shed or ground water basin analyzed in this EIS/EIR,..." Unless included within the scope of this EIS/R this would lead to piece-mealing project impacts. Also, New Melones Reservoir and the Stanislaus River were not included in the Areas of Analysis so according to this declaration in the EIS/R, no water from this basin can be included in future water transfers under this project. 81

- Pg 2-14, Figure 2-4 – Water transferred from Merced Irrigation District would have to flow down the San Joaquin River and other channels prior to being diverted by the CVP or SWP pumps in the south Delta or ther diversions. The EIS/R analysis did not take into account the amount of that water lost in transit. Evaporative losses and losses to groundwater are likely significant. This type of water loss in the transfer process is also true of all of the other water transfers to varying degrees depending on locations, transit path and times of year. As a result of the flawed assumptions of the EIS/R analysis, the project proposes to divert much more water than would actually be saved and understates the reduction in available water supply for other needs and the related impacts. As a result of the project taking too much credit for the amount of water transferred, the project would actually result in a net deficit of water in the delta and tributaries rather than the neutral flow impact the project analysis claims in the EIS/R. The impacts were not adequately identified, characterized, evaluated, quantified, mitigated or disclosed in the EIS/R. The EIS/R is flawed in its water conveyance loss assumptions and therefore deficient in its analysis and disclosure and must be revised. Attached is a copy of the May 24,2013 letter from the USBR and DWR to Tom Howard attempting to justify the April 28,2013 violation of the D-1641 salinity objective at Emmaton. The letter highlights a dramatic increase in overall rates of depletion to reservoir releases which "was simply not anticipated by project operators and is extreme from a historical perspective". The analysis for the EIS/R is based on the same project operator modeling as was used in the flawed 2013 project operations. Although diversions for rice cultivation were cited the impact of water transfers, depletions of streamflow due to groundwater pumping and interception of accretions to streamflow in the dry year are likely. The models used for the analysis should be subjected to peer review corrections made and the analysis revised accordingly. 82
- Pg 2-16, Table 2-5 – FWS OCAP BO pg 229, p1, "Although transfers can occur at any time of year, the exports for transfers described in this assessment would occur only in the months July-September." The analysis conducted in the FWS OCAP BO only addresses water transfers from July through September. Water transfers at any other time of year are not covered in the FWS OCAP BO, so the proposed project transfers in April – June are not covered under the current FWS OCAP Biological Opinion and are therefore not covered under the current CVP/SWP incidental take permits. Water transfers for any months outside of July – September must require additional ESA consultation with FWS. 83
- Pg 2-16, Table 2-5 - The reason that the water transfers covered under the FWS OCAP BO only covered July – September is that "Delta smelt are rarely present in the Delta in these months, so no increase in salvage due to water transfers during these months is anticipated, but as 84

described above, these transfers might affect delta smelt prey availability." (FWS OCAP BO pg 229, p1). So water transfers that occur outside of those months, such as the April – June transfers in the proposed project, would result in take as smelt would be present at the pumps. The transfer impacts analyzed and approved in the FWS OACP BO specifically do not include the impacts that would occur from transfers during these other months. The Proposed Project and alternative must be revised to omit the April – June transfers or the project must seek ESA consultation with FWS for a Biological Opinion and incidental take permits that covers the impacts to delta smelt that would occur with water transfers in those months

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- Pg 2-18, 2.3.2.3, - "Delta conveyance capacity would be available when conditions for sensitive species are acceptable to NOAA Fisheries and USFWS, typically from July through September, but groundwater substitution and cropland idling/crop shifting transfers would be available from April through September." If the south delta pumps of the CVP or SWP are used in the April through June water transfers, regardless of the source or type of water credit being taken as the justification for the transfer, they will result in additional levels of ESA species take that was not covered under the FWS OCAP BO and therefore would require a new ESA consultation with FWS in order to occur. Appropriate environmental analysis for any changes would be required and should be a part of the EIS/R.

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- Pg 2-18, 2.3.2.3, - "Reclamation would only consider storing water for transfers if it would not affect releases for temperature, or if it could be "backed up" into another reservoir (by reducing releases from that reservoir). Backing up water may be possible if the Delta is in balanced conditions and instream standards are met. The decision to back up transfer water would be made on a case-by-case basis, but storage is analyzed in this EIS/EIR so that the analysis is complete in the event Reclamation determines that storage is possible in a specific year." Backing up transfers "into another reservoir by reducing releases from that reservoir" results in complex and significant fisheries impacts from water being released in one tributary at one time vs. a different tributary at a later time. In order for the permits based on this EIS/R to cover this proposed mode of operation of the proposed project, the analysis conducted in this EIS/R must cover the full range of operations proposed to be covered by this document and implemented by the project. The EIS/R claims an analysis of storing water in Shasta was conducted. Analyses for other affected reservoirs must also be conducted.

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- Pg 2-18, 2.3.2.3, - "Sacramento River sellers and buyers would generally prefer water transfer options that are more flexible, such as starting groundwater substitution pumping when Delta pumping capacity for transfers is available." The analysis is inadequate to include the broad range of impacts associated with such flexibility.

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- Pg 2-18, 2.3.2.3, - "Proposed sellers divert water from various locations along the Sacramento River or the Sutter Bypass." The interrelationship of ground and surface water in the seller areas is obvious and difficult to analyze and moniter. After the fact monitoring does not avoid the impact. The groundwater substitution alternative should be rejected.

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- Pg 2-22, 2.3.2.3, - "The Canal experienced substantial losses during conveyance to vegetation along the Canal system. The conservation project replaced the Canal with a pipeline and reduced associated losses to vegetation, thereby creating water for transfers." Reducing vegetation is a critical factor in meaningful water savings., The EIS/R failed to identify, characterize, evaluate, quantify, mitigate or disclose any special status plants, fish or animal species that will be affected by the removal of this water source at the current leaks. Leaks could result in habitat supporting wetland plant communities and associated species. The project failed to mitigate for the wetland habitat that will be destroyed from fixing these leaks. Water from these leaks also would have contributed to adjacent stream flows which provide habitat for yellow and red legged frog, tiger salamander, and steelhead. In addition to the ESA species consultation with the fisheries and wildlife agencies for this action, the project also will need streambed alteration agreements, wetlands alteration, etc. from DFG, USACE and others. 89
- Pg 2-22, 2.3.2.3, - "Cordua ID would transfer water made available through groundwater substitution actions. This transfer would increase flows on the Yuba River downstream of Cordua ID's point of diversion (absent the transfer) during the transfer period." Groundwater and surface water interact. Groundwater wells, especially those physically located in proximity to a tributary, are hydraulically connected to the surface water. When a groundwater cone of depression intersects groundwater maintained by tributary surface flows, the cone of depression increases the rate of loss of surface flows to groundwater and bank recharge. In order to determine the actual increase in surface flows from the foregone diversion of surface water in favor of groundwater use, the location of each groundwater well and its situational relationship to surface water hydraulics must be analyzed. Irrigation district well fields tend to be in locations that are near their surface water diversion locations because the infrastructure to convey the surface water was there first and is required in order to deliver the pumped groundwater. This proximity of irrigation well fields being in proximity to irrigation surface water diversions was well documented in the Sacramento Valley Regional Water Plan "Phase 8" enviromental document. This comment and criticism of the incompleteness of the EIS/R analysis of groundwater substitution impacts on surface water flows applies to all of the proposed groundwater substitutions included in the proposed project and alternatives. This deficiency and undisclosed impacts must be corrected in the revised EIS/R. Similarly the overall lowering of the groundwater even from pumping long distances from the rivers and streams will increase losses from the surface flow. 90
- Pg 2-26, Figure 2-8 – "Water could flow down the Merced River into the San Joaquin River and be diverted through existing facilities within Banta Carbona ID, West Stanislaus ID, or Patterson ID (see Figure 2-8). " The NMFS and FWS OCAP BO analysis does not address this type of operation or these diversion locations for these purposes so the incidental take permits based on those BOs do not cover these operations.. 91
- Pg 2-29, 2.3.2.4 – A number of assurances are missing from this list. 92

- There must be assurances that the project changes in relative flows and water temperatures for all tributaries affected by earlier or later releases and increased or decreased tributary flows do not adversely affect migratory fish. Changes in flow proportions or relative water temperatures at a tributary confluence can increase salmonid straying. Straying causes increased competition for holding and spawning habitat and associated prespawn mortality and reduction of fecundity; redd superimposition and associated egg mortality and genetic introgression result in a loss of productivity and reductions in the genetic integrity and diversity of the species.
- There must be an environmental commitment to use the stored water to protect water quality to be compliant with all water quality standards prior to any water transfer water being delivered. DWR and Reclamation routinely deliver SWP and CVP water while concurrently violating water quality requirements, including adverse modification of critical habitat for ESA listed species, e.g. dissolved oxygen deficiency in delta smelt critical habitat. This water transfer operation must not be allowed to deliver any water unless all water quality requirements are met and in the event that current water quality requirements are not being met by the CVP/SWP regular operations, this transfer water must be used for these water quality protection purposes first, before transfer water can be delivered.
- Since Reclamation's requirement to comply with the CVPIA is a requisite for their approval of water transfers for the project, the project should include the CVPIA 3405 (a) limitation which provides water transfers cannot "adversely affect water supplies for fish and wildlife purposes" as an environmental commitment.

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- Pg 2-29, 2.3.2.4, – "In groundwater basins where sellers are in the same groundwater subbasin as protected aquatic habitats, such as giant garter snake preserves and conservation banks, groundwater substitution will be allowed as part of the long term water transfers if the seller can demonstrate that any impacts to water resources needed for special-status species protection have been addressed. In these areas, sellers will be required to address these impacts as part of their mitigation plan." There are no sub-basins in the proposed seller areas that do not contain protected aquatic habitats. This commitment must be expanded to include all protected habitats that may be affected by the water transfers. Not all special status species are in aquatic habitat. As a very real example of a proposed project impact, the repair of the pipeline as a conservation action will impair habitat for red and or yellow legged frog. A protected aquatic habitat not only includes preserves or conservation banks, but also critical habitat as designated by the ESA. There are no seller area sub-basins that do not have any ESA designated critical habitat so all of the sellers must address these impacts as part of their mitigation plan. These mitigation plans must be part of and disclosed in this EIS/R unless these will be addressed in a separate EIS/R prepared by the sellers as part of their ESA consultation process. To avoid piecemealing the analyses should be included in this document.

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- Pg 2-29, 2.3.2.4– "Carriage water (a portion of the transfer that is not diverted in the Delta and becomes Delta outflow) will be used to maintain water quality in the Delta." The

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analyses must include a defensible calculation of the quantity of the transferred water that actually reaches the delta to contribute to transfers and delta water quality. There are surface water evaporation losses, and loss to groundwater percolation and interception of accretions that must be accounted for that the EIS/R analysis has overlooked. Each potential water conveyance route, with its associated loss rates for the time period of the water transfer must be accounted for in the EIS/R analysis. The EIS/R must be revised to address this material deficiency. 94

- Pg 2-29, 2.3.2.4, – "As part of the approval process for long-term water transfers, Reclamation will have access to the land to verify how the water transfer is being made available and to verify that actions to protect the giant garter snake are being implemented." Access to land does not assure compliance. Monitoring must be by a party without conflict, there must be a real enforcement mechanism and there must be funding for the enforcement effort.. Such assurances are not provided. 95

BUREAU OF RECLAMATION
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MAY 24 2013

IN REPLY REFER TO:
CVO-100
WTR-4.10

Thomas Howard
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, California 95814

Subject: April 2013 Exceedence of Salinity Objectives at Emmaton

Dear Mr. Howard:

On April 28, 2013, the Bureau of Reclamation and the Department of Water Resources (collectively the Projects) exceeded the D-1641 salinity objective at Emmaton. Project operations staff notified State Water Resource Control Board (SWRCB) staff of the exceedence by conference call on April 29, 2013, and by e-mail notification to the SWRCB. This letter provides formal notification of the exceedence and background information relevant to the circumstances.

Background information leading to exceedence conditions:
The exceedence of the 14-day running average of 0.45 EC salinity objective at Emmaton for a Sacramento Valley Dry Year type was caused by the interaction of two conditions: low river flows on the lower Sacramento River system culminating at Freeport, and increasing tides during the period of April 21, 2013, through April 25, 2013. Tidal trends and fluctuations are conditions generally anticipated by Project operators as part of salinity objective compliance; however, the low flow conditions on the lower Sacramento River system in late April 2013 was not anticipated by Project operators and is the main factor of the exceedences that have occurred at Emmaton.

Precipitation patterns for water year 2013 have been a scenario of extremes. The months of November and December produced significant rainfall and project reservoir storage correspondingly increased without any significant flood control releases from major project reservoirs. The calendar year precipitation, however, has been dismal. The accumulation of rainfall since January 1 for the long record of the Northern Sierra 8-Station Precipitation Index is

approximately 8.8 inches. Currently, this value represents the driest calendar year period in the long precipitation record--even drier than the very dry single years of 1977 and 1924. Creek and small stream flows that enter the Sacramento River system below major reservoirs are running at historically very low levels in response to this long, dry precipitation period. (Attach 8SI plot)

Historically, the initial diversion for rice cultivation and ponding has generally occurred from late April to early May, depending on farmer cultivation and preparation practices and soil moisture conditions, to allow farmers to prepare their fields. Generally, project operators have observed this diversion to rice fields occur over several weeks from late April to early May, and have monitored river conditions and increased reservoir releases as rice cultivation diversion rates increased. It now appears that in 2013, due to the very dry hydrologic conditions since the first of the year, a very large portion of rice fields were cultivated and ready to begin their initial field flooding on a simultaneous schedule during the third week of April. This diversion to rice cultivation, although expected to occur, was unanticipated by Project operators for the sheer size and magnitude of simultaneous initial diversion for rice cultivation that actually occurred valley-wide.

Project operators responded to the increasing diversion rates during this period; by increasing reservoir releases in an attempt to catch up to the lower Sacramento River flow conditions. Figures 1 and 2 illustrate the Projects' reservoir release response to flow conditions in the lower Sacramento River during this period of unprecedented diversions. The first illustration shows Keswick's releases in response to the flow pattern at the Wilkins Slough river gage location. This section of the Sacramento River Basin is controlled exclusively with Shasta/Keswick reservoir releases with an approximate lagged travel time of 2.5 days between Keswick and Wilkins Slough. The second illustration indicates the reservoir releases in response to the flow pattern at the Verona river gage location. Verona flow is influenced by reservoir releases from Keswick Reservoir as well as Oroville Reservoir's releases to the Feather River. The approximate lagged travel time from Keswick is 3.5 days and just over one day from Oroville. Both illustrations show the dramatic increases from project reservoirs in response to low flow conditions observed along the lower Sacramento River. The dramatic increase in overall depletion rates experienced over a period of about ten days was simply not anticipated by project operators and is extreme from a historical perspective. Reservoir release rates of 11,000 cfs from Keswick Reservoir and 5,250 from Oroville Reservoir are more typical of late May than late April even in a dry condition. Folsom Reservoir releases were increased from 1,000 cfs to 1,250 cfs on April 25, 2013, to also contribute to lower Sacramento River flows.

The result of this unusual condition and timing is that Freeport flows entering the Delta were very low for a period of a week to ten days. (See Operational Report). At the same time, pulse flows were entering the Delta from the San Joaquin River at Vernalis as part of the annual pulse flow management from the San Joaquin River Basin. Due to the low flow conditions at Freeport, salinity conditions in the vicinity of Collinsville and Emmaton along the extreme lower Sacramento River and western Delta increased dramatically as tidal conditions increased. (See Operational Report). Project operators responded to the changing conditions by reducing scheduled exports that were anticipated to be near a 1:1 ratio with Vernalis flow in order to

maintain Delta outflow conditions necessary to meet X2 objectives at Collinsville. Without adequate flows at Freeport to repel salinity conditions in the lower Sacramento River, salinity levels near Emmaton inevitably exceeded the dry year objective of the maximum 14-day running average of mean at 0.45 salinity. Project reservoir releases stabilized Freeport flows at greater than 10,000 cfs beginning April 28, 2013, and averaged above this rate until compliance of the 14-day 0.45 EC objective at Emmaton was re-established on May 19.

Challenges facing project operations for the remainder of year:
By D-1641 criteria, water year 2013 is classified as a "Dry" year as published in the last Bulletin 120 update for May 1st hydrologic conditions. As previously mentioned, water year 2013 has been a year of extremes with generally wet conditions in November and December and retention of storage in upstream reservoirs, followed by extreme and possibly record dry precipitation conditions since January 1. This pattern of hydrologic conditions will very likely bring challenges for the remainder of this water year. Reservoir storage in Shasta and Oroville is in reasonably good shape, but will be relied upon heavily under adverse hydrologic conditions to balance the goals of Sacramento Valley diversion/depletion, Delta objectives, water supply delivery, and coldwater management. Folsom Reservoir management will be challenged by the overall availability of water and limited coldwater availability. The hydrologic conditions of 2013 and the early advent of significant depletion rates in the Sacramento Valley may indicate that historic high levels of Sacramento Valley depletions are likely during this year's irrigation season. (Projecting seasonal Sacramento Valley depletions, as compared to projecting full natural river flows in Bulletin 120, could be a difficult extrapolation from historic values, and uncertainty in depletion values is always a challenge to project operations.)

If you have any questions or would like more information regarding this notification, please contact Mr. Paul Fujitani of Reclamation at 916-979-2197 or Mr. John Leahigh at 916-574-2722.

Sincerely,

Ronald Milligan, Operations Manager
Central Valley Operations Office
U.S. Bureau of Reclamation

for D. Roose

David H. Roose, Chief
SWP Operations Control Office
Department of Water Resources

Attachment -2

cc: See next page.