February 15, 2013

Ms. Lisa Larue
Historic Preservation Coordinator
United Keetoowah Band of Cherokee Indians
PO Box 746
Tahlequah, OK 74465

SUBJECT: 106 REVIEW FOR NRC EARTHQUAKE RECONNAISSANCE

Dear Ms. Larue:

The United States Nuclear Regulatory Commission (NRC) intends to conduct research to identify paleoliquefaction features in Arkansas, Kentucky, Tennessee, and Virgina. This work includes preliminary reconnaissance along eroded river cutbanks and drainage ditches followed by detailed work involving trenching at limited locations in Arkansas. The intent of this letter is to provide you with notification of our activities and to initiate the National Historic Preservation Act, Section 106 consultation process with your tribe.

Background

Estimating the location, size, and timing of paleoearthquakes or prehistoric earthquakes (for this project paleoearthquakes include more recent events which occurred prior to the use of modern instrumentation used for recording ground motions) is important in assessing seismic hazards for existing and new nuclear power plants. During large earthquakes, some soils undergo liquefaction (large increase in water pressure between soil grains due to cyclic shaking which causes a significant decrease in soil strength) 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 NRC initiated preliminary reconnaissance along river cutbanks and drainage ditches in Arkansas in November 2012. Trenching activities are currently planned to be initiated in 2013 following completion of the Section 106 consultation process.

Project Details

Our paleoliquefaction research project consists of preliminary river reconnaissance followed by trench excavations at limited locations. The river reconnaissance consists of using a canoe or motorboat to travel down river sections shown in Figures 1 and 2 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 5 cm by 15 cm 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 scraped 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.

Additional river reconnaissance field work is scheduled to take place during the months of September through December 2013. In performing our sampling, we will be sensitive to any historic properties. We will be aware of where we anchor the boat, where we walk and where we sample in relation to potential historic properties. Sample sizes are expected to be limited to approximately 5 cm by 15 cm samples. Due to the limited scope and minor disturbance of this preliminary reconnaissance field work, the NRC believes this portion of the project would have "no adverse effect" on any historic properties, assuming such properties were present.

Upon completion of the preliminary river reconnaissance, we anticipate excavating trenches over the next two years at 2 sites in Arkansas. The trench excavations will consist of using a backhoe to excavate a trench approximately 1 m wide by 1.5 m deep up to 30 m in length. A geologist will map liquefaction features and collect samples for dating from the sidewalls of the trench. We have not yet identified the sites and specific locations where the trenches will be excavated. We plan to begin identifying sites for excavation in early 2013 and will provide you with detailed information for your review and comment once these sites are selected.

Closure

Pursuant to the regulations of the Advisory Council on Historic Preservation, 36 CFR Part 800, we are requesting your comments on our preliminary conclusions regarding potential historic properties in regard to the preliminary river reconnaissance work. We will provide additional correspondence requesting comments on trenching activities prior to initiation of this detailed work. 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. All written correspondence should be sent to the NRC at the following address with attention to the Document Control Desk. We look forward to your feedback.

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Sincerely,

/RA/

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

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Mr. Stuart Easson, NRC/FSME/DILR/ILB

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OFFICE	RES/DE/SGSEB	RES/DE/SGSEB	OGC (via email)	D: RES/DE
NAME	T. Weaver	R. Hogan	A. Pessin	M. Case
DATE	2/13/13	2/15/13	1/15/13	2/15/13

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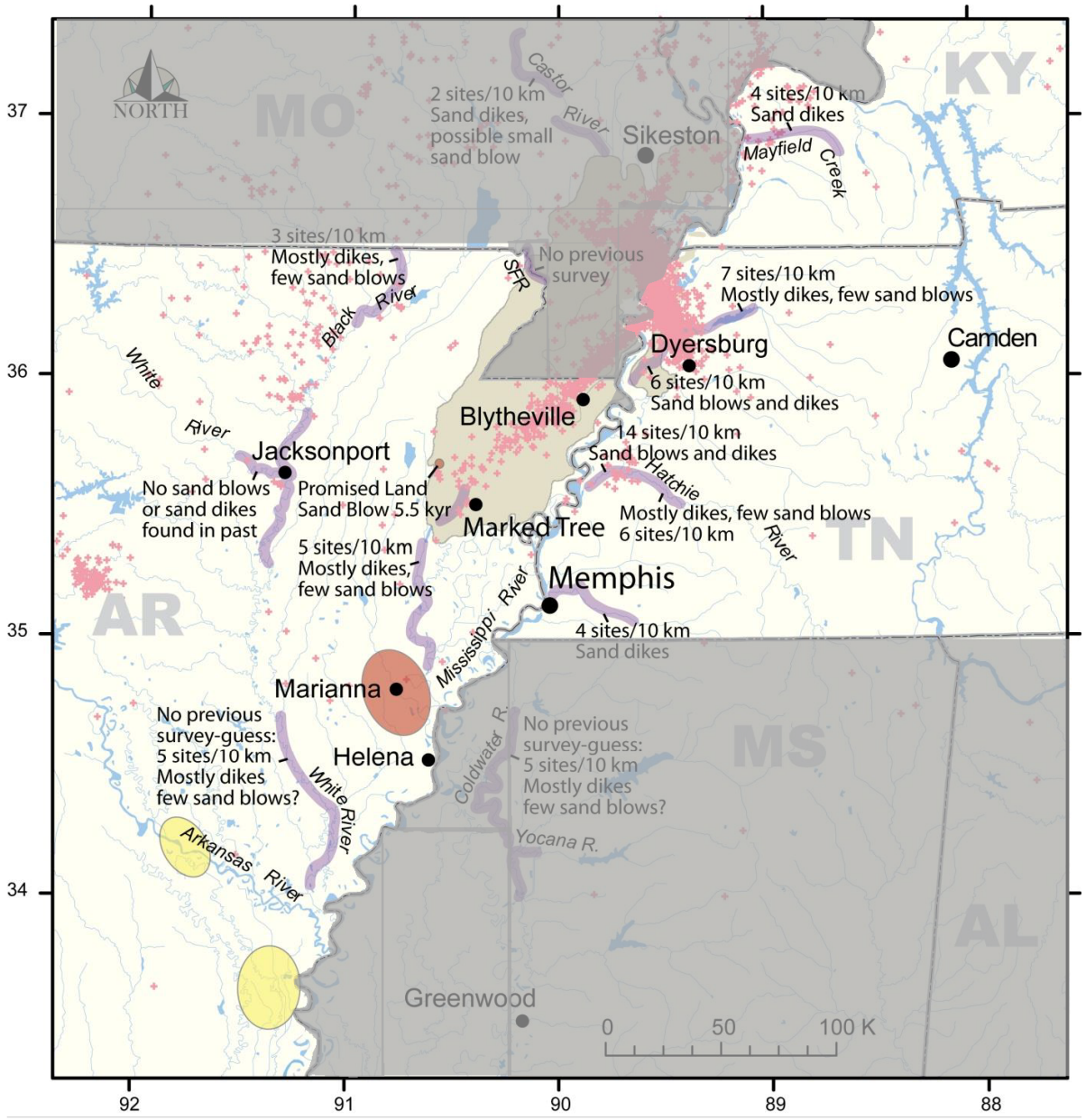

Figure 1 Map of paleoliquefaction study area. River sections for paleoliquefaction reconnaissance delineated in purple.

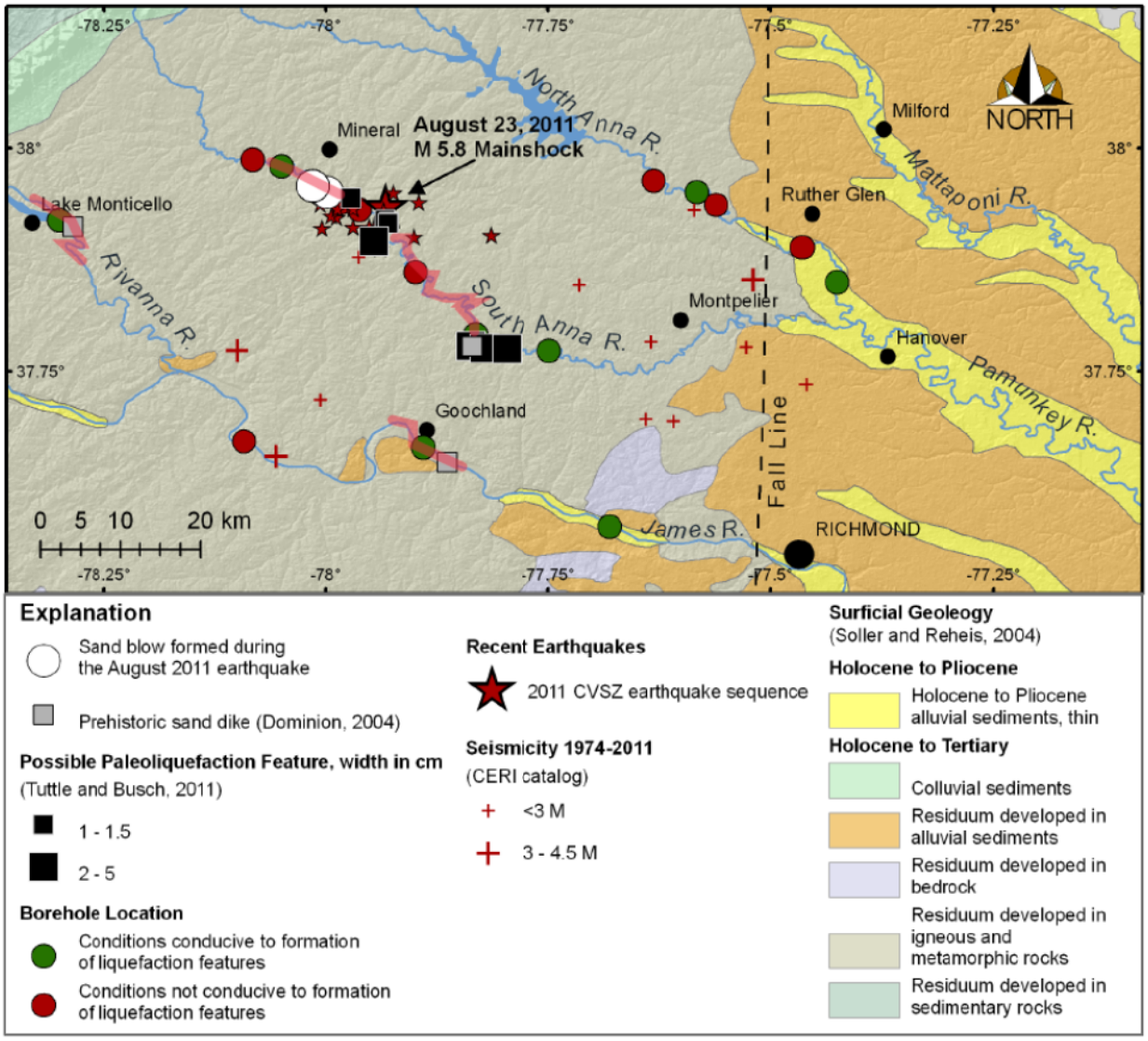

Figure 2 Map of paleoliquefaction study area in Virginia. River sections for paleoliquefaction reconnaissance delineated in red.