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## FISCAL IMPACT REPORT

ORIGINAL DATE 3/08/2007

SPONSOR Nunez LAST UPDATED \_\_\_\_\_ HJM 73

SHORT TITLE Climate Change Effect on Flood Control SB \_\_\_\_\_

ANALYST Schuss

### ESTIMATED ADDITIONAL OPERATING BUDGET IMPACT (dollars in thousands)

	FY07	FY08	FY09	3 Year Total Cost	Recurring or Non-Rec	Fund Affected
<b>Total</b>		\$100.0*		\$100.0*	Non- Recurring	General Fund

(Parenthesis ( ) Indicate Expenditure Decreases)  
\*Office of the State Engineer estimate

### SOURCES OF INFORMATION

LFC Files

#### Responses Received From

Office of the State Engineer (OSE)

### SUMMARY

#### Synopsis of Bill

House Joint Memorial 73 requests that the Office of the State Engineer conduct a one-year study of the impacts of climate change on the hydrologic design of flood control facilities

### FISCAL IMPLICATIONS

OSE states that the memorial provides no financial support to carry out the request. \$100,000 is requested to contract with an engineering firm to summarize the flood plain criteria of various local governments and changes to frequency-based storms to carry out the request.

### SIGNIFICANT ISSUES

House Joint Memorial 73 states that New Mexico state agencies, including OSE, have conducted reviews of the reality and possible effects of global warming and of associated climate change, and these agencies have concluded that both are occurring and will have negative impacts on our state.

A conference of the world's experts in the field concluded in a February 2007 report that climate change is happening, that the actions of humans are, in part, responsible and that many of the associated adverse impacts cannot be reversed and, in the past, criteria for the hydrologic design

of storm structures have been based on the historic record of hydrologic events. One of the associated effects of climate change that has already been observed is an increase in the number and magnitude of precipitation events of long duration and great intensity. These precipitation events have led to flooding that has threatened flood control structures, including dams and levees, and caused injury and damage to people, animals, farms, homes and businesses in New Mexico.

OSE has included the following in their analysis of the bill:

The memorial raises several concerns that the design of flood control facilities may be deficient because of the changes in the historic record of precipitation events. The memorial requests that the OSE study the impact of changes in precipitation on flood control facilities. The memorial presents the following statements to support the request, which includes OSE comments on the statements:

1. Climate change may render inadequate our reliance on the historical record as criteria for hydrologic design of flood control facilities.
  - The Federal Government through the National Oceanic and Atmospheric Association (NOAA) evaluate and update the frequency-based hydrologic criteria. The Criteria was recently updated for New Mexico. It is likely that if climate change continues the Federal Government will update the criteria on a more frequent basis. Local governments charged with flood plain management will need to evaluate the affects of changing criteria on their facilities.
  - The OSE has adopted a deterministic event, the probable maximum precipitation (PMP), as the hydrologic criteria for dams. Methods used by NOAA to determine the PMP are not generally affected by climate change due to the extreme conditions already assumed.
2. There is no state agency responsible for collection and analysis of precipitation data or tracking and warning of major storms.
  - This statement is correct; however, the Federal Government through the National Weather Service currently carries out this activity as a service to the general public.
3. NM does not have a network of volunteers to track storm events.
  - This statement does not reflect that the New Mexico Climate Center, through NMSU, is coordinating a network of volunteers (CoCoRAHS) to track precipitation events in NM, whether this effort is as comprehensive as in other states is unknown.
4. No licensing procedure for the experts involved in the design of hydrologic facilities.
  - This statement is correct; however, public facilities are required to be designed by a professional engineer (PE). Professional Engineers are licensed by the state of NM and the PE Board requires that engineers provide services in only areas

where they have the expertise.

5. NM does not have a state agency responsible for developing hydrologic criteria for storm facilities.
  - This statement is correct. Flood control is a local government issue because local governments regulate development, which must be coordinated with flood plain management.
6. NM does not have a state hydrologist or a committee of engineers to advise the OSE on hydrologic design.
  - The state engineer has adopted hydrologic criteria for dams in the state engineer's rules and regulations. Engineers, both civil and geotechnical developed the hydrologic criteria after thoroughly researching the issue. The OSE hydrologic criteria are consistent with other western state's criteria. Because the OSE has no jurisdiction over flood control issues, which are handled at the local government level, exerting authority over hydrologic criteria for other flood control facilities would be inappropriate under existing law.

OSE is requested to report its findings and recommendations to the next sessions of the legislature.

### **PERFORMANCE IMPLICATIONS**

OSE states that major performance implications are anticipated for those programs that must contribute staff resources to develop a meaningful report to the legislature.

BS/csd