January 9, 2013

Mr. Roger Kirchen
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

SUBJECT: 106 REVIEW FOR NRC EARTHQUAKE RECONNAISSANCE ALONG RIVER CUT BANKS

Dear Mr. Kirchen:

The United States Nuclear Regulatory Commission (NRC) intends to conduct research to identify paleoliquefaction features in Virginia 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 National Historic Preservation Act, Section 106 consultation process with your office.

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 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 is initiating a research project which will study paleoliquefaction features along river banks in Virginia. 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

- South Anna River
- Rivanna River
- James River

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 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.

This 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 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 potential 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 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. 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,

/RA/ M. Case

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

cc: Dr. Tom McCulloch
Dr. Martitia Tuttle
Dr. Thomas Weaver, P.E., RES/DE/SGSEB
Mr. Andrew Pessin, Esq., OGC/GCLR/RMR
Mr. Stuart Easson, FSME/DILR/ILB

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NAME	T. Weaver	R. Hogan	A. Pessin	M. Case
DATE	01/08/13	01/08/13	10/31/12	01/09/13

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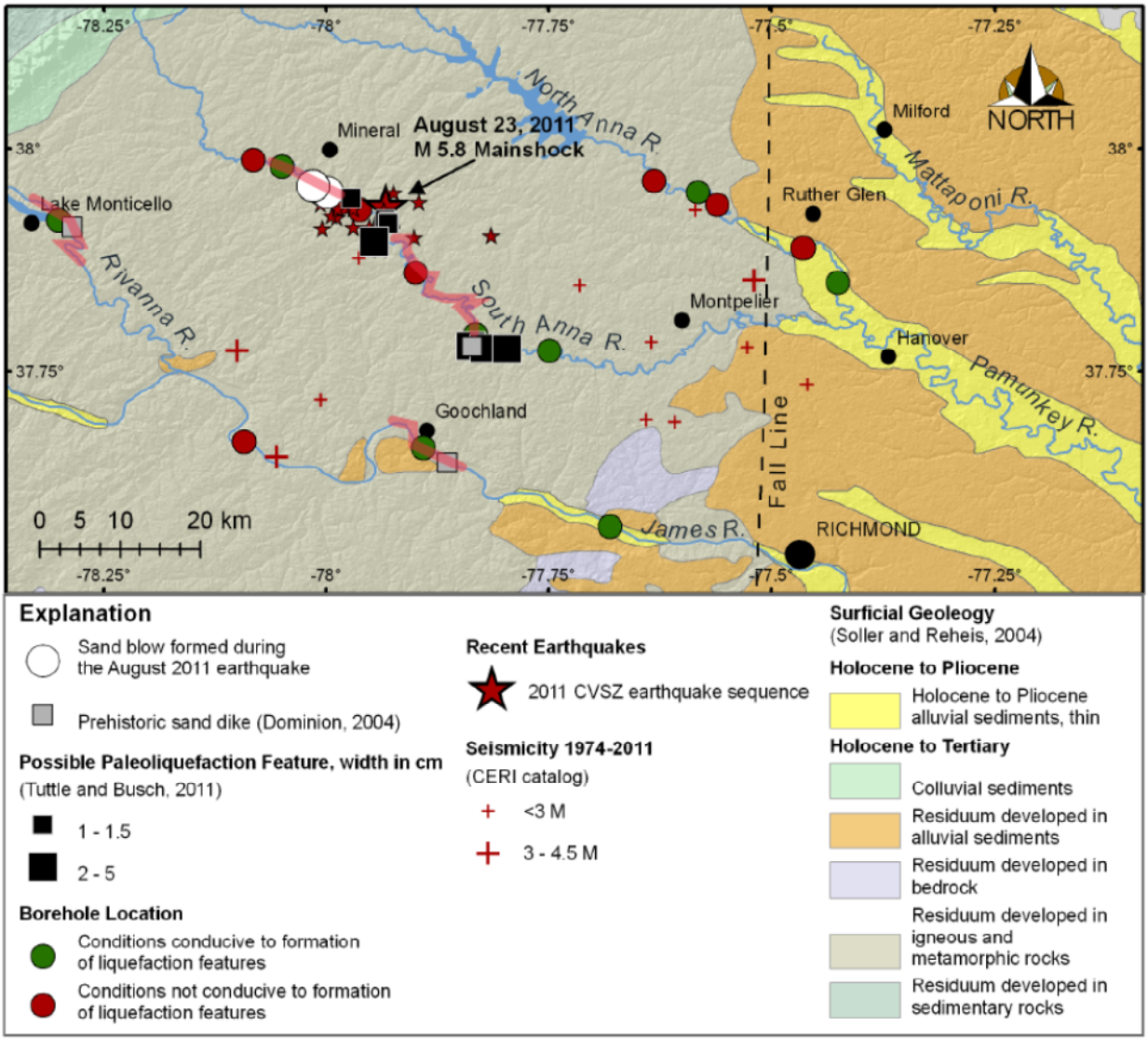

Figure 1 Map of paleoliquefaction study area. River sections for paleoliquefaction reconnaissance delineated in red.