

LR-04-1098 : Letter No.

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ENVIRONMENTAL ASSESSMENTS

YOKLEY ENVIRONMENTAL CONSULTING SERVICE

3698 Chisholm Road
Florence, Alabama 35630

Fax (256) 764-3780

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E-Mail: pyj@hiwaay.net
October 16, 2004

SUBJECT: SUBCONTRACT No. CC-040901(RB)


SUBCONTRACT ADMINISTRATOR: Ms. Rue Bowen
Tetra Tech NUS, Inc.
20251 Century Boulevard, Suite 200
Germantown, MD 29874-7114

Dear Ms. Bowen,

Threatened and endangered freshwater mussel survey has been performed at the Farley Nuclear Plant discharge plume located near Dothan, Alabama.

Enclosed are the results in a report of the survey made recently for freshwater mussels in the discharge plume at Farley Nuclear Plant in the Chattahoochee River, Houston County, Alabama. Any questions related to the report should be directed to me at (256) 764-3780. A copy has also been sent to the Project Manager: Ms. Nicole Hill and a copy to Mr. Bruce Porter, U. S. Fish & Wildlife Service, Daphne, Alabama.

Sincerely,


Paul Yokley, Jr., Ph.D
Malacologist



LR, 04.07

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SUBJECT: SUBCONTRACT No. CC-040901(RB)

**Freshwater Mussel Survey of Chattahoochee River below the
Farley Nuclear Waste Water Outflow, Houston County, Alabama**

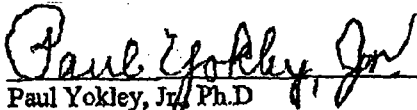
On October 8, 9, 10, 2004, a freshwater mussel survey was made below the waste water outflow into the Chattahoochee River from the Farley Nuclear Plant. The survey included all of the mixing zone of the warm waste water with the river water. A search area was measured by placing buoy markers at the upper and lower width and length of the search area. The search area was 150 feet wide and 500 feet in length producing an area of 75,000 square feet. This area was then searched by two divers stretching a line from the west shore across the river to the buoy marker 150 feet from shore. A diver on each side of the line searched an eight feet width. Thus a total of 16 feet of river bottom was searched with each crossing. A total of 32 feet thus would be searched in a single round trip. Sixteen round trips were made in the search area back and forth across the river. We looked at the river bottom almost completely and the substrate was mostly loose sand with no macrobenthic organisms seen including insect larvae and small crustaceans. The sand was ruffle-like in the area and appeared somewhat like desert sand may appear. No fish were seen feeding by the divers in the loose sand area with no food to attract fish. Shad minnows were near the surface at the outflow origin and predaceous fish were attracted to the site to feed on the shad minnows. The prerequisite for freshwater mussels in an area is a substrate with nutrients attractive to fish species that serve as hosts for mussels.

The loose sandy substrate provided no anchoring point for native mussels and in the total search only a few old shells of mussels were found. These shells most likely were washed into the area from upstream tributaries that support the mussels. The shells of four species were identifiable and found in the search. None of these originated from the site where found. The species represented in the search area are not presently considered to be threatened and/or endangered. A special concern note has however been made for the delicate spike, *Elliptio arcata*. This mussel is most commonly found in small creeks. The yellow sandshell is a second one found. Five old shells were found representing the yellow sandshell, *Lampsilis teres*. The yellow sandshell is widely distributed in the southeast and considered to be currently stable. The small mussel with the common name little spectaclecase, *Villosa lienosa* is most often found in small creeks and in gulf coast rivers. It

presently is considered to be stable. The above species was represented by a single half-valve in the search area. One other species found and represented by only the right valve was badly eroded. It appears to be *Pyganodon grandis*, giant floater. This species is not known for this river and could be a *Lampsilis* form but the shell was broken off where cardinal teeth could occur. This is also widely distributed and not a listed species. Two other relicts of mussels were found but not identifiable.

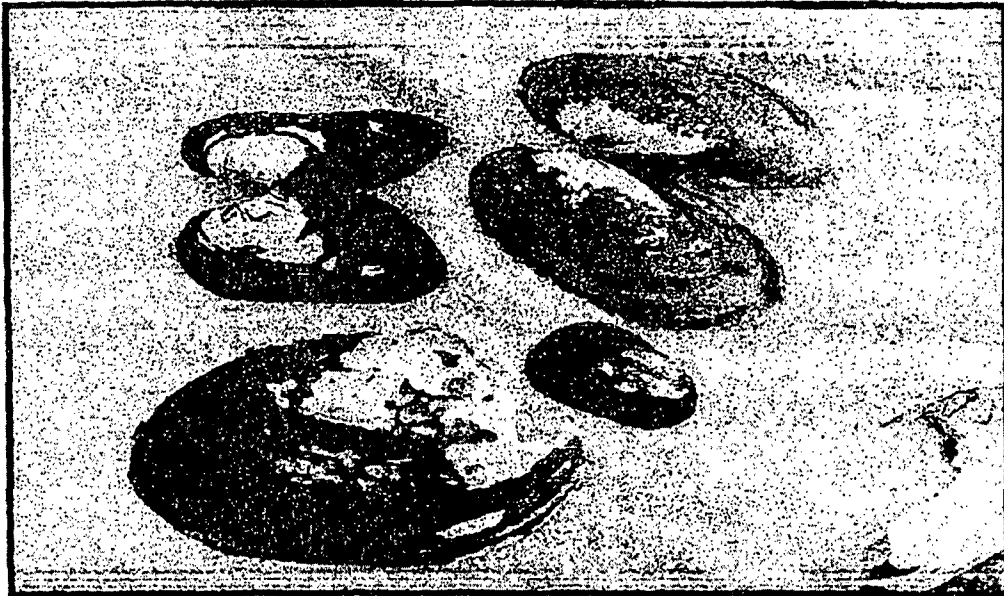
In summary, the 75,000 square feet of mixing area was almost totally searched by transects back and forth across the 500 feet in length of search area. Only four species of mussels were found and those were only represented by dead shells. None of these originated from the search area but all were washed in from upstream. *Elliptio arctata* has been designated in the special concern category but since all of these have been washed downstream the mixing area search has no freshwater mussels originating there.

Photographs follow of the search area and freshwater mussels that were found.


Paul Yokley, Jr., Ph.D
Malacologist

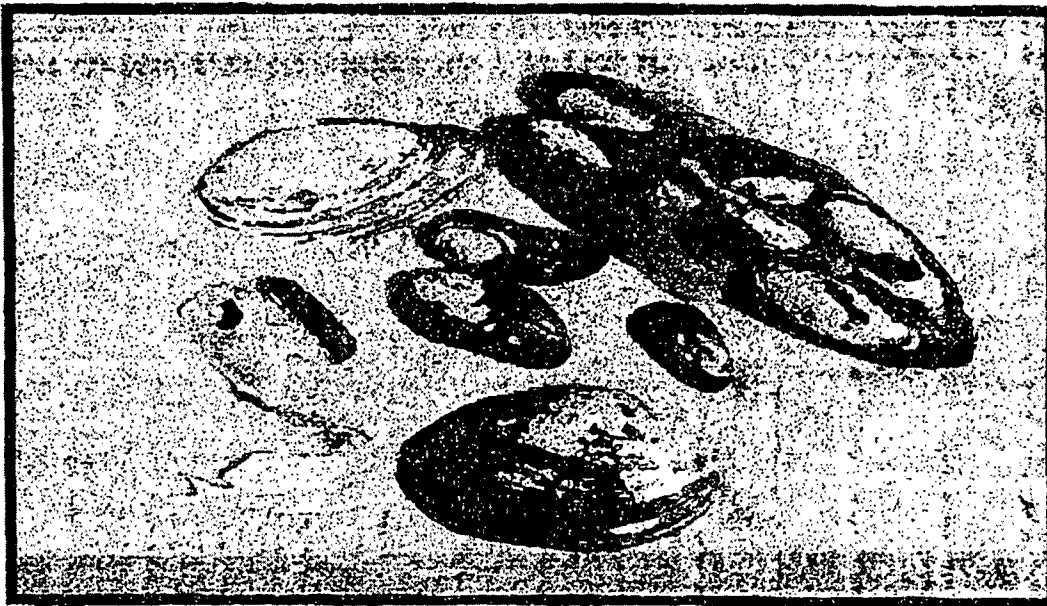


Photograph 11: 10/09/04 Chattahoochee R. at Farley Nuclear warm water discharge, Houston County, Alabama. All of the freshwater mussels that were in the mixing zone.



Photograph 12: 10/09/04 Chattahoochee R. at the Farley warm water discharge, Houston County, Alabama.

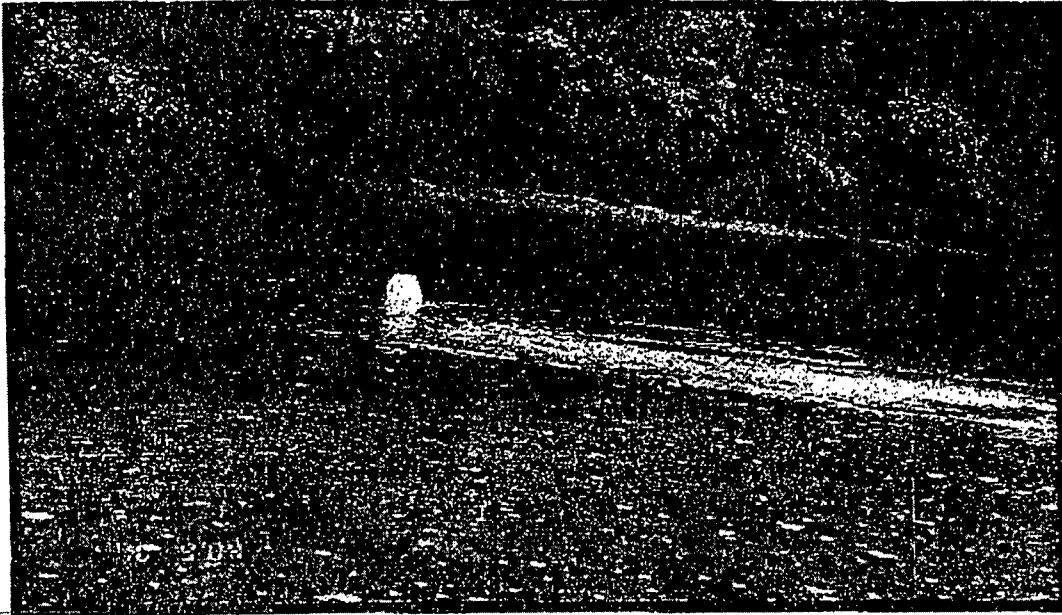
1. Left top delicate spike, *Elliptio arcata*
2. Left bottom giant floater, *Pyganodon grandis*
3. Right upper yellow sandshell, *Lampsilis teres*
4. Right bottom little spectaclecase, *Villosa lienosa*



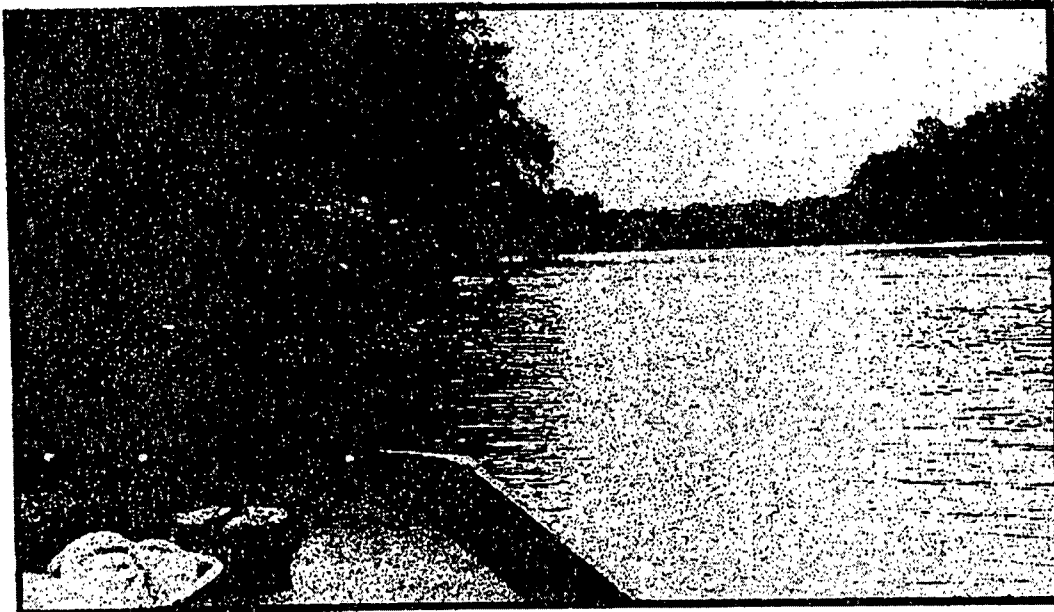
Photograph 9: 10/09/04 Chattahoochee R. at the Farley Nuclear warm water discharge, Houston County, Alabama. These are the freshwater mussel shells found in the mixing zone.



Photograph 10: 10/09/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. All freshwater mussels found in the mixing zone.



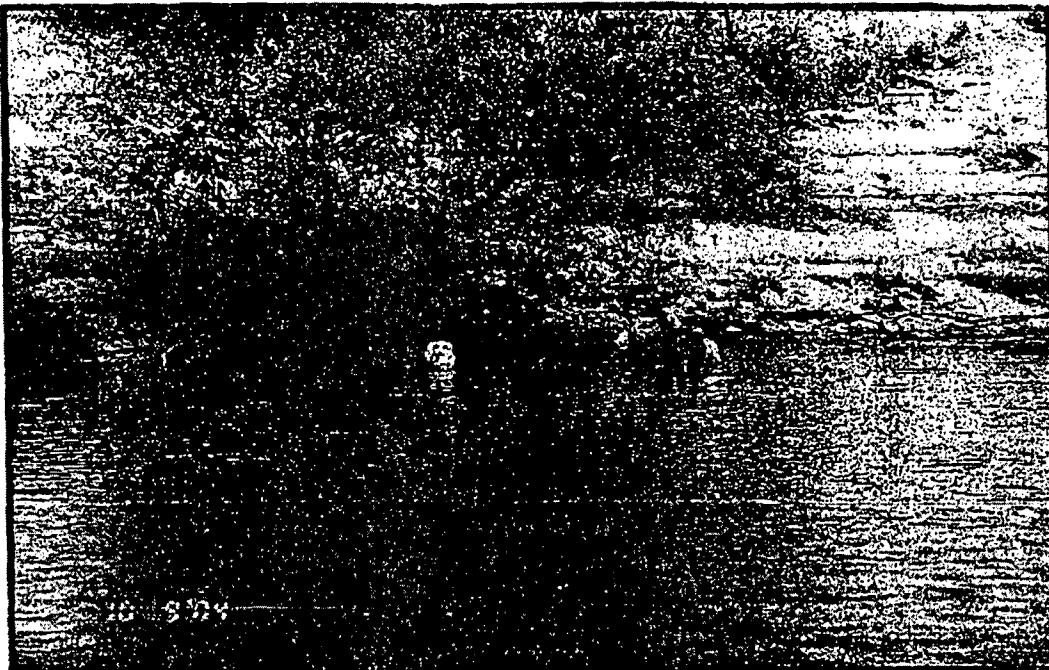
Photograph 7: 10/09/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. Divers bubbles as they complete a transect across the mixing zone.



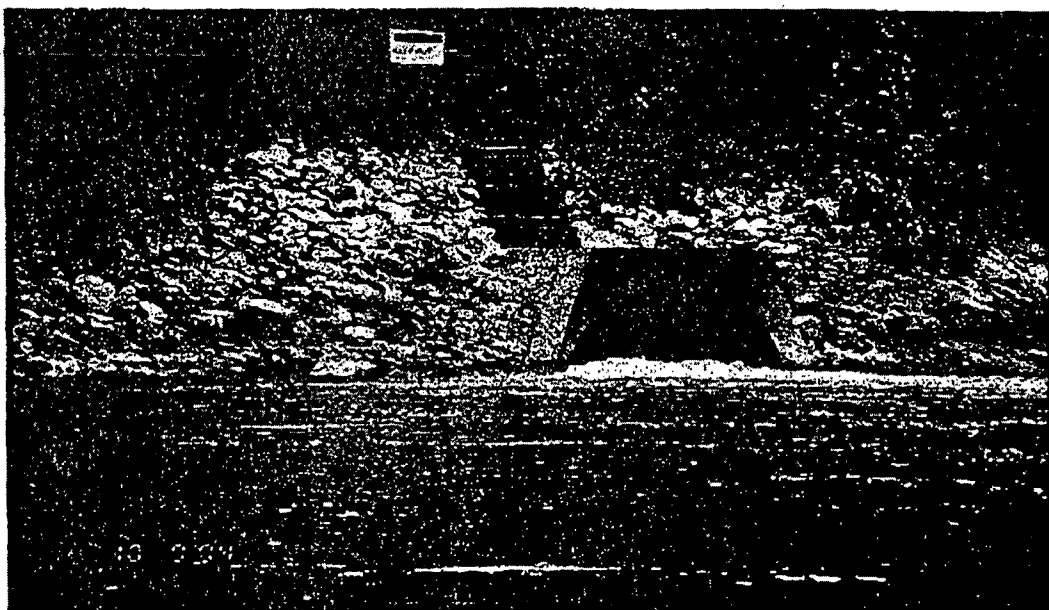
Photograph 8: 10/09/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. Lower end of mixing zone near the west bank of the river



Photograph 5: 10/09/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. Divers gearing up to search the area.



Photograph 6: 10/09/04 Chattahoochee River below the Farley Nuclear warm water discharge, Houston County, Alabama. Divers at west bank ready to start a transect search.



Photograph 3: 10/09/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. Mixing zone.



Photograph 4: 10/09/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. Facing east across the river a white buoy marks the 150 feet from the west bank to be searched.



Photograph 1: 10/09/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. Warm water discharge.



Photograph 2: 10/9/04 Chattahoochee R. below the Farley Nuclear warm water discharge, Houston County, Alabama. Beginning of mixing zone.