that will have to be assailed and it will never hold up.

So, I implore each of you as a man who has seen dams fail, dams nearly fail, the power of water. I walked across a spillway with six inches of water. I'm a big guy. I was swept off my feet and down that thing like nothing. Houses are gone like that. If your dam were breached, oh dear God, the horrific situation, something that you never want to live through and that I never want my friends to have to go through. We all agree on those things.

The problem here is an inequitable situation that we've been put in. You are trying to represent the people that you represent properly and you're doing that and you gentlemen have your concerns and you're right, but let's look at what we do here and let's look at the direction of our efforts and let's get together. This does happen. It may happen once. I don't even want to argue that. Who knows?

The PMF is something that's tried to be designed to the upper limit of what is the conceivable amount of water that could have to go through the spillway, so, sure, it shouldn't happen. We don't ever want a dam to break. That's not an acceptable scenario that a dam breaks every now and then. No one here would accept that. No one here wants to wake up in the morning and wondered if they've killed a child, a person, a family. No one. I know almost everyone in this room and I can tell you that they're a good bunch of people. These people stay up late at night and worry about this.

Right now the situation we stand with in this State is that we have 40 Class I dams that are on conditional certificates. I would hope with all my soul that we can get together here, that we can solicit help and that we can get funding to bear on these dams in our State. The ones that are new dams are new dams. The old dams, the situation of development downstream has brought to the dam owners a requirement to come up to a grade that was not required before for a good reason and I think it's an appropriate use of funding. I think it's an appropriate use of government to protect the people of this State from that liability. Thank you very much.

Mr. Dowling: Mr. Paul Castle—

Mr. Paul Castle: Hi, I'm Paul Castle. I'm from Lake Front Royal Property Owners Association. We have a Class II dam and basically I feel like today that I'm on the bottom end of the feeding chain here. It's a small lake; probably covers 15 acres and I want to impress upon the people that are going to be writing these regulation that little associations like ours, 350 home owners or lot owners, are going to be taxed greatly if you require us to meet a set pattern for everyone.

I highly encourage you to take it on a case-by-case basis. For all practical purpose, we were not able to get the information that was sent out in a timely manner and we do support some of the Lake of the Woods prospects and we will probably forward a letter to you in the future. If what we're hearing is the amount of dollars that we're going to have to spend, I can assure you people that our small lake will have fish flopping in the bottom of it before we will ever be able afford to repair it, so please be considerate when you select your members for your committee of the little guy down the road because it's important to us to

maintain our lake and keep it there as well as Lake of the Woods which is bigger and the other Class I dams and lakes there. Thank you.

Mr. Dowling: Thank your, sir. Mr. Philip Winter, did you care to speak?

Mr. Philip Winter: I just have a couple of comments. I'm a part owner of a dam in Nelson County, a very small impoundment structure. I'm really wondering what the driving force is behind this new of changing regulations. We've heard frequent mention of this Probable Maximum Flood, but there's been no mention of the probable maximum tornado, or earthquake, or tsunami or hurricane. Why treat dam owners differently from the owners of other structures where there is a loss of life possible through some natural event such as those that I just mentioned. I would like to see equitable consideration of all of these owners of structures.

Secondly, I want to join with a previous speaker who pointed out that there should be really a sharing of risks associated with an impoundment structure, not just dam owners but those that conclude that they should build or develop properties in the inundation zone below a dam. It's, again, inequitable to expect only the owners of a dam to be responsible for public safety. Those that decide to build in an inundation zone, if the dam already exists, should be responsible for meeting standards that would also help prevent loss of life or loss of downstream property as a result of the failure of the dam. Thank you.

Mr. Dowling: Thank you, sir. That's everyone that had indicated an interest to me to speak. Yes, sir— Mr. Jim Hopkins—

Mr. Jim Hopkins: Could I have just one moment please.

Mr. Dowling: Yes sir.

Mr. Jim Hopkins: Again, I'm Jim Hopkins from Lake of the Woods. I asked to speak again because some of the comments I made were brought into question. First, the one about the airplane. It was talked about the probability of the wheel failing and I don't know what the number is. I was talking about the probability of any part failing that would cause the plane damage. You have to take the probability of every wheel, every piston, everything in the plane. You can't just pick one part of the plane and say it's going to fail or not so that's the plane's really going to crash here. It just doesn't make mathematical sense.

The second is, I got the impression that the speaker was saying that a Possible Maximum Flood could happen much less than 1 in a million years. I looked all around the country and the least I could find was 1 in 10,000 years and actually this measurement is in the definition of a Possible Maximum Flood, so if you're calling something a Possible Maximum Flood and it doesn't have that probability, you really can't call it a Possible Maximum Flood. If you go back and look at history, of Possible Maximum Floods, where it came from, the first ones they called it 1 in a million to 1 in a trillion and then later on it got dropped to 1 in a million and now some places say 1 in a 100,000 years. If the chances are less than that, it's not a Possible Maximum Flood.

The other thing I would like to point out is that we're not talking about days here, we're talking about years and that makes a whole lot of difference and the final thing is, it's not just will it happen in Virginia. The probability is based on will it happen at your particular dam. It's not talking about anything other than at your exact structure. Thank you.

Mr. Dowling: Thank you, sir.

Mr. Martin Graves: I'd like to make a few comments, if you don't mind.

Mr. Dowling: Yes, sir. Can you step to the podium and state your name?

Mr. Martin Graves: My name is Martin Graves. I'm not even going to go into where I work and who I work for because I don't think it matters. These are my personal opinions. I think that any structure as a dam and the possibility what can occur should answer the solution to the problems. As far as I'm concerned, all dam structures should be under the responsibility and the control of the State or county. It is unfair that it's passed on to homeowners associations or individuals like that and the reason being is I have absolutely no control on what the county approved downstream from me after my structure was already built and yet you're trying to put the responsibility on me. It's wrong. It should remain within the control of the State and the counties.

I have no ability of special taxation. It's not given to me. I mean most dams go across State roads. I don't understand what the whole conversation is. It's the responsibility of the State. Who owns the water in those lakes? The State. Okay. Who approved those structures to be built? The county and the State and then you approve changes downstream and I agree they should be safe and they should be improved. We should work on them. We don't want any accidents to occur, but it should fall into the responsibility of the State and the county, not individuals.

And the other thing is, once again, we're not focusing on another big issue for security reasons is the issue of agricultural ponds. We really have no idea of what's even out there, do we? The size of them. How many there are? What their impacts are if one breaks and moves down the line and then come to my structure and says I'm the one that's certified. I follow the responsibilities. The responsibility lies with the State of Virginia and the county. Please take care of it. Yes, and let's make them safer. Thank you.

Mr. Dowling: Thank you. Yes, ma'am. Do you have your name on the list?

Mrs. Jean Quill: It's Jean Quill.

Mrs. Jean Quill: I really just wanted to second what the gentleman just said. We are from probably the smallest group that are facing this and so as a homeowner and nobody else, I have no titles these days, except as a senior, and we have lived under limbo for the last several years. There is no possibility our association can come up with the money we are asked to.

Our homes are not sellable and will not be sellable not only for the next two years as our lake is drained, it remains a swamp infested, mosquito-infested swamp, but for years to come after that because it is now known as the area that has a lake that is dangerous, so we want to have a safe dam. We want to do the improvements, but there is no possible way. This is not a homeowner association because there was none at the time. The developer left it to a recreation association. As those homeowners settled in and have grown older and no longer have children that use the lake, the membership has dropped very significantly. The people who are left want to do the right thing. They have taken care of this dam and this lake for 46 years in a succession of volunteers. They are good citizens and good neighbors, but we cannot do what is asked as much as we would like to.

Certainly, the State has some responsibility in this whole process. You cannot throw this back on the people who have already suffered the economic damages that we have faced and do face for the next few years, and that's my comment. Thank you.

Mr. Dowling: Thank you. Yes, ma'am.

Mrs. Ellen Winter: May I speak.

Mr. Dowling: Yes. Are you on the list?

Mrs. Ellen Winter: Yes, I signed in. My name is Ellen Winter and we have a seven-acre lake with six homeowners, so you can see what the impact would be if we have to do major changes to our spillway.

I have read *Torn Land* and I really recommend you read it, but make sure you have Kleenex with you when you read it. It is a real tearjerker and, in fact, I'm not sure that any dam could stand up to some of the things that went on in Nelson County.

I just have two questions. One is, does or should the State have a list of dam safety inspection engineer specialists? We do?

Mr. Browning: Yes, ma'am. We do have one that is available.

Mrs. Ellen Winter: Okay. And is there a dam flood insurance group for people that own property around the lake that they're responsible for the damage. Is there some kind of a group organization so we could get group rates?

Mr. Browning: Not to my knowledge.

Mrs. Ellen Winter: Okay. Thank you very much.

Mr. Dowling: Is there anyone who hasn't spoken yet? Are you on the list, sir?

Mr. Mike Lubosch: No sir.

Mr. Dowling: I again ask everybody before you leave today if you haven't had an opportunity to sign up please do so. We would like you to register your attendance on those lists so I have a complete record of who was at the meeting today and also so that we do have your names and addresses so that we can provide information to you throughout the regulatory process. It is important to us. Thanks.

Mr. Mike Lubosch: My name is Mike Lubosch. I'm with the Rainbow Forest area and, again, to emphasize what this gentleman said earlier, I think the State does have some responsibility and also the county. In my case, I've only moved there three years ago. Why am I responsible for a lake that was constructed 45 years ago? The county authorized and the developer walked away, left everybody holding the bag, and it needs to be addressed. There is legislation pending right now with the State hopefully to get some of these issues resolved as far as funding.

Also, my understanding is that the federal government is looking at it too. The lady from New York, she introduced legislation to get funding for the dams, so again, gentlemen, thank you for looking at this and hopefully we can get this matter resolved.

Mr. Dowling: Thank you, sir.

Mr. Dowling: Just a side note. The funding issue has come up several times. Just to make the group aware, there are two bills in this legislative session that speak to dam funding. They are House Bill 596 and Senate Bill 624. Both of those bills have had their committee hearings at this point in time and as they were drafted, they had a dedicated source of revenue going to them. In the committees, that dedicated source of revenue had been stripped from those bills at this point in time. However, the bills are going forward with the mechanisms in place that essentially allow us to partner with Virginia Resources Authority so as to leverage any money that may be deposited to the fund in the future. I just wanted to bring you up to date that we do have some mechanisms there but they will need to be capitalized in another manner.

We all do know, as we heard today, that funding for dam repairs is a very important part of the equation, so I would have been remiss if I hadn't at least brought to your attention that there are some funding bills out there.

With that brief interlude, is there anyone else who wishes to speak? Yes, sir, Mr. Buttimer.

Mr. Neal Buttimer: I won't take long. I just thought that we were I guess to some degree kind of beat up on here today. We didn't expect a marketing effort to take place here and I can't argue with you, because we have a resident Ph.D. in hydrology who's down in Florida vacationing so I can't argue the numbers that you came up with. Just from an overall viewpoint, Lake of the Woods and I think we've made this clear, we've felt that Bill Browning's office is under-staffed, under-funded. It's a very important issue. We've supported that. We've supported the bills that David has talked about the funding. We think there is a need for a certain amount of funding, but we also recognize that has a private

dam owner, we're responsible for our dam. We'd like to see some assistance with that from the State and that would be wonderful.

When they say public money, that's still our money because we're the public. What we're looking at is the idea. We often get involved in this discussion where they say they describe what was termed the sunny day break and say it would be terrible to have a sunny day break and you couldn't evacuate the people and, yes, that would be a tragedy and we recognize heavy rainfalls. We're very familiar with what happened up in Nelson County. However, what we're talking about is moving from a half PMF to a full PMF. We think we will notice if the rain is there and there would be time to evacuate. In fact, as we look at our own community, if we got something near a half PMF rain, we would not only tell the people downstream to evacuate, we'd say come with us because we're all going to evacuate because we don't have ditches that will handle that much rain.

The community is going to be faced with that kind of situation, so what we're looking at is reasonable. Look, if there's are five schools downstream of the dam, then we would have a different view of it, but we think each dam should be considered on an individual basis and that's what our particular effort is. You know, unfortunately as you get into it, there's always this idea of wrapping the local public security, the safety, around your shoulders and say I'm for safety and say, well, one PMF is a safe number, why not two PMF? And we are simply not interested in spending money, whether public or private, for something that doesn't need to be done. It should be done on an individual basis and that has been our position on this issue all the time, so thank you very much for your time.

Mr. Dowling: Is there anyone who cares to speak to the regulation? One last speaker, Mr. Cahill.

Mr. Cahill: Thank you very much. Just very quickly and thank you for listening to my ranting and raving. I can't help myself. It's what I do. Those of you who know me already know that there two theories of thought on Cahill. One is Cahill's a nut. He's out of control and the other is Cahill, whatever he says, he does, so we recognize what's going on with these two bills and there's going to be another bill and we're putting our money where our mouth is and we're going to make it happen. And when I say that, it's going to happen so I'm going to need help and support, so I ask anyone who's interested in helping me and supporting me in that, please just get ahold of us at Watershed Services. We have business cards. We're going to get the people involved that we need to within the legislature. We're talking to the right people and we've got a reasonably good reception already to it. It's something that we are going to make happen. I totally expect that with all my heart and the worst that's going to happen is that we fail, so please get ahold of us if you can support us. We need the help.

Mr. Dowling: Thank you very much. Are there any more speakers? We have heard some very passionate discussion today. I certainly encourage this honest discussion throughout this process. However, what we are here to discuss are suggestions for specific regulatory changes and I know all this passion is associated with what may happen to these regulations, but when the rubber meets the road, what we will need are thoughts and direct suggestions

for regulatory changes that we can consider as we get into the TAC process. I ask you to focus the energies of the group towards specifically where do we need to take these regulations at this point in time. What are the black and white changes that need to be made and as part of this action. I remind each of you that this is a very public process and encourage you to submit written comments to us that may suggest where we need to head with this regulatory process on or before the February 24th closing date for comments. We certainly do need you to express your opinions to the state officials during this 18-month process.

And with that, persons desiring to submit written comments pertaining to this notice and this meeting may do by mail, by the Internet, or by facsimile. Comments should be sent to the Regulatory Coordinator at: Virginia Department of Conservation and Recreation, 203 Governor Street, Suite 302, Richmond, Virginia 23219. Comments also may be emailed to the Regulatory Coordinator at: regcord@dcr.virginia.gov. Or comments may be faxed to the Regulatory Coordinator at: (804) 786-6141. All written comments must include the name and address of the commenter. E-mail addresses would be appreciated also. In order to be considered, comments must be received by 5:00 PM on February 24, 2006. All this information is in the packets on the side table, either in the NOIRA document or we have a one-pager there on how to provide comments to us.

I certainly want to thank you for attending this afternoon and sharing your thoughts with us and we want you to be a part of the process as we continue over the next 18 months to take a look at and consider changes that may be necessary to these very important regulations. This public meeting is now closed and I hope that everyone has a safe trip home. Thank you.