EXHIBIT C: USBR BiOp COMPLIANCE RESPONSIBILITIES v02012019

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NMFS	11.2.1.1 (1 - 9)	Recommendations for adjusting operations to meet contractual obligations for water delivery and minimize adverse effects on listed anadromous fish species: • Sacramento River Temperature Task Group (SRTTG) • Clear Creek Technical Working Group (CCTWG) • American River Group (ARG) • San Joaquin River Technical Committee (SJRTC) This RPA requires the creation of three additional technical teams: • Stanislaus Operations Group (SOG) • Interagency Fish Passage Steering Committee Each group has responsibility to gather and analyze information, and make recommendations, regarding adjustments to water operations within the range of flexibility prescribed in the implementation procedures for a specific action in their particular geographic area. Under previous operations plans, recommendations for adjustments were made to the Water Operations Management Team (WOMT), a management-level group of representatives of Reclamation, DWR, CDFG, NMFS, and USFWS. The WOMT then made recommendations to state and regional directors for final action. Additional information on this RPA Action can be found in the Biological Opinion.	$ -	$ -	$ -	$ -
NMFS	11.2.1.3 (7)	7) Reclamation shall coordinate with NMFS, the USFWS, and CDFG to continue implementation and funding of fisheries monitoring of spring-run and CV steelhead (including adult snorkel surveys, population estimates for steelhead, and rotary screw trapping) **in Clear Creek** to aide in determining the benefits and effects of flow and temperature management.			$ -	$ -
NMFS	11.2.2: Action I.1 (Suite)	Suite Objective: The proposed action includes a static flow regime (no greater than 200 cfs all year) and uncertainty as to the availability of b(2) water in the future pose significant risk to these species. The RPA actions described below were developed based on a careful review of past flow studies, current operations, and future climate change scenarios. Although not all of the flow studies have been completed, NMFS believes these actions are necessary to address adverse project effects on flow and water temperature that reduce the viability of spring-run and CV steelhead in Clear Creek.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.1.1	Objective: Encourage spring-run movement to upstream Clear Creek habitat for spawning.	$ 322,213.20	$ 187,313.16	$ 749.00	$ -
NMFS	11.2.2: Action I.1.2	Objective: Minimize project effects by enhancing and maintain previously degraded spawning habitat for spring-run and CV steelhead	$ 873,947.50	$ 270,165.11	$ 873,947.50	$ 873,947.50

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NMFS	11.2.2: Action I.1.4	Objective: Reduce adverse impacts of project operations on water temperature for listed salmonids in the Sacramento River. (Note: This action benefits Sacramento River conditions, but is part of Clear Creek operations)	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.1.5	Objective: To reduce thermal stress to over-summering steelhead and spring-run during holding, spawning, and embryo incubation.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.1.6	Objective: Decrease risk to Clear Creek spring-run and CV steelhead population through improved flow management designed to implement state-of-the-art scientific analysis on habitat suitability.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.1	Objective: To establish and operate to a set of performance measures for temperature compliance points and End-of-September (EOS) carryover storage, enabling Reclamation and NMFS to assess the effectiveness of this suite of actions over time. Performance measures will help to ensure that the beneficial variability of the system from changes in hydrology will be measured and maintained.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.2.A	Minimize impacts to listed species and naturally spawning non-listed fall-run from high water temperatures by implementing standard procedures for release of cold water from Shasta Reservoir.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.2.B	Minimize impacts to listed species and naturally spawning non-listed fall-run from high water temperatures by implementing standard procedures for release of cold water from Shasta Reservoir.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.2.C	Minimize impacts to listed species and naturally spawning non-listed fall-run from high water temperatures by implementing standard procedures for release of cold water from Shasta Reservoir.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.3	Objective: To conserve water in Shasta Reservoir in the spring in order to provide sufficient water to reduce adverse effects of high water temperature in the summer months for winter-run, without sacrificing carryover storage in the fall.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.3.A	NMFS will review the draft February forecast to determine whether both a temperature compliance point at Balls Ferry during the temperature control season (May – October), and EOS storage of at least 2.2 MAF, is likely to be achieved. If both are likely, then Reclamation shall announce allocations and operate Keswick releases in March, April, and May consistent with its standard plan of operation. Preparation of a separate Keswick release schedule is not necessary in these circumstances.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.3.B	Objective: It is necessary to manage storage for potential dry years, to reduce adverse effects on winter-run egg incubation in summer months, and on spring-run in fall months. According to information provided by Reclamation, the hydrology is too variable this time of year to provide for a meaningful 3-month release schedule. Instead, monthly consultations between NMFS and Reclamation are needed to ensure that operations are based on biological criteria.	$ -	$ -	$ -	$ -

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NMFS	11.2.2: Action I.2.3.C	Objective: In these circumstances, there is a one-in-ten likelihood that minimal requirements for winter-run egg survival will not be achieved due to depletion of the cold water pool, resulting in temperature-related mortality of winter-run and, in addition, most likely contributing to temperature-related mortality of spring-run spawning in the fall. This is a conservative forecast, since there is a 90 percent probability that conditions will improve. However, the effects analysis in this Opinion concludes that these poor conditions could be catastrophic to the species, potentially leading to a significant reduction in the viability of winter-run. Delta objectives (salinity, X2, E/I ratio, OMR flow restrictions for both smelt and salmon) are also controlling at this time of year. There is potential for conflict between the need to maintain storage at Shasta and other legal and ecological requirements. Consequently, it is necessary to immediately limit releases from Shasta and develop a contingency plan. Notification to the State Water Resources Control Board (SWRCB) is essential. Sacramento Settlement Contract withdrawal volumes from the Sacramento River can be quite substantial during these months. The court has recently concluded that Reclamation does not have discretion to curtail the Sacramento Settlement contractors to meet Federal ESA requirements. Therefore, NMFS is limited in developing an RPA that minimizes take to acceptable levels in these circumstances. Consequently, other actions are necessary to avoid jeopardy to the species, including fish passage at Shasta Dam in the long term. Separate from this consultation, NMFS will work with the SWRCB to determine whether contingency plans within the Board's authority are warranted, and to assist in developing such plans that will allow Reclamation to meet ESA requirements. The incidental take statement for this Opinion also provides limitations of ESA incidental take coverage for Settlement Contractors under the terms of this Opinion.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.2.4	Objective: To manage the cold water storage within Shasta Reservoir and make cold water releases from Shasta Reservoir to provide suitable habitat temperatures for winter-run, spring-run, CV steelhead, and Southern DPS of green sturgeon in the Sacramento River between Keswick Dam and Bend Bridge, while retaining sufficient carryover storage to manage for next year's cohorts. To the extent feasible, manage for suitable temperatures for naturally spawning fall-run.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.3 (Suite)	Objectives: Reduce mortality and delay of adult and juvenile migration of winter-run, spring-run, CV steelhead, and Southern DPS of green sturgeon caused by the presence of the diversion dam and the configuration of the operable gates. Reduce adverse modification of the passage element of critical habitat for these species. Provide unimpeded upstream and downstream fish passage in the long term by raising the gates year-round, and minimize adverse effects of continuing dam operations, while pumps are constructed replace the loss of the diversion structure.	$ -	$ -	$ -	$ -

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NMFS	11.2.2: Action I.3.1	Objectives: Reduce mortality and delay of adult and juvenile migration of winter-run, spring-run, CV steelhead, and Southern DPS of green sturgeon caused by the presence of the diversion dam and the configuration of the operable gates. Reduce adverse modification of the passage element of critical habitat for these species. Provide unimpeded upstream and downstream fish passage in the long term by raising the gates year-round, and minimize adverse effects of continuing dam operations, while pumps are constructed replace the loss of the diversion structure.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.3.2	Objectives: Reduce mortality and delay of adult and juvenile migration of winter-run, spring-run, CV steelhead, and Southern DPS of green sturgeon caused by the presence of the diversion dam and the configuration of the operable gates. Reduce adverse modification of the passage element of critical habitat for these species. Provide unimpeded upstream and downstream fish passage in the long term by raising the gates year-round, and minimize adverse effects of continuing dam operations, while pumps are constructed replace the loss of the diversion structure.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.3.3	Objective: Allow passage of green sturgeon during interim operations.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.3.4	Objective: Offset short-term effects to green sturgeon due to interim gate operations by investing in geographically specific research needed to determine green sturgeon life history and recovery needs.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.3.5	Objective: Offset unavoidable short-term effects to spring-run from passage impediments of RBDD by restoring spring-run passage elsewhere in the Sacramento River system.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action I.4	Objective: Enhance the ability to manage temperatures for anadromous fish below Shasta Dam by operating Wilkins Slough in the manner that best conserves the dam's cold water pool for summer releases.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action II.1	Objective: To provide minimum flows for all steelhead life stages.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action II.2	Objective: Maintain suitable temperatures to support over-summer rearing of juvenile steelhead in the lower American River.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action II.3	Objective: Improve the ability to manage the cold water pool to provide suitable temperatures for listed fish through physical and structural improvements at the dams.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action II.4	Objective: Reduce stranding and isolation of juvenile steelhead through ramping protocols.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action III.1.1	Reclamation shall create a SOG to provide a forum for real-time operational flexibility implementation of the alternative actions defined in this RPA and for clarification of decision-making processes regarding other allocations of the NMTP. This group shall include Reclamation, NMFS, USFWS, DWR, CDFG, SWRCB, and outside expertise at the discretion of NMFS and Reclamation. This group shall provide direction and oversight to ensure that the East Side Division actions are implemented, monitored for effectiveness and evaluated. Reclamation, in coordination with SOG, shall submit an annual summary of the status of these actions.	$ -	$ -	$ -	$ -

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NMFS	11.2.2: Action III.1.2	Reclamation shall manage the cold water supply within New Melones Reservoir and make cold water releases from New Melones Reservoir to provide suitable temperatures for CV steelhead rearing, spawning, egg incubation smoltification, and adult migration in the Stanislaus River downstream of Goodwin Dam	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action III.1.3	Reclamation shall operate releases from the East Side Division reservoirs to achieve a minimum flow schedule as prescribed in Appendix 2-E and generally described in figure 11-1	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action III.2 (Suite)	Dam operations have and will continue to suppress channel-forming flows that replenish spawning beds. The physical presence of the dams impedes normal sediment transportation processes. This action is necessary to partially alleviate adverse modification of steelhead critical habitat from operations.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action III.2.2	Reclamation shall seek advice from SOG to develop an operational strategy to achieve floodplain inundation flows that inundate CV steelhead juvenile rearing habitat on a one- to three-year return schedule. Reclamation shall submit a proposed plan of operations to achieve this flow regime by June 2011. This plan shall include the minimum flow schedule identified in Action III.1.2, or shall provide justification for any proposed modification of the minimum flow schedule. NMFS will review and, if satisfactory, approve the operational strategy. Reclamation will implement strategy starting in 2012.	$ -	$ -	$ -	$ -
NMFS	11.2.2: Action IV.1.2	**DCC Gate Operation** **Objective:** Modify DCC gate operation to reduce direct and indirect mortality of emigrating juvenile salmonids and green sturgeon in November, December, and January. **Action:** During the period between November 1 and June 15, DCC gate operations will be modified from the proposed action to reduce loss of emigrating salmonids and green sturgeon. The operating criteria provide for longer periods of gate closures during the emigration season to reduce direct and indirect mortality of yearling spring-run, winter-run, and CV steelhead. From December 1 to January 31, the gates will remain closed, except as operations are allowed using the implementation procedures/modified Salmon Decision Tree (below). **Implementation procedures:** *Monitoring data related to triggers in the decision tree will be reported on DAT calls and evaluated by DOSS (for formation of DOSS – see **Action IV.5**).* ***Reclamation/DWR** shall take actions within 24 hours of a triggered condition occurring. If the decision tree requires an evaluation of data or provides options, then DOSS shall convene within one day of the trigger being met. DOSS shall provide advice to NMFS, and the action shall be vetted through WOMT standard operating procedures.*	$ -	$ -	$ -	$ -

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	11.2.2: Action IV.4.1	Objective: Implement specific measures to reduce pre-screen loss and improve screening efficiency at Federal facilities. Action: Reclamation shall undertake the following actions at the TFCF to reduce pre-screen loss and improve screening efficiency: 1) By December 31, 2012, improve the whole facility efficiency for the salvage of Chinook salmon, CV steelhead, and Southern DPS of green sturgeon so that overall survival is greater than 75 percent for each species. a) By December 31, 2011, Reclamation shall complete studies to determine methods for removal of predators in the primary channel, using physical and non-physical removal methods (e.g., electricity, sound, light, CO2), leading to the primary louver screens with the goal of reducing predation loss to ten percent or less. Findings shall be reported to NMFS within 90 days of study completion. By December 31, 2012, Reclamation shall implement measures to reduce pre-screen predation in the primary channel to less than ten percent of exposed salmonids. b) By March 31, 2011, Reclamation shall complete studies for the re-design of the secondary channel to enhance the efficiency of screening, fish survival, and reduction of predation within the secondary channel structure and report study findings to NMFS. NMFS shall review study findings and if changes are deemed feasible, Reclamation shall initiate the implementation of the study findings by January 31, 2012. c) No later than June 2, 2010, Reclamation shall submit to NMFS, one or more potential solutions to the loss of Chinook salmon and green sturgeon associated with the cleaning and maintenance of the primary louver and secondary louver systems at the TFCF. In the event that a solution acceptable to NMFS is not in place by June 2, 2011, pumping at the Tracy Pumping Plant shall cease during louver cleaning and maintenance operations to avoid loss of fish during these actions. 655 2) By December 31, 2011, Reclamation shall implement operational procedures to optimize the simultaneous salvage of juvenile salmonids and Delta smelt at the facility.	$ -	###########	$ 1,083,000.00	$ -
NMFS	13.3 (3)	NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of winter-run, spring-run, CV steelhead, and the Southern DPS of green sturgeon. 3. Reclamation shall minimize the adverse effects of flow fluctuations associated with CVP-controlled stream operations on listed anadromous fish species spawning, egg incubation, and fry and juvenile rearing.	$ -	$ -	$ -	$ -

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NMFS	13.4 (3 a -c)	3. Reclamation shall minimize the adverse effects of flow fluctuations associated with CVP-controlled stream operations on listed anadromous fish species spawning, egg incubation, and fry and juvenile rearing. a. Reclamation shall schedule maximum ramping down rates of non-Glory Hole (i.e., non-flood control) releases from Whiskeytown Reservoir according to the table, below (estimated at RM 3.03). Ramping rates for releases greater than 300 cfs shall be made after consultation with the Clear Creek Technical Team, considering: time of year, time of day, timing the change to occur with natural changes in-flow and/or turbidity, size of fish present in the creek, species and protected status of vulnerable fish, the amount of water required, and relative costs or benefits of proposed flow. Reclamation shall time flow decreases so that the most juvenile Chinook salmon and steelhead experience the stage decrease during darkness. Maximum ramping rate of flow releases from Whiskeytown Dam into Clear Creek shall be accomplished based on the following targets within the precision of the outlet works or the City of Redding powerplant equipment. b. During periods outside of flood control operations and to the extent controllable during flood control operations, Reclamation shall ramp down releases in the American River below Nimbus Dam as follows: c. During periods outside of flood control operations and to the extent controllable during flood control operations, Reclamation shall ramp releases in the Stanislaus River below Goodwin Dam as follows:	$ -	$ -	$ -	$ -
NMFS	14.0 (4)	Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. NMFS thinks the following conservation recommendations are consistent with these obligations, and therefore, should be implemented by Reclamation: 4. Reclamation should conduct studies to determine the economic feasibility and extent of biological benefits to listed species and critical habitats of completely removing the RBDD from the Sacramento River.	$ -	$ -	$ -	$ -