

Georgia Department of Natural Resources

Environmental Protection Division

Safe Dams Program

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Lonice C. Barrett, Commissioner

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(404) 362-2678

April 8, 1999

Mr. Mark Kilby, P.E.
Jordan, Jones, and Goulding
2000 Clearview Avenue
Atlanta, GA 30340

FILE COPY

SUBJECT: Lake Petit Dam
Emergency Action Plan
Pickens County

Dear Mr. Kilby:

Our office has reviewed the draft Emergency Action Plan (EAP) and documentation for Lake Petit Dam prepared by your firm. The following items need to be addressed before our office will approve the EAP.

1. Big Canoe Security Department has been assigned the responsibility of initially making the determination of whether failure is imminent in all scenarios. How will the owner train the Security Department to make that determination?
2. On pages 4 and 5, Big Canoe Security is charged with making determination on whether or not the dam can be saved by corrective action. This is an engineering judgement that they should not be responsible for. They should only determine whether or not the EAP should be implemented and under what condition.
3. In figure 1, the notification chart should be modified as follows:
 - a. Pickens County EMA should be notified concurrently with the residents just below the dam so that Pickens County can respond in time.
 - b. Pickens County EMA should also confirm notification of the DNR - 24 hour Emergency Operation Center.
 - c. Tom Woosley is a Principal Environmental Engineer and Ed Fiegle is the Program Manager.

4. In figure 2, the * notes loss of life potential, yet the note continues saying that items XII to XXII are undeveloped residential lots. This does not make sense.
5. In Figure 2, are items I to XI undeveloped lots? The information is incomplete.
6. In Figure 2, what is the priority of notification? That needs to be established.
7. In Figure 3, the information is not complete. What is the priority of notification?
8. In Figure 4, what constitutes a settlement of a few inches of the crest? How will Big Canoe Security recognize it?
9. In Figure 4, what is the rationale for the piezometer thresholds described? Conditions A and B should be reversed at the bottom of the page.
10. In Figure 5, several of the preplanned operations for opening the sluice gate and/or the bypass valve may be inappropriate. These actions should be evaluated by engineers experienced with dams before they are implemented. The impending dam failure mechanism of slope failure may shear the outlet pipes, and opening the gates could cause internal erosion of the dam and sudden failure.
11. On page 8, the responsibility for evacuation needs to be clarified. Will Big Canoe Security be responsible for evacuation of residents on the property? The wording needs to be improved with the use of "must" rather than "should".
12. In Appendix B on page 1, is Cove Road a county maintained road or not?
13. In Appendix B on page 2, how is the sunny day breach the worst case scenario? It would appear that a PMP storm that fills the lake, the downstream valley and fails the dam would create a worst case scenario. The evaluation of peak inflows versus peak outflows for a sunny day breach is flawed.
14. In Appendix B on page 3, why are the breach widths for the downstream dams/roadways less than the breach width for Lake Petit Dam?
15. The complete dambreak output needs to be provided. It is impossible to evaluate the results of the routing with a partial submittal.
16. Why is the QT set at 1100 cfs for Lake Petit Dam, 975 cfs at Sconti Lake Dam, and zero for the two roadways downstream?

17. Why is the failure time for Sconti Lake Dam set at 0.5 hours considering the peak flows over the dam?
18. Why does the inflow hydrograph continue to increase from 100 cfs to 10,000 cfs?
19. Plotted cross sections should be provided for each of the cross-sections downstream and include the hazards.
20. Please explain the output for the cross-section along XS, vertical, and elevations. What is the deviation from the actual sections?
21. Are the manning's 'N' values sufficiently high to represent the effect of the dambreak floodwave in the downstream valley?
22. How were the lateral inflow hydrographs determined?
23. The HECI input and output needs to be provided.
24. How were the HECI input parameters developed? The input parameters need to be documented.
25. The inundation map needs to define the various dambreak scenarios.
26. Is the time to maximum elevation correct on the inundation map? It would appear that from section 1 to section 1A (52.8 ft) that a travel time for the maximum elevation of the floodwave would not take 24.9 hours, given the failure time is 30 minutes.
27. The roman numerals/alphabetic notations on the inundation map is confusing. Labeling the hazards at risk on the map makes more sense.
28. How deep is the Tate Highway flooded? The same information should be provided for all roads downstream.
29. Other useful information to be provided is time to inundation of the hazard locations downstream (ie when does the house begin to flood?) This would help determine the order of notification/time available for response.
30. The peak flows and depth of flooding shows the need to expand the dambreak analysis further downstream.
31. The inundation map does not clearly define the county line between Dawson County and Pickens County. Is Dawson County even in the dambreak zone?

32. Has this information been discussed with Pickens and Dawson Counties' EMAs? The dam break analysis and EAP is incomplete.
33. A system needs to be in place where someone has the responsibility of tracking who was notified?
34. Why would you notify the media? The potential exists for the media to be notified before some other key individuals.
35. The 800 number should be listed under the DNR Emergency Operations Center and not the Safe Dams Program.
36. Two phone numbers are listed in the notification chart for Pickens County EMA. Is one a home phone number or should both numbers be called?
37. The priority order of notification for the Pickens County EMA should go in order from left to right.
38. Some of the phone numbers for the property owners are not local. Is there a reason then to contact them?
39. Accessing the information in the EAP may be easier if tabs were used to mark major sections.
40. Consideration should be given to having the evacuated residents going to a central location.
41. Too much responsibility is put on the security department. If a true emergency exists, the emergency management personnel should be handling the event.
42. Using a table such as Figure 4 should be done cautiously. No list can be all encompassing, yet the person referring to the manual may believe it covers all scenarios.
43. The last paragraph on page 5 states, "...the Big Canoe will clearly communicate the situation to the Emergency Management Agency." There is no way to define or ensure clear communications. With either a Condition A or B, EMA and Safe Dams Program should be notified immediately.
44. Page 6 discusses issuing updates on the amount of time available before the dam overtops. How will the security department know how much time is left until overtopping occurs?
45. The 'Failure is Imminent' warning likely should be issued before the dam overtops.

46. More detail should be given in the preplanned operations. For example, at what point should the sluice gate be opened?

These issues need to be resolved and the complete dambreak routings performed.

If there are any questions, please contact this office at 404/362-2678.

Sincerely,



Dallon Thomas Woosley, P. E.
Principal Environmental Engineer
Safe Dams Program

DTW:kf

cc: Big Canoe POA
% Mr. Troy Ledbetter

Geosyntec Consultants
% Mr. Neil Davies