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October 27, 2008

UN#08-053

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

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Submittal of Response to Requests for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3 – Supplemental Aquatic RAIs

Reference: Greg Gibson to NRC Document Control Desk, "Submittal of Response to
Requests for Additional Information for the Calvert Cliffs Nuclear Power
Plant Unit 3," dated September 29, 2008

The purpose of this letter is to provide the NRC staff with the results of an examination of pile driving impacts on estuarine species in the Chesapeake Bay near the CCNPP site, which was inadvertently omitted from the referenced letter. Please find enclosed Appendix A, which identifies the relative sensitivity of each species and their probable response to noise and vibration impacts.

If there are any questions regarding this transmittal, please contact me or Mr. George Wrobel at (585) 771-3535.

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If there are any questions regarding this transmittal, please contact me or Mr. George Wrobel at (585) 771-3535.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 27, 2008

A handwritten signature in black ink, appearing to read 'Greg Gibson', written over a horizontal line.

Greg Gibson

Enclosure: Appendix A, Pile Driving Impacts to Estuarine Species in Chesapeake Bay near the CCNPP Site

cc: U.S. NRC Region I
U.S. NRC Resident Inspector, Calvert Cliffs Nuclear Power Plant, Units 1 and 2
NRC Environmental Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Design Certification Application (w/o enclosure)

Enclosure

Appendix A

Pile Driving Impacts to Estuarine Species in Chesapeake Bay near the CCNPP Site

Appendix A
Pile Driving Impacts to Estuarine Species in Chesapeake Bay near the CCNNP Site

Species (<i>Scientific Name</i>)	Major Impacts	Moderate Impacts	Minor Impacts	Seasonal Impacts	No Impacts
Threatened and Endangered Species					
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)					X
Atlantic sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>)			X		
Atlantic loggerhead turtle (<i>Caretta caretta</i>)			X	X	
Kemps ridley turtle (<i>Lepidochelys kempii</i>)			X	X	
Harvested Fish					
American shad (<i>Alosa sapidissima</i>)			X	X	
Bay anchovy (<i>Anchoa mitchilli</i>)					X
Atlantic menhaden (<i>Brevoortia tyrannus</i>)			X		
Atlantic croaker (<i>Micropogonias undulatus</i>)			X		
Striped bass (<i>Morone saxatilis</i>)		X			
Spot (<i>Leiostomus xanthurus</i>)		X			
White perch (<i>Morone americana</i>)		X			
Bluefish (<i>Pomatomus saltatrix</i>)					X
American eel (<i>Anguilla rostrata</i>)					X
Harvested Invertebrates					
Blue crab <i>Callinectes sapidus</i>		X			
American oyster <i>Crassostrea virginica</i>		X			
Additional Species					
Summer flounder (<i>Paralichthys dentatus</i>)		X			
Red drum (<i>Sciaenops ocellatus</i>)					X
Weakfish (<i>Cynoscion regalis</i>)					X
Spotfin killifish (<i>Fundulus luciae</i>)					X

Species (<i>Scientific Name</i>)	Major Impacts	Moderate Impacts	Minor Impacts	Seasonal Impacts	No Impacts
Alewife (<i>Alosa pseudoharengus</i>)					X
Blueback herring (<i>Alosa aestivalis</i>)					X
Green sea turtle (<i>Chelonia mydas</i>)					X
Leatherback sea turtle (<i>Dermochelys coriacea</i>)					X
Three Spine Stickleback (<i>Gasterosteus aculeatus</i>)		X		X	
Four Spine Stickleback (<i>Apeltes quadracus</i>)		X			
Black Drum (<i>Pogonias cromis</i>)			X	X	
Black sea bass (<i>Centropristis striata</i>)			X		
Bluegill (<i>Lepomis macrochirus</i>)					X
Striped blenny (<i>Chasmodes bosquianus</i>)			X	X	
Feathered blenny (<i>Hypsoblennius hentz</i>)			X	X	
Blue catfish (<i>Ictalurus furcatus</i>)			X	X	
White catfish (<i>Ameiurus catus</i>)			X	X	
Channel catfish (<i>Ictalurus punctatus</i>)			X	X	
Brown bullhead (<i>Ameiurus nebulosus</i>)			X	X	
Yellow bullhead (<i>Ameiurus natalis</i>)			X	X	
Cobia (<i>Rachycentron canadum</i>)					X
Cownose ray (<i>Rhinoptera bonasus</i>)			X	X	
Naked goby (<i>Gobiosoma bosc</i>)		X		X	
Seaboard goby (<i>Gobiosoma ginsburgi</i>)				X	
Green goby (<i>Microgobius thalassinus</i>)				X	
Hickory shad (<i>Alosa mediocris</i>)					X
Hogchoker (<i>Trinectes maculatus</i>)		X			
Lined seahorse (<i>Hippocampus erectus</i>)			X		
Longnose gar (<i>Lepisosteus osseus</i>)			X	X	
Lookdown (<i>Selene vomer</i>)			X		

Species (<i>Scientific Name</i>)	Major Impacts	Moderate Impacts	Minor Impacts	Seasonal Impacts	No Impacts
Spanish mackerel (<i>Scomberomorus maculatus</i>)					X
King mackerel (<i>Scomberomorus cavalla</i>)					X
Northern puffer (<i>Sphoeroides maculatus</i>)			X	X	
Oyster toadfish (<i>Opsanus tau</i>)			X		
Northern pipefish (<i>Syngnathus fuscus</i>)					X
Dusky pipefish (<i>Syngnathus floridae</i>)					X
Pumpkinseed (<i>Lepomis gibbosus</i>)			X	X	
Sandbar shark (<i>Carcharhinus plumbeus</i>)		X		X	
Northern searobin (<i>Prionotus carolinus</i>)			X		
Skilletfish (<i>Gobiesox strumosus</i>)			X		
Tautog (<i>Tautoga onitis</i>)			X	X	

Explanatory Notes:

Shortnose Sturgeon - Likelihood of encounter not high, are migratory and will presumably move away from area of impact (Natureserve)

Atlantic Sturgeon - Current distribution area includes Calvert County, are migratory and will presumably move away from area of impact (Natureserve) (Jenkins, 1994)

Atlantic Loggerhead Turtle - Chesapeake Bay important in summer months for subadults only. Current nesting distribution in VA and MD are in Accomack, Virginia Beach (city) and Worchester, all coastal counties/city (Natureserve)

Kemps Ridley Turtle - Rarely found in MD. Summer range of juveniles in Chesapeake Bay (Conant, 1998) (Natureserve)

American Shad - Prefer habitats near creek mouths. Move into Chesapeake during March-April and return to sea by the end of November, early December (Jenkins, 1994), are migratory and will presumably move away from area of impact

Bay Anchovy - Prefer lower freshwater and estuarine reaches of coastal rivers, bays, sounds, high salinity nearshore marine waters, and near mouth/tidal river, zooplankton feeder

Atlantic Menhaden - Continuous spawning, continuous migration

Atlantic Croaker - Mostly marine but are known to enter freshwater and be locally migrant, prefer mud and sand bottoms, mainly benthic feeder (Natureserve)

Striped Bass - Atlantic States Marine Fisheries Commission states that hydropower facilities and hydroelectric projects are a threat to the striped bass, more likely to stay in area of impact based on long-term residency of area, usually found further upstream from bay area (Jenkins, 1994)

Spot - Prefer mud and sand bottom habitats, spawn offshore, juveniles are non migrant, adults are migrant; benthic grazers (Natureserve)

White Perch - Occurs predominately in brackish water and close to shore in saltwater, common in quiet water, usually over mud, far up medium to large rivers in fresh water and in lakes and ponds with no ocean connection, move offshore during day, onshore at night, spawning occurs in shallow water. Eggs sink to bottom and stick (Thomson et al. 1978)

Bluefish -Mostly marine migrants rear continental shelf, some movement inshore to Bays and estuaries throughout July and August (Smithsonian marine station online)

American Eel - Extensive migratory pattern, found in upstream reaches for long periods of time but no distinct habitat preference. Feeds on smaller fish and periodically benthic crustaceans

Blue Crab - Main benthic feeders in the bay area, utilize all habitats within the bay area-varies with age, sex and season, breeding season occurs between May and October in the bay grass beds (Chesapeake Bay Program online)

American Oyster - Can be found in subtidal areas of the Chesapeake Bay and its tributaries. Concentrated in areas with shell, hard sand or firm mud bottoms at depths of 8 to 35 feet. Attach to one another, forming dense reefs (Chesapeake Bay Program online)

Summer Flounder - Bottom dwellers in muddy and sandy sediments, adults found in deep channels or sand bars and juveniles in eelgrass beds, must have sufficient sediment coverage for feeding (Chesapeake Bay Program online) found in the bay area between spring and fall and migrate offshore during winter months (Murdy et al, 1997)

Red Drum - Benthic feeder, seasonal migrations, most fish are identified near seaside beaches in the bay area, prefer 15 percent or more salinity (Murdy et al, 1997)

Weakfish - Found throughout bay in spring and summer and migrate during winter months, prefer shallow sandy bottoms, spawn near the mouth of the bay and feed on small schooling fish and other (Murdy et al, 1997)

Spotfin Killifish - Permanent resident of the rivulets and puddles of the upper reaches of the intertidal marshes (Chesapeake Bay area program online)

Alewife - Feed on mainly zooplankton, spend majority of time in open lake waters or marine waters except to spawn in the spring (Murdy et al, 1997)

Blueback Herring - Mostly the same as the Alewife, except spawning occurs later in the year (Murdy et al, 1997)

Green Sea Turtle - Most commonly feeds in shallow, low-energy waters with abundant submerged vegetation, migrates across open seas (NatureServe)

Leatherback Sea Turtle - Mainly pelagic expect to nest, nests on sloping sandy beaches backed by vegetation

Three Spine Stickleback - Migratory, builds a ball shaped nest from the soft muddy bottoms during winter and spring in shallow, vegetated areas of the bay (Chesapeake Bay program online)

Four Spine Stickleback - Year round resident, builds a cup shaped nest out of grasses and weeds between April and May in bay grass beds along the bay's shoreline (Murdy et al, 1977)

Black Drum - Migrant benthic feeder, spawn near Cape Charles Virginia from April to June and move throughout the bay until late fall

Black Sea Bass - Lower bay inhabitants prefer wrecks, jetties, pilings and rocky bottoms, spawn in bay and leave offshore in winter

Bluegill - Permanent inhabitant, commonly abundant in tributaries, prefers quiet slower-moving waters for spawning, sand and mud or gravel bottoms, spawning occurs April-September, nesting consists of fanning away detrital material and constructing a small depression on bottom (Murdy et al, 1997)

Striped and Feathered Blenny - Common to abundant residents, prefer oyster beds, mud flats and grass bed bottoms in summer and channels in winter, prefer to spawn in empty oyster shells, feed on crustaceans and mollusks (Murdy et al, 1997)

Blue Catfish - Prefer moderate to swift currents in main channels and backwaters of large and medium sized rivers, bottom feeders, spawn in bay from April to June in nests protected by parents until young hatch (Murdy et al, 1997)

White and Channel Catfish - Common in all tributaries, spawn early spring to summer, eggs laid in nests, feed on bottom-dwelling arthropods and some fish (Murdy et al, 1997)

Brown Bullhead - Found in all tributaries of the Chesapeake Bay, including ponds, lakes, and slow-flowing streams. Can tolerate salinities as high as 20 parts per thousand. Spawning occurs from April to June, with the eggs deposited under an overhang, log, or rock. Eggs and young are guarded by both male and female. (Murdy et al, 1997)

Yellow Bullhead - Common in shallow slow water, lots of vegetation, spawn in open areas or in vegetation, usually not found in waters with salinities great than 5 percent, bottom feeder, protects eggs and young, spawning occurs May-June (Murdy et al, 1997)

Cobia - Summer visitor to bay area, found in open waters around wrecks, buoys and pilings, migrants, opportunistic hunter (Murdy et al, 1997)

Cownose Ray - Flap wings to uncover covered shellfish in the sediments on the bottom, seasonal migrant

Naked Goby - Permanent resident, secretive, bury themselves in muddy bottoms in winter, found in shallower waters during summer months, lay eggs in empty oyster shells

Seaboard Goby - Permanent, secretive, range throughout bay, lay eggs in empty oyster shells

Green Goby - Permanent, secretive, most abundant around redbear sponges lay eggs in empty oyster shells

Hickory Shad - Not normally an abundant member, at northern most limit, feeds on other small fishes

Hogchoker - Year round resident, bottom dwellers in shallow and deep water with sandy, silty or muddy bottoms, hunt by burying themselves in the sediment, very abundant in the bay area

Lined Seahorse - Year round inhabitant in middle to lower bay area, found in Calvert County, shallow flats in eelgrass in summer and deeper water in winter with restrictive home range with limits of only a few feet, typically found clinging onto vegetation, sponges, pilings, or ropes, feeds on crustaceans (Murdy et al, 1997)

Longnose Gar - Probably present in all major tributaries of Chesapeake Bay, spawning occurs mostly in quiet areas and common in shallow freshwaters in Summer, larvae adhesively attach to submerged objects just above bottom, feed on a variety of fish and crustaceans (Murdy et al, 1997)

Lookdown - Found in schools over soft sand bottoms near bridges and pilings, feed on smaller fish, worms and crustaceans

King and Spanish Mackerel - Visit the bay between spring and fall, found usually along coastal waters, south of the Chesapeake, migrate long distances (Murdy et al, 1997)

Northern Puffer - Seasonal migrant, bottom dweller in flats and channel margins, feed on invertebrates, eggs attach to sandy or muddy bottoms

Oyster Toadfish - Bottom dwellers found near wrecks, debris, oyster reefs and muddy bottoms, move to deep waters in winter, feed on crabs, mollusks and small fish

Northern and Dusky Pipefish - Year round residents, found throughout bay, feed on tiny crustaceans, shallow bay grass beds in summer and deeper channel water in winter (Murdy et al, 1997)

Pumpkinseed - Prefer slow moving quiet waters, usually found in shallower water with lots of vegetation; sand, mud or gravel bottoms for spawning, spawning similar to Bluegill (Murdy et al, 1997)

Sandbar Shark - Feeds on blue crab and other bottom fishes, commonly found in shallow grass beds and sand bars, Chesapeake Bay is one of most important nursery grounds in Eastern US (Murdy et al, 1997)

Northern Searobin - Bottom dwellers found in the deep flats and channels, usually found in lower reaches of the bay, dislodge prey from bottom with pectoral fins (Murdy et al, 1997)

Skilletfish - Found year round in tributaries and bay, live among oyster reefs, mud flats and eelgrass beds, deep channels, like to cling to rocks and oyster shells, feed on bristle worms and crustaceans (Murdy et al, 1997)

Tautog - Locally abundant in lower bay area, seasonal abundance, frequently found in rocks piles, bridge pilings, artificial reefs and wrecks, feeds on crabs, crustaceans and mollusks (Murdy et al, 1997)

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