BETORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING REGARDING PETITION FILED BY THE DEPARTMENT OF WATER RESOURCES AND U.S. BUREAU OF RECLAMATION REQUESTING CHANGES IN WATER RIGHTS FOR THE CALIFORNIA WATERFIX PROJECT

PACIFIC COAST FEDERATION OF FISHERMEN’S ASSOCIATIONS’ AND INSTITUTE FOR FISHERIES RESOURCES’ CROSS EXAMINATION QUESTIONS FOR DWR ENGINEER SHANMUGRAM PIRABAROOBAN

Hearing Date: August 24, 2016
Time: 9:00 a.m.

TO HEARING OFFICERS DODUC, MARCUS AND D’ADAMO:

Pursuant to the direction of Hearing Chair Doduc on August 23, 2016, please find below
the questions of Pacific Coast Federation of Fishermen’s Associations and Institute for Fisheries Resources for Petitioners’ Engineering Panel witness Shanmugram Pirabarooran:

Questions for Shanmugram Pirabarooran

(As part of the engineering panel with John Bednarski, Sergio Valles, and Gwen Buchholz)

200-Year Flood Event.

Please refer to DWR-57, p. 8 (WaterFix has the ability to withstand a 200-year flood event with climate change).

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PCFF/IFR CROSS EXAMINATION QUESTIONS FOR DWR ENGINEER SHANMUGRAM PIRABAROOBAN -1-
Q: Why was a 200-year flood event selected instead of, say, a 500-year flood event?

Q: Is it true that 500-year seismic events were considered? If so, is there a reason 500-year flood events were not?

Q: Over the 100-year design life of the WaterFix project what is the probability that a 500-year flood event would occur?

Q: How does this compare with the probability that a 200-year flood event would occur during the 100-year design life?

Q: Does your calculation of a 200-year flood event include 200 years of climate change impacts? If not, how many years of climate change impact are included in your calculation?

Q: Is it true that much of the calculation of climate change impacts appears to have been limited to the change projected to occur by 2025?

Q: Does this leave out almost the entire 100-year design life of the project if planning and construction times are taken into account?

Q: Should your calculation have included all of the climate change impacts that are projected to occur within the 100-year design life?

**Sea Level Rise.**

Please refer to DWR-212, p. 51 (engineered to 18 inches of sea level rise).

Q: Was 18 inches of sea level rise selected on the basis of the Blue Ribbon Task Force’s recommendations, or was there some other basis for selecting 18 inches?

Please refer to PCFFA-8.

Q: Do you agree with the Independent Science Board’s comment, as cited by the Blue Ribbon Panel, that initial estimates of sea level rise may be low? If so, how did you take this into account in your calculations of sea level rise expected during the 100-year design life? If you don’t agree with this comment, what is the basis for your disagreement?

Q: Please refer to PCFFA-9. Do you agree with the Delta Independent Science Board’s comment to the effect that Bay Delta Conservation Plan sea level rise estimates are not adequately evaluated? If so, how did you take this into account in your calculations of sea level rise expected
during the 100-year design life? If you don’t agree with this comment, what is the basis for your disagreement?

Please refer to PCFFA-10.

Q: Do you agree with the National Oceanic and Atmospheric Administration’s 2012 preferred infrastructure prediction of 6.6 feet of sea level rise by 2100? If so, how did you take this into account in your calculations of sea level rise expected during the 100-year design life? If you don’t agree, what is the basis for your disagreement?

Q: In what year is 18 inches of sea level rise predicted to occur in the vicinity of the proposed North Delta Diversion intakes? Why did you pick this year?

Q: What amount of sea level rise in San Francisco Bay corresponds to the 18 inch rise at the North Delta Diversion intakes?

Q: Have you calculated the probability that sea level rise at the North Delta Diversion intakes will be greater than 18 inches within the 100-year design life? If so, what is that probability? If you have not done this calculation, would it be prudent to do so now?

Q: What would happen if sea level rise were greater than 18 inches at the North Delta Diversion intakes during the 100 year design life?

Earthquakes

Q: What is the design earthquake in terms of Richter Scale magnitude for each major component of the WaterFix?

Q: What are the names of the faults whose foreseeable rupture the WaterFix is designed to withstand? What Richter Scale magnitude did you assign to each of these faults for the design life of the WaterFix?

Q: What is the magnitude of expected ground motion at the WaterFix facilities during their design life, expressed as (1) lateral acceleration; (2) vertical acceleration; and (3) ground displacement?

Q: What are the documents upon which you based your calculations of expected ground motion during the WaterFix’s design life?

Q: How has your design taken these ground motion calculations into account?
Q: What emergency procedures are contemplated if an earthquake exceeds these design criteria?

Dated: August 24, 2016

LAW OFFICES OF STEPHAN C. VOLKER

STEPHAN C. VOLKER
Attorney for Protestants
PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS and INSTITUTE FOR FISHERIES RESOURCES
STATEMENT OF SERVICE

CALIFORNIA WATERFIX PETITION HEARING
Department of Water Resources and U.S. Bureau of Reclamation (Petitioners)

I hereby certify that I have this day submitted to the State Water Resources Control Board and caused a true and correct copy of the following document(s):

PACIFIC COAST FEDERATION OF FISHERMEN’S ASSOCIATIONS’ AND INSTITUTE FOR FISHERIES RESOURCES’ CROSS EXAMINATION QUESTIONS FOR DWR ENGINEER SHANMUGRAM PIRABAROOBAN

to be served by Electronic Mail (email) upon the parties listed in Table 1 of the Current Service List for the California WaterFix Petition Hearing, dated August 8, 2016, posted by the State Water Resources Control Board at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/service_list.shtml

I certify that the foregoing is true and correct and that this document was executed on August 24, 2016.

Name: Teddy Ann Fuss
Title: Legal Secretary
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