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Testimony of the
ASSOCIATION OF STATE DAM SAFETY OFFICIALS
for the
Joint Hearing of Subcommittees on Economic Development, Public Buildings, and Emergency Management
and
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
U.S. House of Representatives
May 8, 2007

Dear Chairwoman Norton, Chairwoman Johnson and Members of the Subcommittees:

The Association of State Dam Safety Officials (ASDSO) is pleased to offer this testimony concerning the safety of the nation's dams and levees and the critical role that the federal government has in mitigating the disasters caused by unsafe dams and levees.

ASDSO is a national non-profit organization of more than 2,400 state, federal and local dam safety professionals and private sector individuals dedicated to improving dam safety through research, education and communications. We represent the dam safety programs of the states and our goal simply is to save lives, prevent damage to property and to maintain the benefits of dams by preventing dam failures. ASDSO focuses its attention on improving dam safety yet has become interested in the topic of levee safety because levees, ideally, are designed similarly to dams and act as flood control structures much the same way many dams do.

Dams and levees are a critical part of the nation's infrastructure and provide vital benefits such as flood protection, water supply, hydropower, irrigation and recreation. Yet these dams and levees have the potential for failure and tragic consequences. As downstream development of dams increases and dams continue to age and deteriorate, they demand greater attention and investment to assure their safety. Levee safety, although years behind the national effort for dams, demands the same level of attention and investment.

The state dam safety programs regulate 86% percent of the 83,000 dams on the National Inventory of Dams. With the exception of Alabama, all states, plus Puerto Rico, have in place regulatory programs overseeing the safety of dams. About half of these same programs have the authority to regulate levee safety, but most cannot due to lack of staffing and resources. Many states do not have laws on the books creating levee safety regulatory programs. The states and these programs look to Congress and the Federal government for their continuing leadership and support toward strong dam and levee safety programs.

The eyes of the nation were focused on dam safety in the 1970s when several dramatic dam failures resulted in catastrophic consequences, including many deaths. The first national efforts to improve dam safety through coordination at the federal level occurred after these terrible failures.

While the National Dam Safety Program has greatly improved the safety of our nation's dams, the safety of dams and levees demands much more attention from national policymakers. Events over the past two years illustrate the need.

The years of 2005-2006 saw the failure of the Wheeler Island levee in California, the catastrophe of New Orleans, the emergency evacuation of downtown Taunton, Massachusetts because of a failing upstream dam, the failure of Taum Sauk Dam in Missouri, the fatal collapse of Kaloko Dam in Hawaii, and public outcry over the deterioration of Herbert Hoover Dike in Florida and the looming threat posed by Wolf Creek Dam in Kentucky.

As in the 1970s, this series of events has fixed national attention on dam and levee safety. Yet good intentions do not solve problems that continue to grow as dams and levees deteriorate or need rehabilitation to bring them up to current safety standards. The obligation to assure that they are properly constructed, operated and maintained rests with owners, regulators and policymakers at both the federal and state levels.

The Association of State Dam Safety Officials respectfully requests that this Subcommittee recognize the enormous value of our nation's dams and the increasing concerns for public safety because of dams. We request your support for an increase in funding to continue the National Dam Safety Program and for passage of HR 1098 to create the National Dam Rehabilitation and Repair Program.

The Association is grateful for the reauthorization of the program through the Dam Safety Act of 2006 (PL 109-460), which extended and increased authorized funding levels for this successful program.

Congressman Salazar, the Association also appreciates your commitment and support through the introduction of HR 1098 to improve this critical national public safety program.

The National Dam Safety Program

After the 1976 Teton Dam failure and other deadly failures, and prompted by the Kelly Barnes Dam (Toccoa Falls) failure in Georgia, also in the late 1970s, President Carter realized that federal programs were needed to address the dam safety issue. Based on his administration's groundwork, the federal government has been leading the way by example with the dams they own and regulate. The **National Dam Safety Program** exists today administered by the DHS, Federal Emergency Management Agency. For 10 years, the program has been providing assistance to state dam safety programs, continuing education to dam engineers and technological advancements through research for the dam engineering profession. Additionally, the Program directs the US Army Corps of Engineers to maintain a national tracking system that catalogues dams in the US.

The National Dam Safety Program Act of 1996 (PL 104-303) created the national program. Congress reauthorized the program through the Dam Safety and Security Act of 2002 (PL 107-310) and made modest increases in the authorized funds. At the close of the 109th Congress, the National Dam Safety Act of 2006 was passed (PL 109-460). As authorized, the program provides $38.7 million over five years in grant assistance to states based on the relative number of dams in each state. The grants may be utilized to best suit the individual state's needs. In addition, the National Dam Safety Program provides $3.25 million over five years to be used for training of state dam safety engineers and $9 million over five years for research. These research funds are used to identify more effective methods of evaluating the safety of dams and more efficient techniques to repair dams.

The modest increases authorized for the National Dam Safety Program last year have not been budgeted as part of FEMA's Mitigation Directorate budget. In fact, funding levels for the State Assistance Grant Program have been creeping downward for the past five years. These grants need to be fully funded so

enough can go to states to allow for the hiring of more dam safety inspectors, more emergency planning focused on dam failure hazards can occur and better enforcement of unsafe structures can continue.

According to the National Inventory of Dams—a program authorized by the National Dam Safety Program and administered by the US Army Corps of Engineers—there are over 83,000 dams in the United States. For the vast majority of these dams, the responsibility of assuring their safety falls on the shoulders of the states through regulatory programs (the remaining dams are owned or regulated by federal agencies). Because of limited staff and limited funding, most states are overwhelmed by that challenge. Table 1 attached to this testimony provides state-by-state data on the number of dams, the number of staff, the state budget and the number of dams that are considered deficient in the table.

"Deficient" means that these dams have been identified as having hydrologic or structural deficiencies that make them susceptible to a failure triggered by a large storm event, an earthquake, progressive deterioration, or simply through inadequate maintenance.

According to reports submitted by the 50 state dam safety programs, the number of deficient dams has risen by 85%—from 1,818 to 3,361—since 1998. This increase dwarfs the modest gains in the number of state-regulated dams undergoing repairs. Most of these deficient dams (70%) are classified as high- or significant-hazard-potential dams, meaning that significant property damage and/or loss of life is expected in the event of dam failure. Eight states—Ohio, Pennsylvania, Indiana, New Jersey, North Carolina, Georgia, and New Mexico—report more than 100 dams of high- or significant-hazard potential that do not meet state dam safety criteria.

Also of concern is a significant nationwide increase in the number of high-hazard-potential dams (dams whose failure would cause loss of human life). Since 1998, the number of state-regulated high-hazard-potential dams has increased by 9%—from 9,175 to 10,013. This increase is not due to the construction of new dams, but the increased development downstream of existing dams. While the majority of these dams meet safety standards, their potential to cause loss of human life demands stringent oversight

According to the *Model State Dam Safety Program* (FEMA No. 316), a high hazard potential dam should be inspected every year; yet data submitted to the National Inventory of Dams indicates that only about half of state-regulated high hazard potential dams are inspected yearly.

The task for state dam safety programs is staggering. The state of New York oversees the safety of 1,906 dams with only eight full time employees. Maine's lone dam inspector is responsible for more than 800 dams, and in Texas, seven state employees keep watch over 7,000 dams—that's 1,000 dams per staff member.

Because of these problems, and the resulting risk to human life, local economies, and the environment, ASCE gave U.S. dams a grade of 'D' in its 2005 Report Card for America's Infrastructure. The combined effect of rapid downstream development, aging/non-compliant structures and inadequate past design practices, coupled with a predicted increase in extreme events, demands fully funded and staffed state dam safety programs, as well as substantial and proactive funding for dam repairs.

The need is real. The recent dam failures in Hawaii, Missouri, and New York, and the near failure in Massachusetts last year have brought into tragic focus the potential consequences of deteriorating and unsafe (deficient) dams. Recent extreme rainfalls in the Northeast last summer and this spring have caused serious concerns over the vulnerability of dams in New Jersey, New Hampshire, Maryland, New York and Pennsylvania.

Federal Leadership Role

There is a clear need for continued federal leadership in support of dam safety. This country suffered several large and tragic dam failures in the 1970s that focused attention on dams and prompted Congress to pass national dam safety legislation:

- 1972 - Buffalo Creek Dam in West Virginia failed and killed 125 individuals;
- 1976 - Teton Dam failure in Idaho caused $1 billion in damages and 14 deaths;
- 1977 - Kelly Barnes Dam, in Toccoa Falls, Georgia failed, killing 39 Bible college students;
- 1977 - Failure of the Laurel Run Dam in Pennsylvania killed 40 people;

More recent failures have demonstrated the enormous damages that dam failures can produce:

- 1995 – Timber Lake Dam, near Lynchburg, Virginia, failed, killing two people.
- 1996 - Meadow Pond Dam in Alton, New Hampshire failed, killing one woman and causing $8 million in damages.
- 2003 - Failure of the Silver Lake Dam in Michigan caused more than $100 million in damages including $10 million in damages to utilities, $4 million to the environment, $3 million to roads and bridges and flooded 20 homes and businesses. It also flooded a major power plant, causing the closure of two iron mines and temporarily putting 1,100 miners out of work.
- 2004 - Big Bay Lake Dam in Mississippi failed, destroying or damaging over 100 homes, two churches, three businesses, a fire station and a bridge. The failure caused lakeside property values to plunge, and prompted a $100 million lawsuit against the dam owner.
- 2005 - In July, the Hadlock Pond Dam in Washington County, New York failed, displacing residents and causing over $1 million in damages to residences and transportation arteries.
- 2005 – The cataclysmic flooding of New Orleans in September demonstrated the deadly potential posed by water retention structures.
- 2005 – In October, approximately 2,000 people were evacuated from Taunton, Massachusetts when the 173-year-old dam at Whittenton Pond threatened to break. Emergency construction of a second dam downstream of the failing structure averted a disastrous flooding of the downtown area.
- 2005 – Around the same time as the Taunton crisis, residents of Schoharie County, New York became aware of serious problems with Gilboa Dam, which impounds roughly 19 billion gallons of water. Engineers say that the dam could collapse under extreme weather conditions. If this happened, many residents would have only minutes to escape; the villages of Schoharie and Middleburgh would be submerged under 30 to 40 feet of water, and the floodwaters would carve a path of destruction up to 60 miles long. Action is being taken: Local officials have issued flood preparedness manuals and are working to identify residents who may have trouble evacuating if the dam fails, and crews are working on emergency repairs for the dam. The long-term plan calls for a $200 million rehabilitation project.
- 2005 - In December, the sudden failure of Taum Sauk Dam in Missouri released a wall of water through Johnson's Shut-Ins State Park. The flood demolished the home of the park superintendent and his family, who were swept at least a quarter-mile away into the early morning darkness. Miraculously, all five members of the family survived. Had the dam failed during the summer months, it is likely that many lives would have been lost, as the park is a popular destination for campers and swimmers.
- 2006 - In March, the failure of Kaloko Dam on the Hawaiian island of Kauai killed seven people and caused significant damage to property and the environment.
- 2006 –In late July, following a ten-hour storm that dumped a foot of rain in an area near Gaithersburg, Maryland, the Lake Needwood dam developed severe leakage as the lake rose 23 feet

above normal pool. Roughly 2,200 people were evacuated from their homes for up to three days as workers labored feverishly to lower the lake.

Potential dam failures are not merely a local or state concern, as a dam failure in one state may cause loss of life and property damage in an adjacent state. Including recovery costs from the President's disaster relief fund and the National Flood Insurance Program, the cost of one small dam failure can easily exceed the annual costs of the National Dam Safety Program. Continuation and full funding of the National Dam Safety Program is an investment in public safety that will be repaid many times over in fewer dam failures, reduced federal expenditures for dam failure recovery and, most importantly, fewer lives lost.

Benefits of the National Dam Safety Program

The National Dam Safety Program has been successful in assisting the state programs. The training program is one aspect of this success. This training provides access to technical courses and workshops that state engineers could not otherwise attend. Examples include Dambreak Analysis, Concrete Rehabilitation of Dams, Slope Stability of Dams, Earthquake Analysis, Emergency Action Planning and many others

including recent training in Dam Site Security.

The Research Program is an important program to all within the dam safety community. Its funds have been used to identify future research needs such as inspections using ground penetrating radar or risk analysis. In addition, these funds have been used to create a national library and database of dam failures and dam statistics at the National Performance of Dams Program at Stanford University as well as a national clearinghouse and library of dam safety bibliographic data at ASDSO.

Research funds are currently being used to provide security training, security assessment tools and best management practices for states to utilize in addressing potential terrorist actions against the 75,000 non-federal dams.

The most valuable benefit to the state programs comes from the State Assistance Program. The assistance is based on the number of dams in each of the participating states and is used as an incentive to encourage states to improve their program by meeting basic criteria such as:

- State statutory authority to conduct inspections of dams;
- State authority to require repairs to unsafe dams; and
- State policies that address dam site security at non-federal dams.

Use of these funds helps states meet their own unique challenges. States have utilized funds to perform dam failure and dam stability analyses, to hire additional staff to conduct inspections and to conduct owner education workshops. In addition, funds have enabled states to provide additional staff training, and to purchase equipment such as computers, field survey equipment and software, and remote operated cameras for internal inspections.

It is disappointing to see that appropriations and FEMA's budgeting priority for the Program over the past few years are well below the authorized levels, just as we begin to realize the benefits of the state assistance program—dam safety inspections have increased, the number of Emergency Action Plans, used to notify and evacuate downstream populations in the event of a failure, have increased. Despite the growing number of unsafe dams, the increase in dam failures, and the increase in funding approved by Congress in the Dam Safety and Security Act of 2006 to $9.3 million, there is no line item within FEMA's budget for the National Dam Safety Program and budgeting at FEMA has not been close to authorized levels. States have not realized any increase in assistance. Budget reductions and stiff competition with other FEMA mitigation programs such as earthquake and hurricane planning have further reduced the state grant assistance funds.

Table 2, attached to this testimony, provides information on the amount of state assistance received for each state, the potential funding if fully appropriated at authorized levels and the amount each state will lose as a result of the reduced funding. Many state dam safety officials offered their thoughts on how additional grant funds could improve dam safety in their state (Table 3). The lost funds come at a difficult time when development below dams creates additional high hazard potential dams, dams continue to age and deteriorate and, now, security issues must be addressed by the states.

Need for a National Rehabilitation Program for Dams

While there have been modest gains in the number of dams being repaired, the number of state regulated dams identified as unsafe is increasing at a faster rate than those being repaired. The number of unsafe dams has risen by 80% since 1998 to more than 3,200. This condition will undoubtedly continue to worsen without federal leadership and an investment in the safety of our country's dams.

The Association of State Dam Safety Officials, in its October 2003 report entitled *The Cost of Rehabilitating Our Nation's Dams*, estimated that $10 billion would be needed to repair the most critical dams over the next 12 years. Out of this, needed repairs at publicly owned dams are estimated at $5.9 billion with the remaining $4.1 billion needed for privately owned dams.

ASDSO endorses passage of H.R. 1098 to create a federally administered dam rehabilitation funding program. This federally sponsored program would provide funds to be cost-shared at 65 percent federal to 35 percent state/local for non-federal publicly owned dams. The legislation would provide funds to states based on the number of high hazard dams in each of the participating states. Table 4 shows state-by-state potential funding amounts.

While HR 1098 is a good start, it does not address privately owned dams. There are more than 52,000 privately owned dams in the US. ASDSO estimates that approximately 45% of these may be in need of rehabilitation. There is a great need to begin an assistance program at both federal and state levels to help private dam owners with their rehabilitation needs. It is a public safety issue since privately owned dams are at risk of failure just as are publicly owned dams.

The dams across the United States are aging. Of the 74,286 NID dams with a reported date of completion, nearly 33,000 were built prior to 1960. In other words, nearly half of our nation's dams are already fifty years old. Approximately 19,000 more dams were built during the 1960s; thus by 2020, over 70% of dams in the U.S. will have reached the half-century mark.

Downstream development within the dam failure flood zone places more people at risk. When homes are built in the dam failure flood zone, a "low hazard potential" dam (low hazard: failure is not expected to cause loss of life or significant property damage) becomes a high hazard potential dam. Therefore, the dam no longer meets dam safety criteria as the potential consequences of a failure now include loss of life.

Does the country want the number of unsafe dams to continue increasing? Will the federal government find a way to assist dam owners or will future catastrophic dam failures with resulting loss of life continue to occur? It is a reasonable expectation of every American to be protected from preventable disasters such as dam failures.

ASDSO strongly urges the Subcommittee's support for H.R. 1098 to create a federally administered dam rehabilitation program in order to repair our nation's unsafe dams.

The Future of a National Dam Safety Program

Dams are a vital part of our aging national infrastructure that provide many vital benefits, but that also pose a threat to life and property if they fail. The National Dam Safety Program is a valuable program that offers assistance to states as an investment in public safety. The Program needs to continue and to be funded properly to meet public safety expectations and prevent more loss of life from dam failures.

Our country's dams are aging and deteriorating, the number of dams determined to be unsafe is increasing and there is a tremendous demand for funds to repair unsafe dams.

Madam Chairwomen and members of the Subcommittees, the Association requests, in the strongest terms possible, that you provide the necessary priority to the safety of our nation's dams by passing HR 1098, and that you demand aggressive management of the National Dam Safety Program to achieve the results that the people who live below our dams expect.

The Association stands ready to assist the Subcommittees and staff in any way to advance the cause of dam safety. Toward that goal, please contact me or our Executive Director, Lori Spragens at 859-257-5140 if we can support the Subcommittee's important work.

The Future of a National Levee Safety Program

The Association of State Dam Safety Officials endorses a federally administered National Levee Safety Program. ASDSO supports the work of our colleagues within the Association of State Floodplain Managers and the National Association of Flood and Stormwater Management Agencies, along with the members of these Subcommittees, FEMA and the Corps of Engineers to develop a roadmap toward making this a reality.

ASDSO passed a resolution in 2006 supporting the establishment of a National Levee Safety Program. This resolution acknowledges that levee safety is critical to public safety and the environment, and that levees and dams share many aspects of design, construction, maintenance, hazard potential, emergency action planning and security. Many of the state dam safety programs represented by ASDSO also have regulatory responsibility for levee safety. ASDSO offers the following principles for the development and implementation of a National Levee Safety Program.

1. Because of their expertise in the design, construction, operation and maintenance of levees, the U.S. Army Corps of Engineers should be tasked as the lead agency to develop and implement the program.

2. There should be a National Levee Safety Committee led by the Corps of Engineers with representatives from federal agencies that design, own, operate or maintain levees and that have responsibility for emergency preparedness or response. The committee must also have representation from state levee safety programs and local governments that own and operate levees. This committee should participate in the development of the strategic plan and goals of the program and advise the Corps on implementation.

3. The program must develop and maintain a comprehensive inventory of all current and future levees both federal and non-federal.

4. The program must provide national standards for the design, construction, inspection, maintenance and operation of all levees. Federal agencies that design, own, operate or maintain levees and state programs that participate in the program must be working toward those standards, with measurable steps and goals to determine acceptable performance in levee safety. As part of the national standards and because of the clear residual flood risk to natural flood plain areas behind levees, ASDSO supports reevaluation of the practice of levee certification and removing floodplain areas behind levees from national flood insurance requirements.

5. The program should encourage strong levee safety programs administered by the states to protect public safety and mitigate economic and environmental risks related to the failure of all levees not in the federal system. These programs should be fully integrated with state and local programs of flood risk management, especially floodplain management and dam safety.

6. There must be financial and other incentives to encourage states to undertake effective state levee safety programs.

7. The program must support research and training in levee safety engineering.

Table 1 Association of State Dam Safety Officials
2005 Statistics on Dams and State Safety Regulation

State	Total Dams in National Inventory	Dams Under State Regulation[2]		State-Determined Deficient Dams[3]			State Dam Safety Budget	Staff Dedicated to Dam Safety Regulation	
		Total	HH	Total	HH	SH		Total FTEs	Dams Per FTE
Alabama	2218	0	0	0	0	0	0	0	NA
Alaska	100	82	18	29	7	7	100,500	1	82
Arizona	328	252	93	34	28	6	715,801	9	28
Arkansas	1208	403	102	21	19	1	338,700	3.5	335
California	1495	1253	334	53	32	18	8,145,000	60	21
Colorado	1808	1898	340	19	7	3	1,735,600	15	127
Connecticut*	723	3086	227	22	9	10	472,000	4.3	164
Delaware	61	37	9	4	3	NR	317,230	0.5	74
Florida	853	805	72	45	8	30	NR	NR	10
Georgia	4814	4480	437	112	112	NR	704,013	9	542
Hawaii	132	135	96	48	30	6	164,000	1.75	75
Idaho	407	430	96	5	2	3	317,547	7.5	50
Illinois	1462	1464	184	NR	NR	NR	306,000	4.8	299
Indiana	1047	993	241	445	76	154	425,000	5	188
Iowa	3340	3469	78	18	10	8	110,000	1.25	2,618
Kansas	5707	5923	183	41	15	15	616,540	7.16	837
Kentucky	1057	1049	177	90	30	41	1,550,420	14	79
Louisiana	554	534	29	24	14	5	480,316	8	67
Maine	337	831	25	13	3	10	36,914	1.5	561
Maryland	319	376	66	27	8	5	468,020	4.75	82
Massachusetts*	1624	2977	296	40	22	18	500,000	4.0	744
Michigan	985	987	79	23	5	7	282,550	2.8	414
Minnesota	1030	1280	39	79	5	22	305,000	3.4	375
Mississippi	3433	3629	310	16	14	NR	267,767	4.3	845
Missouri	5206	653	455	36	35	1	254,464	5	132
Montana	3256	2880	102	15	11	4	366,531	5.25	549
Nebraska	2284	2227	129	NR	NR	NR	434,652	5.7	378
Nevada	461	637	147	25	4	2	225,514	2	265
New Hamp.	629	3017	75	8	0	4	677,294	8	383
New Jersey	820	1703	202	193	48	116	1,254,000	20	85
New Mexico	500	393	170	104	77	27	484,100	6	66
New York	1971	1861	384	51	51	NR	977,072	8.21	613
North Carolina	2892	4478	1006	143	93	28	1,162,608	16	280
North Dakota	838	1140	28	22	5	13	200,000	4.5	761
Ohio	1587	1672	411	825	170	285	1,415,024	12.5	133
Oklahoma*	4701	4527	166	31	8	3	122,000	2.5	1,811
Oregon	896	1204	122	3	2	1	NR	2.2	562
Pennsylvania	1517	3139	785	325	225	46	2,039,600	24	131
Puerto Rico	35	35	34	NR	NR	NR	600,000	9	4
Rhode Island	181	657	17	5	NR	1	113,976	1.2	548
South Carolina	2419	2317	153	4	2	1	200,000	2.5	951
South Dakota	2503	2349	47	61	8	7	NR	1.5	1,569
Tennessee	1168	646	148	7	3	2	339,278	8	78
Texas	6975	7022	815	108	103	3	552,886	7	1,073
Utah	858	665	188	NR	NR	NR	657,900	6	970
Vermont	357	567	57	1	1	NR	299,000	2.2	256
Virginia	1640	1421	136	120	49	38	678,569	6.25	224
Washington	745	954	145	28	16	12	1,967,028	8.2	117
West Virginia	558	359	267	36	33	3	479,773	6	95
Wisconsin	1140	3571	214	2	NR	NR	518,750	6.25	150
Wyoming	1468	1410	79	NR	NR	NR	2,039,600	4.98	283
TOTAL	82,647	87,877	10,013	3,361	1,403	966	36,418,537	363.45	415 (av)

*CT, MA, and OK did not submit budget, FTE, or deficient dams data for 2005. Figures shown are from 2004.

Table 2 FEMA National Dam Safety Program State Grant Assistance Funds

Reduced Grant amounts in FY 2003 and FY 2004, Grants at full funding and
Estimated cumulative state grant losses over four year period FY 2003 through FY 2006

STATE	FY 2003 Reduced Grant Authorized at $ 6 M Appropriated at $4 M	FY 2004 Reduced Grant Authorized at $ 6 M Appropriated at $4 M	FY 2003-2006 Annual Grant if fully funded at $ 6 M	FY 2003 & 2004 Lost grant assistance over past two years	FY 2003 thru FY 2006 Projected grant loss over four years at current levels
Alabama*	$0	$0	$0	$0	$0
Alaska	$25,715	$22,990	$44,091	-$39,477	-$81,680
Arizona	$29,834	$26,672	$51,153	-$45,800	-$94,762
Arkansas	$35,898	$32,093	$61,550	-$55,109	-$114,022
California	$64,139	$57,340	$109,971	-$98,463	-$203,724
Colorado	$74,716	$66,797	$128,108	-$114,702	-$237,323
Connecticut	$46,113	$41,226	$79,065	-$70,791	-$146,470
Delaware*	$0	$0	$0	$0	$0
Florida	$41,730	$37,307	$71,550	-$64,063	-$132,548
Georgia	$144,571	$129,248	$247,880	-$221,940	-$459,204
Hawaii	$27,099	$24,227	$46,464	-$41,602	-$86,076
Idaho	$36,886	$32,977	$63,245	-$56,626	-$117,162
Illinois	$64,303	$57,487	$110,253	-$98,716	-$204,247
Indiana	$61,074	$54,601	$104,717	-$93,758	-$193,990
Iowa	$123,487	$110,398	$211,728	-$189,572	-$392,232
Kansas	$229,727	$205,378	$393,887	-$352,668	-$729,686
Kentucky	$56,460	$50,476	$96,806	-$86,675	-$179,335
Louisiana	$33,064	$29,559	$56,691	-$50,759	-$105,022
Maine	$43,774	$39,134	$75,054	-$67,200	-$139,040
Maryland	$35,371	$31,622	$60,647	-$54,300	-$112,349
Massachuettes	$74,485	$66,590	$127,712	-$114,347	-$236,589
Michigan	$44,993	$40,224	$77,144	-$69,071	-$142,910
Minnesota	$50,726	$45,350	$86,975	-$77,873	-$161,123
Mississippi	$135,482	$121,121	$232,295	-$207,986	-$430,332
Missouri	$43,280	$38,692	$74,207	-$66,441	-$137,470
Montana	$117,226	$104,801	$200,994	-$179,961	-$372,347
Nebraska	$90,205	$80,644	$154,664	-$138,479	-$286,518
Nevada	$36,063	$32,241	$61,833	-$55,362	-$114,547
New Hampshire	$49,639	$44,377	$85,110	-$76,204	-$157,669
New Jersey	$76,002	$67,946	$130,311	-$116,675	-$241,405
New Mexico	$37,842	$33,831	$64,884	-$58,094	-$120,199
New York	$87,074	$77,844	$149,295	-$133,672	-$276,573
North Carolina	$164,711	$147,253	$282,411	-$252,858	-$523,174
North Dakota	$41,368	$36,983	$70,929	-$63,507	-$131,398
Ohio	$79,857	$71,393	$136,922	-$122,593	-$253,651
Oklahoma	$170,676	$152,585	$292,638	-$262,015	-$542,120
Oregon	$61,634	$55,101	$105,677	-$94,618	-$195,769
Pennsylvania	$63,678	$56,928	$109,181	-$97,755	-$202,260
Puerto Rico	$24,031	$21,484	$41,204	-$36,892	-$76,331
Rhode Island	$31,097	$27,801	$53,319	-$47,739	-$98,775
South Carolina	$96,762	$86,506	$165,906	-$148,545	-$307,345
South Dakota	$97,619	$87,272	$167,376	-$149,861	-$310,069
Tennessee	$42,027	$37,572	$72,059	-$64,518	-$133,490
Texas	$245,643	$219,607	$421,176	-$377,102	-$780,240
Utah	$40,314	$36,041	$69,122	-$61,888	-$128,049
Vermont	$33,986	$30,384	$58,272	-$52,174	-$107,950
Virginia	$38,930	$34,804	$66,749	-$59,764	-$123,653
Washington	$40,215	$35,952	$68,952	-$61,736	-$127,735
West Virginia	$33,064	$29,559	$56,691	-$50,759	-$105,022
Wisconsin	$54,681	$48,885	$93,755	-$83,943	-$173,683
Wyoming	$67,632	$60,463	$115,961	-$103,826	-$214,820

* No state dam safety program

Table 3

State Dam Safety Program Responses When Asked How They Could Use of Fully Funded National Dam Safety Program State Assistance Grant

Idaho

Our largest obstacle facing us now is the fleet of vehicles that we utilize to travel to dams. Due to state cut backs and restrictions on FEMA grant funds we have an aging fleet of trucks that have well over 100,000 miles. We are desperately in need of new vehicles to get inspectors out in the field to perform their work.

Missouri

The State of Missouri will lose roughly $93,000. Without this funding training opportunities for our engineering staff will have to be curtailed, educational programs for dam owners that were paid for using these funds will have to be reduced, and staff used to help with the data collection and updating of the National Inventory of Dams will not have adequate funding. Equipment purchases and upgrades will also have to be cut back.

Utah

Could have funded a full time construction inspector for last years very busy season or replaced the mid level engineer that our program lost 2 years ago. It's about 20% of our budget and could have helped heaps.

Alaska

The full amount proposed for Alaska would be marginally adequate to fund an assistant engineer, which I could use. The current amount is inadequate.

Illinois

Illinois had a program to hire-back a senior dam safety engineer to train junior engineers and assist in the analysis of highly technical dam permit applications and assist in field inspections. The full funding would have allowed additional hours of assistance and field inspections. All of the unfunded amount could have been directed to that program. As all funding was spent in FY 2006, the contract was not renewed. The funds available in the 2007 grant are only sufficient to pay the 1 staff engineer employed using the grant funds. Full funding would allow the reestablishment of the hire-back contract. We have only 1 senior (15+ yrs experience) dam safety engineer remaining after several retirements.

North Carolina

Had the grants been fully funded, North Carolina could have developed a comprehensive guidance document and made it available on the web site for engineers to assist them in developing plans, specifications, and documentation to construct, repair, modify and breach dams in the state. More specific guidance on developing emergency action plans could have been developed, and a system for reviewing, filing, and requesting updates for emergency action plans could have been implemented, along with working with the owners of all high hazard potential dams to develop EAPs. Two or more dam owner workshops per year could have been conducted to assist owners in operating and maintaining their dams. Also, we could have completed scanning of plan sheets of existing dams into our database to make them more accessible to our staff across the state and consultants working on repair plans. Each staff member could have attended more training such as that provided by ASDSO, EMI, and Bureau. This would have made our plan reviews more thorough and faster.

Kentucky

1. We would have purchased a siphon pump system, about 200 feet of 6" dia. flexible pipe, and a trailer. This would have been used for emergency dewatering of dams.

2. Due to limited staff, presently we inspect high hazard dams once every two years. Kentucky has over 175 high hazard regulatory dams. This money could have been spent in obtaining services of an outside contractor (an engineer) in order to inspect these dams every year.

West Virginia

WV could have hired a part-time technician to review EAPs - resulting in a measurable increase in public safety.

Texas

If we had an additional $526,000 over the last 3 years, we could have done the following:

Provided additional training to owners.

Outsourced additional inspections, possibly as many as 200 more. This would have helped us get all of the high hazard dams in Texas inspected over a 5 year period. This could have also helped us complete our security inspections.

Purchased another vehicle to perform inspections.

Vermont

In Vermont, the largest amount of grant money has been spent to hire part-time and temporary help to increase the number of inspections which we do—it has enabled us to get from about 30 inspections per year to 130 inspections per year. An inventory of emergency action plans has also been developed with the existing grant funding.

Inspections are important to open communications between dam owners and the state, and to identify urgent problems to the owners for correction.

The next most important thing is to develop, maintain, and exercise emergency action plans—for both safety and security reasons.

In Vermont, with additional funding, we would hire temporary or part time help to develop EAP templates, and work with owners to develop and maintain current EAPs. Updating notification flowcharts would be an important task.

Nebraska

The additional funding would certainly have had a major positive impact on our program. It would have allowed for additional staff, which would have positively impacted our construction inspection program and allowed for development of an owner outreach/education program. Also, we are in need of additional resources for hazard classification updates for certain low and significant hazard dams in metropolitan areas that may in fact be high hazard. We are working on this now, but the added funding would allow for a more timely resolution of this issue.

New Jersey

We could have utilized the funds for various projects including:

-digitizing inundation maps

-digitizing archival information

-additional student interns

-conduit inspection equipment

-additional staff training

-additional public outreach

Mississippi

As you know from the last National Dam Safety Performance Report, Mississippi ranks 45th in the nation in both FTEs and Dollars devoted to the Dam Safety program. The additional $96,000 per year for FY03 to FY06 would have allowed us to keep our part time contract inspectors on board to perform inspections during construction of new dams and to perform random follow-ups for quality assurance on inspections performed by registered professional engineers. With current staffing of only about 3.5 FTE capable of

doing field work, we can do little more than process applications, respond to complaints, and review design work performed by engineering firms without the benefit of independent field investigation or analysis.

New Mexico

With the additional funds New Mexico would hire a half-time engineer to work on preparing EAPs.

Tennessee

Our grant amount wound up at about $38,000/yr instead of $72,000/yr. Tennessee had 7 positions its dam safety program until 2005, when we had to give up one due to budget considerations. I believe we would still have that position if we had received the full grant amount. And of course, once you lose a position it becomes extremely difficult to get it back

Georgia

the additional money would have meant at least one more engineering position which could have done the following each year:

1. 50 inspections of high hazard dams and assisted on another 35 inspections

2. 20 plus dam break analyses to correctly classify dams as to potenial hazard or reviewed 10 plus sets of engineering reports and plans for bringing high hazard dams into compliance.

3. Produced 5 detailed engineering evaluation reports for non-compliant high hazard dams for compliance with state requirements.

4. Other duties as assigned

The net result would be more high hazard dams being safe.

Montana

- Revise and update our state minimum design standards.
- EAP's for significant dams.
- Training for dam owners—plant and animal management.
- Training for professional engineers on dam safety standards.
- Update repair and rehabilitation needs data on high hazard dams.
- Update the state inventory of dams.

Nevada

The Safety of Dams Program for the State of Nevada lost out on much needed enhancements due to less funding. The additional funding would have provided Nevada's program with the ability to possibly hire an additional staff person for at least a year. If we could look at possible funding over the three year period to be a very similar amount then we might be able to plan long range for additional augmentation and further development of the dam safety program. Any additional funds can only improve Nevada's as well as other state programs.

Table 4

Dam Repair & Rehabilitation Act of 2007
Funding Table by State
(Total Funding over 4 year program)

2005 NID ('03 data)	Total Funds=	$200,000,000		ratio	
State	No. of HH Dams	Ratio of No. in State/Total	1/3 of funds	2/3 of funds	Total Grant Amount
Alabama	18	0.0037	$1,307,190	$499,479.71	$1,806,669.25
Alaska	11	0.0023	$1,307,190	$305,237.60	$1,612,427.14
Arkansas	74	0.0154	$1,307,190	$2,053,416.58	$3,360,606.12
Arizona	43	0.0089	$1,307,190	$1,193,201.53	$2,500,391.07
California	365	0.0760	$1,307,190	$10,128,338.54	$11,435,528.08
Colorado	131	0.0273	$1,307,190	$3,635,102.32	$4,942,291.87
Connecticut	113	0.0235	$1,307,190	$3,135,622.62	$4,442,812.16
Delaware	1	0.0002	$1,307,190	$27,748.87	$1,334,938.42
Florida	1	0.0002	$1,307,190	$27,748.87	$1,334,938.42
Georgia	179	0.0373	$1,307,190	$4,967,048.21	$6,274,237.76
Hawaii	15	0.0031	$1,307,190	$416,233.09	$1,723,422.63
Idaho	14	0.0029	$1,307,190	$388,484.22	$1,695,673.76
Illinois	78	0.0162	$1,307,190	$2,164,412.07	$3,471,601.61
Indiana	62	0.0129	$1,307,190	$1,720,430.11	$3,027,619.65
Iowa	51	0.0106	$1,307,190	$1,415,192.51	$2,722,382.05
Kansas	111	0.0231	$1,307,190	$3,080,124.87	$4,387,314.41
Kentucky	84	0.0175	$1,307,190	$2,330,905.31	$3,638,094.85
Louisiana	9	0.0019	$1,307,190	$249,739.85	$1,556,929.40
Maine	28	0.0058	$1,307,190	$776,968.44	$2,084,157.98
Massachusetts	234	0.0487	$1,307,190	$6,493,236.21	$7,800,425.75
Maryland	41	0.0085	$1,307,190	$1,137,703.78	$2,444,893.32
Michigan	105	0.0219	$1,307,190	$2,913,631.63	$4,220,821.18
Minnesota	40	0.0083	$1,307,190	$1,109,954.91	$2,417,144.45
Mississippi	62	0.0129	$1,307,190	$1,720,430.11	$3,027,619.65
Missouri	74	0.0154	$1,307,190	$2,053,416.58	$3,360,606.12
Montana	64	0.0133	$1,307,190	$1,775,927.85	$3,083,117.40
Nebraska	59	0.0123	$1,307,190	$1,637,183.49	$2,944,373.03
Nevada	54	0.0112	$1,307,190	$1,498,439.13	$2,805,628.67
New Hampshire	34	0.0071	$1,307,190	$943,461.67	$2,250,651.21
New Jersey	110	0.0229	$1,307,190	$3,052,376.00	$4,359,565.54
New Mexico	61	0.0127	$1,307,190	$1,692,681.23	$2,999,870.78
New York	287	0.0597	$1,307,190	$7,963,926.47	$9,271,116.01
North Carolina	158	0.0329	$1,307,190	$4,384,321.89	$5,691,511.43
North Dakota	18	0.0037	$1,307,190	$499,479.71	$1,806,669.25
Ohio	240	0.0499	$1,307,190	$6,659,729.45	$7,966,918.99
Oklahoma	70	0.0146	$1,307,190	$1,942,421.09	$3,249,610.63
Oregon	40	0.0083	$1,307,190	$1,109,954.91	$2,417,144.45
Pennsylvania	356	0.0741	$1,307,190	$9,878,598.68	$11,185,788.22
Puerto Rico	29	0.0060	$1,307,190	$804,717.31	$2,111,906.85
Rhode Island	1	0.0002	$1,307,190	$27,748.87	$1,334,938.42
South Carolina	75	0.0156	$1,307,190	$2,081,165.45	$3,388,355.00
South Dakota	34	0.0071	$1,307,190	$943,461.67	$2,250,651.21
Tennessee	80	0.0166	$1,307,190	$2,219,909.82	$3,527,099.36
Texas	542	0.1128	$1,307,190	$15,039,889.00	$16,347,078.55

Utah	73	0.0152	$1,307,190	$2,025,667.71	$3,332,857.25
Virginia	92	0.0191	$1,307,190	$2,552,896.29	$3,860,085.83
Vermont	33	0.0069	$1,307,190	$915,712.80	$2,222,902.34
Washington	72	0.0150	$1,307,190	$1,997,918.83	$3,305,108.38
West Virginia	187	0.0389	$1,307,190	$5,189,039.20	$6,496,228.74
Wisconsin	75	0.0156	$1,307,190	$2,081,165.45	$3,388,355.00
Wyoming	17	0.0035	$1,307,190	$471,730.84	$1,778,920.38
	4805			Total	$200,000,000.00

** Bill defines public dams as non-federal publicly owned dams.*