TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON ROAD
NASHVILLE, TENNESSEE 37214
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

Received
5/29/15

May 27, 2015

Mr. Clinton E. Jones
Tennessee Valley Authority
400 W. Summet Hill Dr.
Knoxville, Tennessee, 37902-1499

RE: TVA, ARCHITECTURAL SURVEY REPORT, CLINCH RIVER SMR PHASE I, UNINCORPORATED, ROANE COUNTY

Dear Mr. Jones:

In response to your request, received on Friday, May 22, 2015, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800. You may wish to familiarize yourself with these procedures (Federal Register, December 12, 2000, pages 77698-77739) if you are unsure about the Section 106 process.

Considering the information provided, we find that the area of potential effect contains no architectural resources eligible for listing in the National Register of Historic Places affected by this undertaking. You should notify interested persons and make the documentation associated with this finding available to the public.

This office appreciates your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.

E. Patrick McIntyre
Executive Director and
State Historic Preservation Officer

EPM/jyg

annuit coeptis

From: Baxter, John Tracy
To: Horton, Ruth M
Subject: FW: TVA Clinch River Modular Reactor Site - Bat Surveys
Date: Friday, February 05, 2016 12:49:15 PM
Attachments: TVA_ClinchRiverModReactorProject_SurveyLocations_20110701.pdf
TVA_ClinchRiverModReactorProject_SurveyLocations_20110701_TOPO.pdf

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Here is the communication regarding the bat survey.

Bo Baxter

John T. (Bo) Baxter, Jr.
Manager – Natural Resources Compliance Programs
865 632-3360

From: David_Pelren@fws.gov [mailto:David_Pelren@fws.gov]
Sent: Tuesday, July 05, 2011 2:26 PM
To: Le Grand, Holly G
Cc: Baxter, John Tracy; Peggy_Shute@fws.gov; Mary_E_Jennings@fws.gov
Subject: Re: TVA Clinch River Modular Reactor Site - Bat Surveys

Holly -

The survey plan that you described in your 7/1/11 e-mail is adequate for documenting the presence / probable absence of Indiana bats at the Clinch River Modular Reactor Site. Given two nights of sampling at each mist net site and acoustic monitoring site, we concur with the plan.

Thank you for the update. We look forward to further coordination with you on this project.

David Pelren
Fish and Wildlife Biologist
Ecological Services
U.S. Fish and Wildlife Service
446 Neal St.
Cookeville, TN 38501
office phone: 931-525-4974
cell phone: 931-261-5844

"Le Grand, Holly G" <hlegrand@tva.gov>

07/01/2011 03:37 PM

To <David_Pelren@fws.gov>, <Peggy_Shute@fws.gov>
cc "Baxter, John Tracy" <jtbaxter@tva.gov>
Subject TVA Clinch River Modular Reactor Site - Bat Surveys

Hi Dave,

I wanted to follow up with you regarding the TVA nuclear modular reactor project along the Clinch River

near Oak Ridge (Roane County, TN). I shared maps with you and fellow FWS staff several months ago and our plans to characterize the habitat at the site this spring with respect to Indiana bat. We have done so and are gearing up to conduct mist nest surveys the weeks of July 11 and July 18.

I've attached maps of the site. The total acreage within the site boundary is 1255.2 acres, 240 of which is cleared, resulting in 1015.2 acres. Currently 101 non-cleared acres is slated for potential impact from proposed actions (located in the pink polygon on the maps). However, we have been asked to characterize the whole area within the site boundary for now (yellow polygon). Although not all of the 1015.2 acres is suitable habitat (based on our habitat assessments), we are planning to conduct mist net surveys based on this acreage to compare the habitat assessments with the survey data. Based on KY Indiana Bat Survey Guidance, 2 net sites are required for every 247 acres. This equates to 8 net sites (and 8 acoustical sampling sites) for this project area.

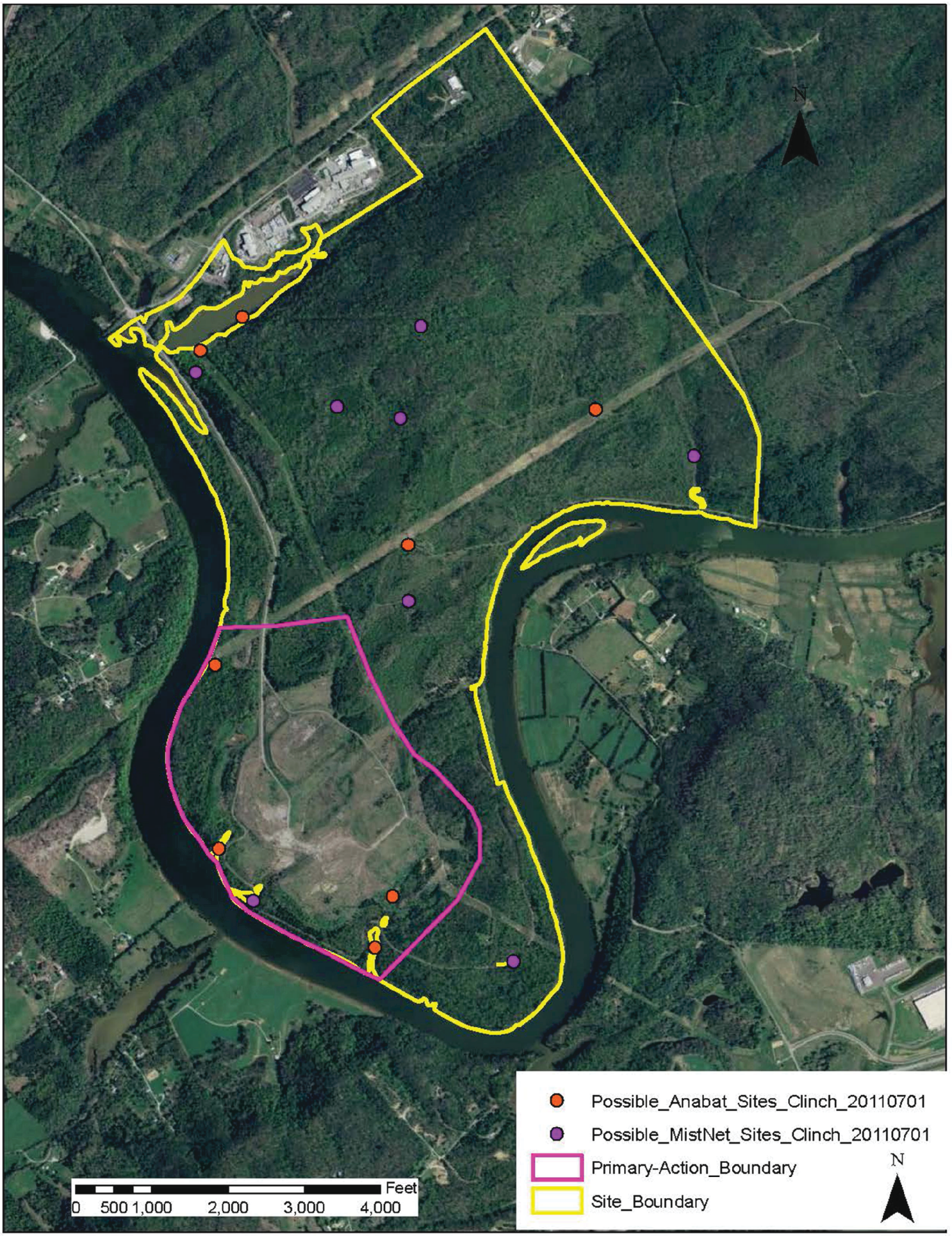
My federal collection permit # is TE117405-2 and TN state collection permit # is 750. Unless we are advised otherwise, our methods, survey effort, and reporting will follow the 2011 Indiana Bat Guidance for KY (dated 05/10/2011).

We had tentatively selected sites for mist netting during habitat assessments and via GIS. We plan to go out to the site the afternoon of Wednesday, July 6, to flag/confirm our selections and /or select alternate sites, as there is a possibility that recent storms have eliminated access or suitability of previously selected sites.

Please let me know as soon as possible if there are needed modifications to our approach as we plan to conduct our first round of surveys Monday, July 11.

Thanks!
Holly

Holly LeGrand
Terrestrial Zoologist, Biological Permitting and Compliance
Tennessee Valley Authority
400 W. Summit Hill Drive, WT 11C
Knoxville, Tennessee 37902
865-632-4010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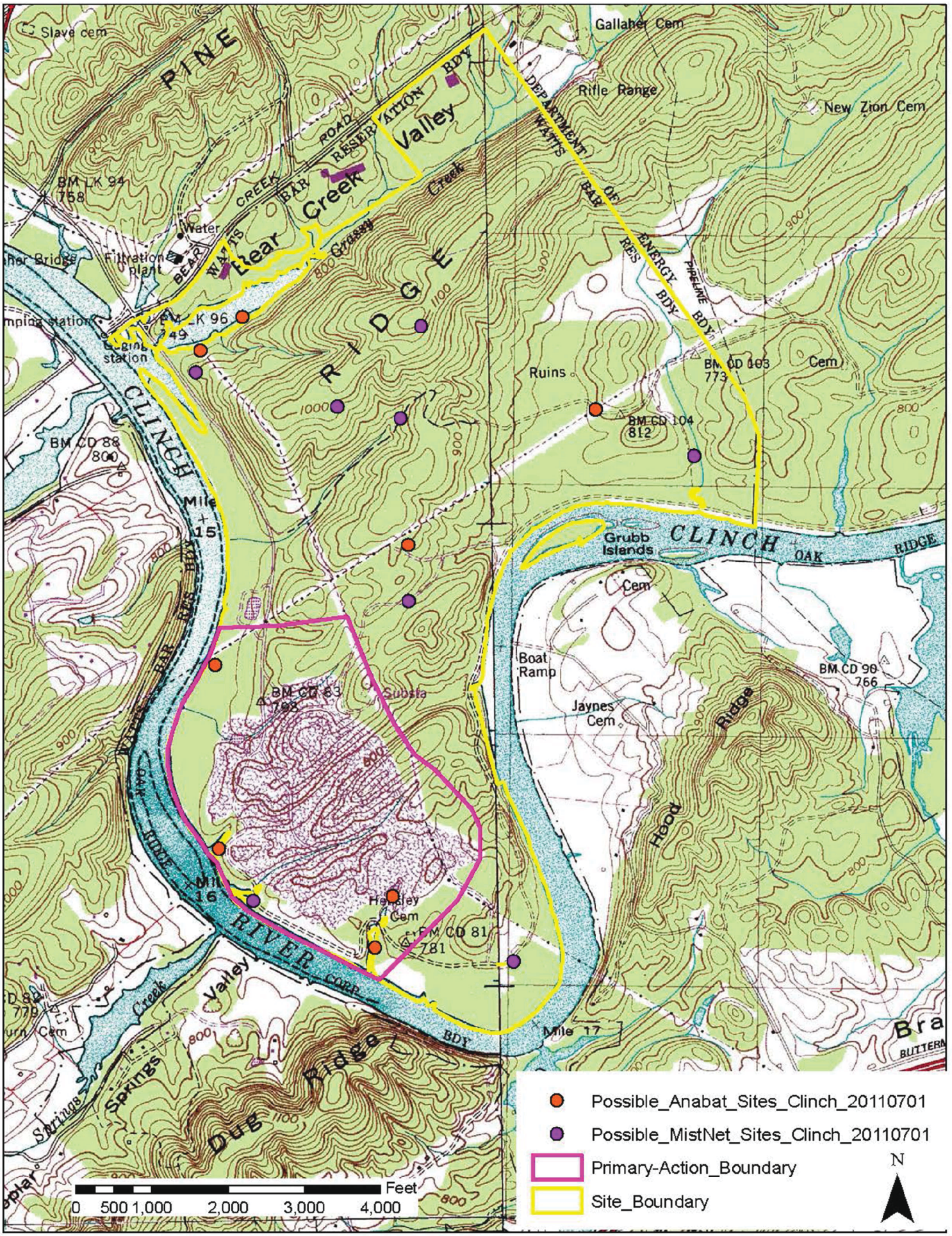
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BM CD 81
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RIVER
CORP
BDY
Mile 17
Valley
Creek
Springs
Dug
Ridge

From:	Baxter, John Tracy
To:	Horton, Ruth M
Subject:	FW: Notification of Proposed Mussel Survey
Date:	Friday, February 05, 2016 12:50:30 PM
Attachments:	EVALUATION OF FRESHWATER MOLLUSKS AND HABITAT.pdf FIG_1_Clinch_R_MAP8.pdf image001.png image002.png

Mussel survey approval

Bo Baxter

John T. (Bo) Baxter, Jr.
Manager – Natural Resources Compliance Programs
865 632-3360

From: Howard, Charles S
Sent: Thursday, September 15, 2011 9:44 AM
To: Henry, Amy Burke
Cc: Baxter, John Tracy; Jones, Clinton E
Subject: FW: Notification of Proposed Mussel Survey

USFWS approved survey plan for Clinch R SMR site.

Chuck Howard
TVA Biological Compliance
865-632-2092
cshowar1@tva.gov

From: Ross_Shaw@fws.gov [mailto:Ross_Shaw@fws.gov]
Sent: Wednesday, September 14, 2011 4:17 PM
To: Fister, Gerry
Cc: Olson, Chelsey; Howard, Charles S; Mary_e_Jennings@fws.gov; peggy_shute@fws.gov; Baxter, John Tracy; Stephanie_Chance@fws.gov
Subject: Re: Notification of Proposed Mussel Survey

Gerry:

Our staff have reviewed your proposed survey plan and are comfortable with what you have described. Please feel free to proceed.

Thank you for coordinating with us,
Todd

R. Todd Shaw
Fish & Wildlife Biologist
U.S. Fish & Wildlife Service - Tennessee Field Office
446 Neal Street
Cookeville, TN 38501
Phone: (931) 528-6481, ext. 215
Fax: (931) 528-7075

"Fister, Gerry" <gfister@thirdrockconsultants.com>

"Fister, Gerry"
<gfister@thirdrockconsultants.com>

09/13/2011 11:02 AM

To<ross_shaw@fws.gov>
cc<peggy_shute@fws.gov>, "Howard, Charles S" <cshowar1@tva.gov>, <Mary_e_Jennings@fws.gov>, "Olson, Chelsey" <colson@thirdrockconsultants.com>
SubjectNotification of Proposed Mussel Survey

Todd,
Attached is a plan for a proposed survey to support evaluation of a site for development along the lower Clinch River, Third Rock Consultants will characterize the freshwater mollusk community in the Clinch River at river miles (CRM) 15 - 19 for the TVA. We hope to begin work on this project on Monday the 19th. I am sorry that I did not send this plan to you sooner but I hope that you are able to review this plan and allow the project to move forward as scheduled with concurrence.

If you have any questions or comments please fee free to contact me or Chuck Howard at TVA.

<<EVALUATION OF FRESHWATER MOLLUSKS AND HABITAT.pdf>>
<<FIG_1_Clinch_R_MAP8.pdf>>
(See attached file: EVALUATION OF FRESHWATER MOLLUSKS AND HABITAT.pdf)(See attached file: FIG_1_Clinch_R_MAP8.pdf)

Prepared by: Chuck Howard, TVA Aquatic Endangered Species Biologist

Background and Purpose

To support evaluation of a site for development along the lower Clinch River, the Tennessee Valley Authority (TVA) will characterize the freshwater mollusk community in the Clinch River at river miles (CRM) 15 - 19; Figure 1). TVA previously surveyed mussels and habitat near the site (CRS) in 1982 (Jenkinson 1982). That study, as well as others (Ahlstedt 1984, Yokely 2005), showed that the lower Clinch River supports a mussel community with relatively low abundance and species richness, which is primarily the result of impoundment of the Clinch River (Melton Hill and Norris Dams upstream) and mainstem Tennessee River (Watts Bar Dam downstream). However, in 1991, TVA began a Reservoir Release Improvement program at Melton Hill Dam (CRM 23), which has presumably improved habitat conditions for mussels and other fauna in recent decades. Records of live pink mucket (federally endangered) and sheepnose (proposed endangered), as well as relic shells of other federally listed species, have been found in this reach of the river.

Mollusk Survey Plan

The mollusk survey plan will use survey methods and locations similar to that used by Jenkinson (1982) to provide a level of comparability between studies, as well as additional efforts to collect data near anticipated impact areas. A combination of semi-quantitative and qualitative sampling methods will be used. Although quantitative sampling can provide a more accurate estimate of mollusk density and improve detection of small or buried individuals, this method will be omitted due to potential legacy issues with contaminated sediments in this reach of the Clinch River.

The study area will include the river reach between CRM 15.0 and 19.0. Similar to the 1982 study, survey transects used to guide divers will extend bank to bank and will be spaced approximately 300 meters (or 0.2 miles) apart. Currently, proposed discharge and intake sites may be located near CRM 16.0 and 17.9, respectively (*Note:* TVA will provide coordinates for the mostly likely location of these impact areas immediately prior to the survey). Additional sampling transects will be placed approximately 50 meters upstream and downstream of both the discharge and intake sites. Thus, a total of 25 transects will be sampled using semi-quantitative methods. Based on map review of the site, river width in the study area appears to vary near 110 meters wide.

Divers will collect all mussels (live and dead) within 1m wide by 10m long sections along one side of the transect (= semi-quantitative samples). Each $10m^2$ area along transects will be exhaustively searched by the diver using visual and tactile search methods that include disturbing the top inch of riverbed substrate by hand. It is presumed that a minimum of five minutes search time should be spent per sample to ensure thorough coverage; actual time spent per sample will be recorded to facilitate catch per hour calculations in conjunction with estimates of mussel density. Mussels will be placed into a mesh collection bag that will be retrieved and processed in the boat. The mesh size of the collection bag will be no larger than 6mm; if small juveniles are found or expected, then a mesh size of 3mm will be used.

Qualitative samples will consist of one-hour timed searches at each of five sites. Two of the five sites will occur at the discharge and intake sites, respectively. Currently, a barge dock site has not been included in the project description; however, if plans for a barge terminal develop, then one of the qualitative searches will occur at that location. The remaining qualitative searches (n = 2 or 3) will occur in areas of the study area with the most suitable

mollusk habitat based on semi-quantitative sampling data and the best judgment of the on-site malacologist.

All live mussels will be identified, counted, measured (length in mm), aged (external annuli count), sexed (if sexually dimorphic species), and returned to the river near their original location. Dead mussel shells will be identified and scored as either fresh dead or relic; only fresh dead shells will be quantified to provide an estimate of recent mortality. Voucher specimens of dead mussel shells and/or photographs of each species will be recorded. If zebra mussels (*Dreissena polymorpha*) are present, an estimate of % coverage of each live native (unionid) mussel will be estimated.

A cursory, qualitative effort will be spent collecting aquatic snails as well to characterize the general snail community in the study area. Since it is likely that snails will be present in limited areas containing large substrate particles, collection of snails will probably be opportunistic. While incidental collection of snails by divers will be beneficial, efforts should not hinder mussel sampling. It is recommended that time spent collecting snails be logged independently of time spent searching for mussels, both in semi-quantitative and qualitative samples. In general, live snails will be identified and counted on site, and sample location will be recorded. A small representation (5-10 individuals) of each species will be retained as voucher specimens for verification. Since shell condition is difficult to assess for dead snails, only a record of dead snail species will be noted. No federally listed snails have been recorded in the Clinch River near the CRS.

General water quality conditions (temperature, dissolved oxygen, conductivity, and pH, and velocity) will be measured at depths of one foot below the water surface and one foot above the riverbed surface at each rivermile (*i.e.,* CRM 15, 16, 17, 18, and 19). Relative substrate composition (% of each particle size) will be estimated by the diver at the terminus of each 10-meter section of sampling transect. Depth and zebra mussel density will also be recorded at these locations. GPS coordinates will be recorded at each transect endpoint and a boundaries of qualitative searches. A full report describing the mollusk community and habitat will be produced, which will include GIS-based maps showing the distribution of mussel density and relative snail abundance, as well as habitat conditions (depth and substrate compositions).

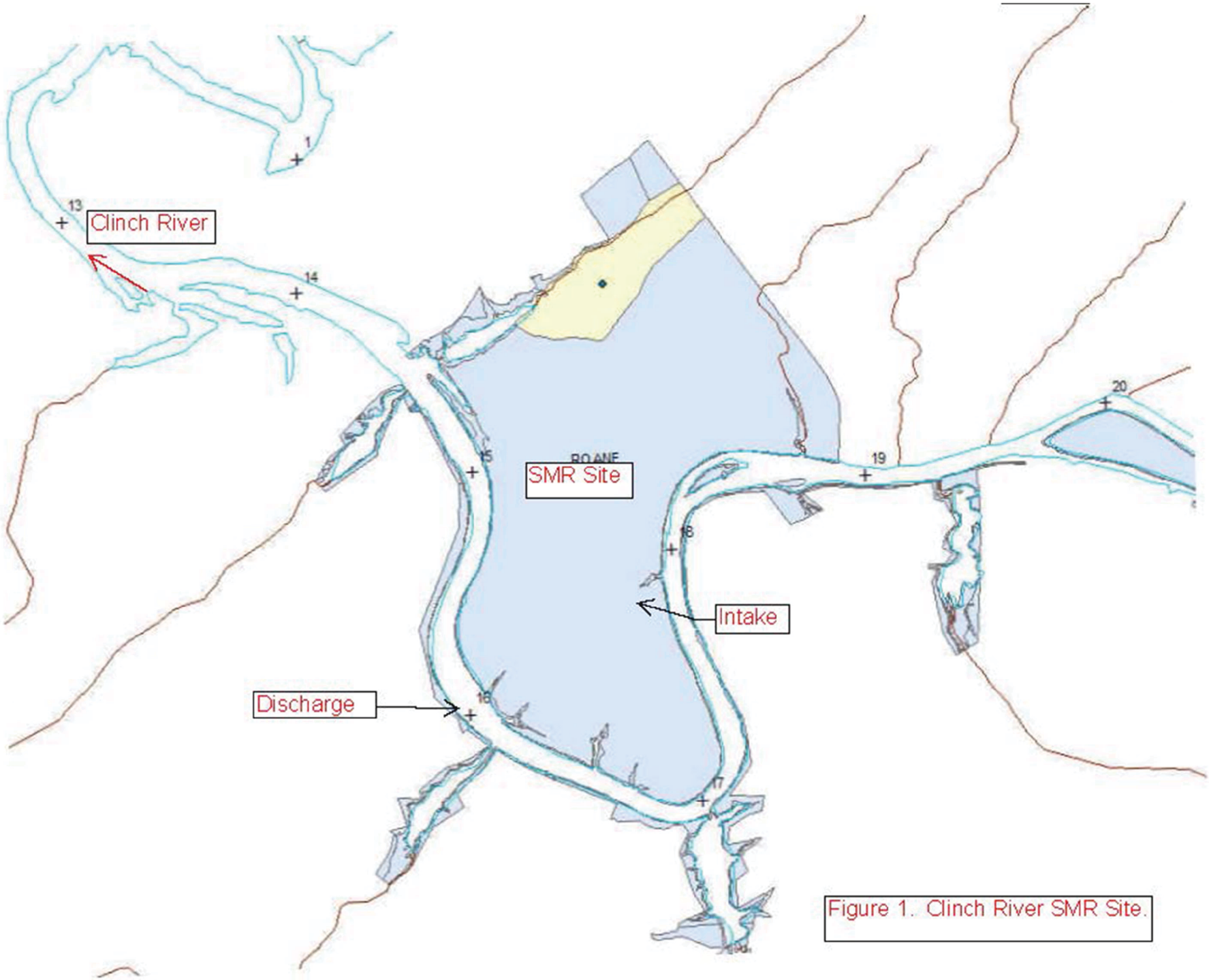

Figure 1. Clinch River SMR Site.