

**JANICE K. BREWER**  
Governor



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Director

## **ARIZONA DEPARTMENT OF WATER RESOURCES**

3550 North Central Avenue, Second Floor  
PHOENIX, ARIZONA 85012-2105

(602) 771-8500

July 29, 2009

Mr. Kent Pace  
Magma Flood Control District  
P.O. Box 15005  
Casa Grande, Arizona 85230-5005

Subject: **Magma Flood Retarding Structure (11.05)**  
**Notice of Removal of Safety Deficiencies**  
**Pinal County, Arizona.**

Dear Mr. Pace:

The Arizona Department of Water Resources (Department) has received and is presently reviewing your application to repair the Magma Flood Retarding Structure. As part of this process, we reviewed the Geologic Characterization Report dated June 9, 2009 and prepared by AMEC Earth & Environmental Inc. (AMEC). Based on the results of these investigations as reported in the June 9 report, the Department accepts AMEC's conclusion that the risk of the desiccation cracks extending under and through the embankment is very low. As previously suggested by the Department, and recommended by AMEC, a monitoring plan will be required for this dam.

The Department currently classifies this dam as "unsafe, non-emergency, elevated risk", based on the following three safety deficiencies:

1. Embankment Cracking – Transverse cracking of the embankment.
2. Foundation Concerns – Ground Cracks within the impoundment.
3. Inability to safely pass the required Inflow Design Flood – This dam is incapable to safely pass the inflow design flood without overtopping.

Based on the results reported by AMEC, the Department has removed the safety deficiency related to foundation concerns. A previous site-specific analysis of the probable maximum precipitation showed that the dam can safely pass the IDF. Based on this finding, the Department has also removed safety deficiency related to the inability to safely pass the IDF. With the removal of these two safety deficiencies, the Department has removed the "elevated risk" description associated with this dam. The dam will



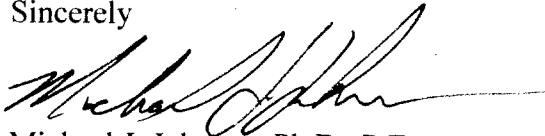
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continue to remain "unsafe non-emergency" due to transverse cracks in the section of the embankment not protected by the existing center filter.

The upgrading of the safety status of this dam will impact the Emergency Action Plan. As you probably recall, the dam is currently being operated under an Interim EAP. As a result of the "elevated risk" status, the Interim EAP was designed to trigger notifications and evacuations based on reservoir levels. The Department recommends that you and your consultants consider modifying the EAP to where the notification and evacuation triggers are based on the performance of the dam during impoundment. Performance-based triggers are typical for other high hazard dams in the State.

Should you have questions or comments, please contact me at (602) 771 8659 at your convenience.

Sincerely



Michael J. Johnson, Ph.D., P.E.

Assistant Director, Surface Water Division

cc: Ms. Luana Capponi, P.E. – Engineering Project Manager, ASLD  
Mr. Doug Brown – Environmental Program Manager, ADOA Risk Management Section  
Mr. Ilde Chavez, P.E. – NRCS, Phoenix  
Mr. Pete Weaver – Pinal County Emergency Management  
Ms. Alisa Schiebler - Deputy Counsel, Arizona Department of Water Resources