United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish and Wildlife Office
650 Capitol Mall, 5th Floor
Sacramento, California 95814

In reply refer to:
81410-2009-I-1237-01

Mr. William Guthrie
Senior Project Manager
Department of the Army
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Subject: Request for Concurrence of a Determination of Not Likely to Adversely Affect for the In Water Geotechnical Drilling, Bay Delta Conservation Plan (SPK-2009-00938), California - CORRECTION

Dear Mr. Guthrie:

This is in response to the U.S. Army Corps of Engineers' (Corps) August 31, 2009, request that the U.S. Fish and Wildlife Service (Service) concur with the determination that the In Water Geotechnical Drilling for the Bay Delta Conservation Plan in California is not likely to adversely affect the threatened delta smelt (*Hypomesus transpacificus*). The Corps letter was received in our office on September 1, 2009. This response is in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S. C. 1531 *et seq.*). Due to a need to correct slight errors in the project description, this letter replaced the letter dated September 15, 2009.

Our response is based on the following: (1) the September 1, 2009, initiation letter from the U.S. Army Corps of Engineers (Corps), (2) the *Biological Assessment for Engineering Geotechnical Activities In-Water, Bay Delta Conservation Plan*, (3) electronic mail and telephone exchanges between the Service and the Department of Water Resources (DWR), and (4) other information available to the Service.

The DWR is planning 16 in-water, geotechnical borings in the Sacramento-San Joaquin Delta to obtain geotechnical information for conceptual intake structures and tunnels for current alignment options of the water conveyance facilities associated with Bay Delta Conservation Plan. Six borings are located on the Sacramento River between Courtland and the Pocket area of Sacramento, two borings are located in the Sacramento River near Walnut Grove, one boring is located on Steamboat Slough near its confluence with the Sacramento River, one boring is located on Dutch Slough near its confluence with Taylor Slough, one boring is located on Columbia Cut near its confluence with Middle River, one boring is located in Potato Slough off

Venice Island, one boring is located in San Joaquin River off Venice Island, one boring is located on the San Joaquin River near Fourteen Mile Slough, and two borings are located in the north fork of Mokelumne River between Tyler Island and Staten Island. The sites are located in the following 7.5-minute U.S. Geological Survey Quadrangles: Bouldin Island, Clarksburg, Courtland, Holt, Isleton, Jersey Island, and Rio Vista. If a boring cannot be completed to the required depth within one day, the drill apparatus will remain in the borehole. Drilling will then continue the following day within the same borehole. The total number of borings will not exceed 20.

The exploration drilling is planned to take place between August 1 and October 31 (either 2009 or 2010) because this is the recognized opportunity window for best avoidance measures for sensitive environmental resources. The drilling at each location will be completed in approximately one or two 12-hour days for a total of approximately 30 days. The drilling will be conducted with a Mud Rotary Boring rig mounted on a shallow draft barge or ship. The barge or ship will be anchored into the bottom of the channel with spuds at each corner of the barge while the work is being performed to prevent the barge from drifting. The spuds are steel rods driven into the channel bottom. There will be no laydown or staging areas required for the project, since all materials required during the project will be loaded directly onto the ship or barge at the marina. The barge or ship will anchor at Coast Guard designated locations or will remain anchored at the exploration site if the hole requires two days to drill. The drill apparatus (a 4- to 6-inch diameter sleeve for the drill) will remain in the water column and drill hole overnight. There will be no drilling at night. Material taken off the ship at the marina will be transported off-site.

Samples will be obtained using both Standard Penetration Tests (SPT) and Shelby tube samples. Standard Penetration Tests will be taken in the sandy soils, and Shelby tube (push) samples will be taken in soft clay soils. Standard Penetration Tests are performed by dropping a 140-pound automatic hammer on the drill string to drive a sampler about 1.5 feet. This is a test conducted in short durations (a few minutes for each test) using a relatively small energy source. Vibrations from the test are minimal and should not be detectable within the water during testing. The tests will be performed within a cased section that runs from the ship (or barge, if used) through the water column and through at least the first 15 feet of the river bottom from the mud line. Standard Penetration Tests testing will begin when the casing is set and the depth of the hole (below mud line) is at least 15 feet deep. The decibel (db) level at the time of impact of the hammer drop and immediately adjacent to the drill rig on the ship or barge deck would be about 85 db. The tests in the delta normally result in values (hammer blows) from 0 blows per foot in the soft peat, clays, and silts, to a maximum of 100 blows per foot in very dense sands usually at depths greater than 50 feet. The hammer rate is kept between 30 and 40 blows per minute. The maximum expected duration of the SPT test would be about 3.5 minutes. The Shelby tube tests are conducted by pushing on the drill string with the weight of the drill rig. No vibrations are produced from pushing Shelby tubes.

The borings will be advanced using mud rotary method and will be drilled and sampled to a maximum depth of about 140 to 200 feet below the bottom of the slough or river. Initially, the hole will be advanced by pushing an approximate 6- to 8-inch diameter conductor casing to a depth of at least 15 feet below the bottom of the slough or river channel. The conductor casing

extends from the top of the barge or ship deck to at least 15 feet below the bottom of the slough or river. Soil samples can be collected from within the conductor casing. The drill hole below the conductor casing will be approximately 4.5 to 7.0 inches in diameter.

The pushed conductor casing will provide a reliable seal to contain the drilling fluid within the closed system. The drilling fluids will be kept in a closed system to prevent fluids from escaping. Only water will be circulated through the pumps and drill string while drilling and sampling in the conductor casing and within 15 feet of the slough or river bottom. The drilling fluid will pass down the center of the drill rod to the cutting face in the formation being drilled and will return up the drilled hole with the suspended cuttings. The drilling fluids and cuttings are confined by the drilled hole and the conductor casing. Return drill fluids will pass through the conductor casing to the barge or ship deck and then through a tee connection at the head of the conductor casing into the drilling fluid recirculation tank. Breaking drill rod and sample rod connections will be conducted either directly over the conductor casing or the recirculation tank.

Drill cuttings that settle out in the recirculation tank will be shoveled into drums. Good work practices are important and will be used in containing the drilling fluid, including taking care when shoveling drill cuttings from the recirculation tank to the drums. The drums will be placed adjacent to the recirculation tank. If drilling fluid or drill cuttings materials spill onto the ship or barge deck while shoveling or during any other operation, they shall be immediately picked up with a flat blade shovel and placed either into the tank or a drum. Discarded samples shall be placed in the cutting drums.

Upon completion of each hole, the full depth of the borings will be grouted with five percent by weight bentonite and 95 percent by weight cement grout. Water will then be circulated in the portion of the conductor casing above the channel bottom to clear out any remaining drilling mud. The conductor casing may then be pulled out of the channel bottom. Personnel on the barge or ship will watch for colored plumes in the water when drilling, grouting, and pulling casing. Colored plumes are an indication that material may be leaking into the water. If colored plumes are discovered, activities shall cease until appropriate corrective measures have been completed or it has been determined that the environment will not be harmed. Cuttings and excess drilling fluid will be contained in drums or bins and disposed of at an appropriate landfill. The borings will be advanced by a licensed drilling contractor under the direction of DWR personnel or its Contractor. A DWR or Contractor Engineering Geologist or Engineer and Environmental Scientist will be on site at the drill rig at all times during the operation.

The Service concurs that the proposed In Water Geotechnical Drilling for the Bay Delta Conservation Plan is not likely to adversely affect the delta smelt. All work will be conducted during the work window for delta smelt when they are not likely to be present in the project location and no effects to delta smelt habitat will result from this project. The measures described in the biological assessment will avoid effects to delta smelt within the proposed project's site.

This concludes the Service's review of the proposed In Water Geotechnical Drilling for the Bay Delta Conservation Plan, California, and no further coordination with the Service under the Act is necessary at this time. Please note, however, that this letter does not authorize take of listed species. As provided in 50 CFR §402.14, initiation of formal consultation is required where

there is discretionary Federal involvement or control over the action (or is authorized by law) and if: 1) new information reveals the effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this review; 2) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this review; or 3) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this response, please contact Mary Grim at the letterhead address or via email at mary_grim@fws.gov.

Sincerely,

Mary Grim
Assistant Field Supervisor

cc:
Michelle Beachley, Department of Water Resources, Sacramento, California
Barbara Dugal, State Lands Commission, Sacramento, California