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August 23, 2012

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Mr. George McCluskey
Senior Archeologist/106 Review Coordinator
The Department of Arkansas Heritage
Arkansas Historic Preservation Program
1500 Tower Building
323 Center Street
Little Rock, AR 72201

SUBJECT: 106 REVIEW FOR NRC EARTHQUAKE RECONNAISSANCE ALONG RIVER CUTBANKS

Dear Mr. McCluskey:

The Nuclear Regulatory Commission intends to conduct research to identify paleoliquefaction features in Arkansas along eroded river cutbanks and drainage ditches. The intent of this letter is to provide you with notification of our proposed activities and to initiate the 106 review process by your office.

Background

Estimating the location, size, and timing of paleoearthquakes is important in assessing seismic hazards for nuclear power plants. During large earthquakes, some soils undergo liquefaction and produce characteristic geologic features. Identification and study of these features is important to constraining our estimates of source areas and recurrence of large earthquakes. The Nuclear Regulatory Commission is initiating a research project which will study paleoliquefaction features along river banks in Arkansas. A map showing the rivers where we intend to conduct reconnaissance for such features is shown in Figure 1 and are listed below.

List of Rivers

- Black River
- Cache River
- L'Anguille River
- St. Francis River, including Central Ditch, Cross-County Ditch, St. Francis Ditch between Marked Tree and Marianna
- White River

Not listed are drainage ditches that the U.S. Army Corps of Engineers might excavate or clean over the next two years providing opportunity to evaluate exposures for paleoliquefaction features.

Date SEP 06 2012
This undertaking will have no adverse effect on historic properties.

Frances McSwain, Deputy
State Historic Preservation Officer

Project Details

Our paleoliquefaction research project will consist of using a canoe or motorboat to travel down river sections shown in Figure 1 to visually locate sand blows and dikes, which are types of liquefaction features. We anticipate locating 2 to 14 features per 10 km stretch of river. At locations where liquefaction features are observed, we will anchor the boat and 1 to 2 researchers will access the shore on foot. The researchers will be onshore for the short period of time required to characterize the feature dimensions and, in some cases, to collect a small soil sample of approximately 2 inches in diameter by 6 inches in length as well as a few organic samples such as leaves or twigs to be used in radiocarbon dating. Up to 2 sediment samples and 2 organic samples could be collected at each location. At some sites, no samples will be collected at all. The majority of samples will be obtained from a scraped area 17 cm x 17 cm x 2 cm in size. A few samples will be taken from a slightly larger area (1.3 m x 1.3 m x 5 cm). Sampling will be done by hand with a standard shovel or smaller hand tools.

This river reconnaissance field work is scheduled to take place during the months of October through December. In performing our sampling, we will be sensitive to historic resources. We will be aware of where we anchor the boat, where we walk and where we sample (2 inches by 6 inches) in relation to possible historic properties. Due to the limited scope and minor disturbance of this reconnaissance field work, the NRC believes this project would have a "no adverse effect" on historic properties.

Closure

Pursuant to 36 CFR 800, we are requesting your comments on our preliminary conclusion regarding historic properties. If you have any questions or require additional information regarding our planned activities, please contact Thomas Weaver by phone at (301) 251-7654 or by email at Thomas.Weaver@nrc.gov. We look forward to your feedback.

Sincerely,

Michael J. Case
Director, Division of Engineering
Office of Nuclear Regulatory Research