MEMORANDUM

To: Jim Well Date: 9 January 2014

Ducks Unlimited

From: Yantao Cui, Ph.D., Number of pages: 1

Senior Hydraulic Engineer

Subject: Comments on MWH Memorandum Titled "M&T Intake, West Bank Intake, Engineering Analysis"

dated 12 December 2013

The above MWH memorandum answered all my significant questions listed in my 14 October 2013 draft memorandum (Cui 2013). Based on the MWH memorandum, relocating the intake to the west bank is significantly more expensive than other alternatives in discussion and with added difficulty in pumping operation due to the increased distance accessing the intake. On the question of whether the channel is aggradational or degradational in the future, I agree that there are some warranted uncertainties even though I still think the channel will most likely degradational. Such uncertainties are unlikely resolvable with additional studies due to the limitations in the current understanding in river science. Because of the increased cost, the added inconvenience in pumping operation and the uncertainties associated with potential channel aggradation/degradation along the west bank that may negatively affect future pumping operation, I believe the relocating the pump intake to the west bank should be considered as a less desirable solution.

References

Cui, Y. (2013) "Comments on tetra Tech Draft Evaluation of the Proposed M&T Intake on the West Bank of the Sacramento River dated 14 October," Memorandum, 23 October.

Tetra Tech, (2013) "Evaluation of the Proposed M&T Pump Intake on the West Bank of the Sacramento River," Draft memorandum, 14 October.