

Appendix A

Public Comments

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Appendix A Public Comments

A.1 Introduction

This appendix contains comments received on the Proposed MND and Draft EA/IS. Each commentor, their associated agency/group, and assigned number identification is listed in Section A.2. Section A.3 includes the comment letters received with each comment bracketed and numbered for response. Appendix B includes responses to comments by comment number.

A.2 List of Commentors

Table A-1 presents commentors and associated agencies or groups that submitted comments on the 2014 TCCA Water Transfers EA/IS.

Table A-1. List of Commentors

Commentor	Agency/Group	Letter ID
Jim Brobeck	AquAlliance	1
Scott Cantrell	California Department of Fish and Wildlife	2

A.3 Comments

The full text of the comment letters received is included below.

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AQUALLIANCE

DEFENDING NORTHERN CALIFORNIA WATERS

April 2, 2014

Tehama-Colusa Canal Authority

Attention: Jeff Sutton

P.O. Box 1025

Willows, CA 95988

Sent via email to: jsutton@TCCA NegDecTransfers2014nal.com

Re. ENVIRONMENTAL ASSESSMENT/MITIGATED NEGATIVE DECLARATION FOR 2014 TEHAMA-COLUSA CANAL AUTHORITY WATER TRANSFERS

Dear Mr. Sutton,

This letter is to express AquAlliance's concern with water transfers, particularly groundwater substitution transfers, evaluated in the above referenced project.] 1-1

"As a result of the significantly reduced allocation, the TCCA NEGDECTRANSFERS2014 is in need of approximately 155,000 AF of water for about 70,000 acres of permanent crops to prevent the long term impacts of allowing these crops to die. Pg 19 TCCA NEGDECTRANSFERS2014 Reclamation and SLDMWA are preparing a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to analyze the effects of water transfers from water agencies in northern California to water agencies south of the Delta and in the San Francisco Bay Area. The EIS/EIR will evaluate transfers of Project Water and non-Project water supplies that require use of CVP or SWP facilities to convey the transferred water. The EIS/EIR will evaluate water transfers over a 10-year period, from 2015 through 2024. ...consultation and coordination for Long-Term Water Transfers has assisted in development of this EA/IS." Pg 20 TCCA NEGDECTRANSFERS2014 1-2

Comment: The USBR knows that a higher level of environmental review is needed to proceed with the aggressive groundwater substitution transfers (GWST) that are occurring every year out of the Tuscan Aquifer. On page 20 there is an acknowledgement that the preparation of the 10-year transfer program is in progress. This EIS/EIR has been scheduled for release repeatedly over the past 2 years but the science and modeling does not appear to be in place to allow for even a draft analysis of cumulative impacts associated with northstate GWSTs. It is unclear why GWSTs are increasing when they are not supported by a more robust environmental review that examines the true cumulative impact associated with multiple water transfers over an extended period of time. GWST from one region to another, even from adjacent groundwater basins, is increasingly controversial. The risks are borne by the majority while the benefits accrue to the few.

"Settlement Contractors and refugees have been notified that they can expect 40 percent of their contract amounts rather than the anticipated 75 percent normally provided in a Critical Year. These users may take alternative water supply actions in response to shortages, including increased groundwater pumping, cropland idling"... pg 21 TCCA NEGDECTRANSFERS2014 1-3

Comment: It is during critically dry years that GW usage increases in the Sacramento Valley putting stress on aquifers and exacerbating already historic low levels of GW in the Tuscan aquifer system. In spite of the need to have flexible irrigation needs that fit the water-year, farms have been converting from fallowable annual crops to permanent crops. This is particularly un-strategic on the part of farms that rely on river-diversion entitlements that were originally intended to reduce stressful GW demands. Farms that were developed with the intention of using intermittent river supplies should not be relying on GW imported from other parts of the state, even if these are nearby regional aquifers.

1-3

“The Proposed Action includes potential transfers of up to 155,000 AF of water from 20 entities...”
Pg 21 TCCA NEGDECTRANSFERS2014

Comment: The maximum potential transfer from the Glenn-Colusa Irrigation District (which overlies the deepest portion of the Tuscan Aquifer System) under March 1 water-year conditions is 102,168 A/F. The cumulative impact of reducing surface water irrigation recharge (fallowing) combined with 26,168 A/F of GWST is significant and requires an expanded monitoring and mitigation plan. The 2007 Sacramento Valley Water Resource Monitoring, Data Collection and Evaluation Framework (Framework) was developed by participants in the Sacramento Valley Integrated Regional Water Management Plan (SVIRWMP) and referenced in the Glenn County GW management plan. While monitoring currently occurs throughout the valley, it is recognized that improvements can be made with respect to data collection/monitoring approach and focus at both the project and regional level. Accordingly, an informal panel of Sacramento Valley water resources scientists and engineers developed a proposed framework aimed toward assisting in improved regional and project-specific water resource monitoring, data collection, information exchange, and evaluation to better understand the valleys’ water resources to improve upon their management. This Framework emphasized the importance of creating “a program-specific network of shallow monitor monitoring wells should be developed to detect changes in water levels over the shallowest portion of the aquifer. In evaluating impacts to certain wetlands species, it is important to discern both the rate of groundwater level change, as well as the cumulative change over the entire year.” The failure to complete this prerequisite habitat monitoring step prior to proceeding with GWST is irresponsible and may lead to permanent degradation of habitat such as Valley Oak groves as has occurred in the southern portions of the Central Valley where ~400 square miles of Valley Oak woodlands have disappeared due in part to greatly lowered water tables. According to the USDA Valley Oak Trees are resistant to short-term drought; mature trees suffer drought damage only when a series of dry seasons lower water tables to extreme depths.

1-4

<http://www.fs.fed.us/database/feis/plants/tree/quelob/all.html>

“Reclamation approves transfers consistent with provisions of state and federal law that protect against injury to third parties as a result of water transfers. Several important principles include requirements that the transfer will not violate the provisions of federal or state law, will have no significant adverse effect on the ability to deliver Project Water, will be limited to water that would be consumptively used or irretrievably lost to beneficial use, will have no significant long-term adverse impact on groundwater conditions, and will not adversely affect water supplies for fish and wildlife purposes. Reclamation would not approve water transfers for which these basic principles have not been adequately addressed.” Pg. 27 TCCA NEGDECTRANSFERS2014

1-5

Comment: The failure of GCID and other agencies to comply with the Framework or to allow comprehensive environmental review while proceeding with annual GWSTs is unacceptable. Butte County has voiced objection to GCID's GWST as has the City of Chico. The Framework was developed in the hopes that regional interests could share information and create policies that would minimize conflict and maximize sustainability in GW management. Why should the farms and urban dwellers in Butte County strive to conserve water when their neighbor is tapping the same resource to sell for profit?

"An objective in planning a groundwater substitution transfer is to ensure that groundwater levels recover to their seasonal high levels under average hydrologic conditions. Because groundwater levels generally recover at the expense of stream flow, the wells used in a groundwater substitution transfer should be sited and pumped in such a manner that the stream flow losses resulting from pumping are primarily during the wet season, when losses to stream flow minimally affect other legal users of water. For the purposes of this EA/IS, the stream flow losses are assumed to be 12 percent of the amount pumped for transfer. The quantity of water available for transfer would be reduced by these estimated stream flow losses." Pg 28. TCCA NEGDECTRANSFERS2014

Comment: The participants of the proposed GWST recognize that GW and SW are connected and that extractions will decrease streamflow. The EA/IS claims that stream flow losses resulting from pumping are primarily during the wet season. Stream based replenishment may be the greatest during high flows, but there will be streamflow loss occurring at all times of the year until the aquifer is fully replenished. This is particularly important in tributary streams that are vulnerable to even modest declines. Project proponents are failing to monitor tributary streamflow that contributes to the health of out-migrating anadromous fish. A study by Dr Paul Maslin [attached], Intermittent Streams as Rearing Habitat for Sacramento River Chinook Salmon, 1998, explains that, "Between 100,000 and 1,000,000 juvenile chinook rear annually in small, non-natal streams. The listed winter-run chinook seems to use tributaries for rearing proportionally more than do other races." Dr. Maslin emphasizes that, "Because of [the] loss of habitat quantity and quality, it is important that all remaining rearing habitats be evaluated and measures be taken to preserve or enhance important components." Dr. Maslin mentions 36 tributaries of the Sacramento River with a special focus on Mud Creek, an intermittent stream that is less than 5 miles upgradient from the GCID wells used in recent GWST and likely to be used in this project. "In 2013, Reclamation developed an EA for one-year transfers from sellers in the Sacramento River basin to SLDMWA. The EA analyzed up to 37,715 AF of groundwater substitution transfers. The 2013 Water Transfers EA included a detailed assessment of potential impacts to Surface Water Resources, Groundwater Resources, Air Quality, and Biological Resources. On June 21, 2013, Reclamation signed a FONSI with similar findings to those on the 2010- 2011 WTP EA. Reclamation found that the 2013 water transfers would not significantly affect the human environment and an environmental impact statement was not required. Approximately 29,217 AF were transferred under actions and approvals addressed and cleared by this environmental document. As part of the monitoring plans required by the EA, the transferring parties have collected monitoring data starting pre-transfer. To date (through January 2014), the available monitoring data indicates that the groundwater aquifer is recovering to pre-transfer levels, as described in the EA. Final monitoring reports that describe the monitoring data will be available in May 2014." Pg 31 TCCA NEGDECTRANSFERS2014

Comment: The monitoring network does not include a program-specific network of shallow monitor monitoring wells to detect changes in water levels over the shallowest portion of the aquifer

as recommended by the Framework. **“Groundwater Substitution Transfers** Well reviews and monitoring and mitigation plans will be implemented to minimize potential effects of groundwater substitution on nearby surface and groundwater water resources. Well reviews, monitoring and mitigation plans will be coordinated and implemented in conjunction with local ordinances, basin management objectives, and all other applicable regulations.” Pg 32 TCCA NEGDECTRANSFERS2014

Comment: Management of GW basins that extend over multiple county jurisdictions is non-existent in the Northern Sacramento Valley. While Butte County has a GW export ordinance that seems to discourage irrigation Districts in Butte County from proposing GWST from wells in the county, Glenn County allows GCID to extract enormous amounts of GW from the shared aquifer system for sale less than 1 mile West of Butte. The Framework provided some hope that a regional plan would be developed but that has not occurred. The quality of life for non-participating counties and citizens is not protected by the proposed monitoring plans or by local ordinances, BMOs or other regulations.

“Sacramento Groundwater Basin The Sacramento Valley Groundwater Basin includes portions of Tehama, Glenn, Butte, Yuba, Colusa, Placer, and Yolo Counties. Groundwater accounts for less than 30 percent of the annual supply used for agricultural and urban purposes within the Sacramento Valley. Urban pumping in the Sacramento Valley increased from approximately 250,000 AF annually in 1961 to more than 800,000 AF annually in 2003 (Faunt 2009). However cumulative change in groundwater storage has been relatively constant over the long term within the Sacramento Valley. Storage tends to decrease during dry years and increase during wetter periods.” Pg 38 TCCA NEGDECTRANSFERS2014 “Groundwater substitution under the Proposed Action could result in temporary drawdown that exceeds what would have occurred under the No Action Alternative. Increased groundwater pumping could also cause localized declines of groundwater levels, or cones of depression, near the wells participating in the groundwater substitution transfer. These decreased groundwater levels, however, are relatively small. Most changes in groundwater elevation are less than 5 feet and occur primarily within the localized area selling the water.” “The model results correspond to monitoring information that indicates groundwater levels in the Sacramento Valley tend to decrease during the irrigation season and rebound in the wet winter months. Model results also indicate that while the groundwater levels sometimes do not return to No Action Alternative levels within one year, they recover relatively quickly (as shown in Figures 3-1 and 3-2 and the hydrographs in Appendix F). Because of the aquifer’s relatively short recovery period after increased extractions, incidental recharge, and the one-year time frame of the transfer, the Proposed Action would likely have a minimal effect on long-term groundwater level trends. However, the model results may not reflect all specific local conditions throughout the Sacramento Valley. Therefore, minimization measures described below would include development of monitoring and mitigation plans to monitor and address potential groundwater level changes that could affect third parties or biological resources.” Pg 79 TCCA NEGDECTRANSFERS2014

Comment: While water marketers expound on the ability of the Aquifer to “rebound” in the wet months long-term monitoring clearly shows water levels in the GCID are declining. GWSTs that are supplying water to SW districts that were originally intended to take the pressure off of declining aquifers are a big part of the problem. These 3 DWR maps clearly show that from 2004-2013 Spring water levels have declined in areas that are going to be used to supply GWST water.
http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/G

[WLevelMonitReports/Shallow_Wells_Spring%202004-2013v3.pdf](http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/GWLevelMonitReports/Shallow_Wells_Spring%202004-2013v3.pdf)

http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/GWLevelMonitReports/ExpIntermediate_Wells_Spring%202004-2013.pdf

http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/GWLevelMonitReports/EXPDeep_Wells_Spring%202004-2013.pdf

Increased demands on the GW of the Sacramento Valley are creating historically low levels. Expanding permanent crops in both GW and SW dependent areas is exacerbating the problem and creating an environment of conflict between jurisdictions and individuals. While 1-year transfers are analyzed as stand-alone projects year after year it is obvious that there is a permanently escalating demand for GW in storage. GWSTs are occurring every year as opportunity to make money selling water entitlements arises. Cumulative impacts of the reality of long-term GWST have not been presented clearly as required by NEPA. GCID would use 21 wells, some with the ability to extract 4000 GPM, in the program. Screen intervals for these wells are highly variable and exploit aquifer regions as shallow as 25' and as deep as 1,300'. The deepest wells are tapping aquifer zones near the bottom of the fresh water system and at depths that have historically not been exploited in the region. AquAlliance's greatest concern is that water agencies south of the Delta will continue to demand "reliable" water deliveries that depend on tapping Sacramento Valley aquifers. But we are also concerned that irrigation districts (both junior and senior water right holders) will expand permanent cropping patterns that demand water regardless of how many dry years the Central Valley watershed endures. The USBR CVP was implemented to take pressure off of rapidly declining GW resources. Now the canals are increasingly being used to move GW beyond basin boundaries. This will inevitably lead to exhausted aquifers. The EA/IS provides no discussion of how the proposed project might affect water supplies and aquifer dynamics in light of climate change in California. Add to this the significant uncertainty regarding stream/aquifer interaction, impacts to GW dependent ecosystems overlying the shallowest portions of aquifer systems, and the multiple dry years experienced by the State. What affect might this project, in addition to other transfer programs, have on the human environment in light of the impacts of climate change? Moving ahead with this project while failing to analyze the cumulative impact of serial GWSTs designed to meet the inflexible demand for water by growers reliant on irrigation district infrastructure could negatively impact our regional economy and environment.

Thank you for responding to these comments.

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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



April 2, 2014

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Mr. Jeff Sutton
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Willows, CA 95988
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Subject: COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT/INITIAL STUDY (2014 DRAFT EA/IS) AND MITIGATED NEGATIVE DECLARATION (MND) FOR THE 2014 TEHAMA-COLUSA CANAL AUTHORITY WATER TRANSFERS

Dear Mr. Hubbard:

As trustee for California's fish and wildlife resources, the California Department of Fish and Wildlife (Department) has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (FGC §1802). The Department has reviewed the 2014 Draft EA/IS and MND prepared by the Bureau of Reclamation (Reclamation) and Tehama-Colusa Canal Authority (TCCA) for the 2014 TCCA Water Transfers and provides the following comments in our role as both a trustee agency and a CEQA responsible agency.

The 2014 Draft EA/IS analyzes environmental impacts of proposed water transfers (Proposed Action) of up to 155,000 acre feet (AF) in contract year 2014 from 20 entities to the Member Units of the TCCA. The transfers included in the 2014 Draft EA/IS are only those involving Central Valley Project (CVP) Base Supply, Project Water or CVP facilities. Water may be transferred through groundwater substitutions or cropland idling/crop shifting. No other types of water transfers are covered by the evaluation in the 2014 Draft EA/IS.

The Department concurs with your findings that the proposed project will have less than significant impact on biological resources (p. 3-12). The Draft EA/IS includes a list of fish species of management concern that occur in the project area (p. 2-16) and

Conserving California's Wildlife Since 1870

concludes that these species would not be affected by the Proposed Action beyond those impacts considered in the existing biological opinions for the state and federal water projects operated by the Department of Water Resources and Reclamation nor affected by current consultations with the National Marine Fisheries Service and U.S. Fish and Wildlife Service (p. 3-14). Changes in river flows (between 350 cfs and 710 cfs) downstream from Shasta Dam are described as being a fairly small percentage of the overall river flows. While there are ample data and figures in the document showing simulated groundwater table elevations, we could not locate modeling outputs that describe simulated changes in surface flows and surface water elevations in reservoirs and streams (p. 3-14, 3-28). Changes in reservoir releases and altered flows on the Sacramento and Feather River would be a concern of ours to the extent that changes in these parameters exceed critical thresholds for fish.

2-2

We believe the Draft EA/IS has appropriately focused on terrestrial species, in particular, species that use seasonally flooded rice fields that may be impacted by cropland idling transfers. Rice fields and irrigation canals provide important habitat for species including giant garter snake, greater sandhill crane, black tern and western pond turtle. Suitable habitat for these species occurs in the project area. We also concur that the project would not significantly reduce the habitat for fish and wildlife species, result in fish or wildlife populations below a self-sustaining level, or reduce the number or restrict the range of special status species as described in the draft mandatory findings of significance.

2-3

Our concurrence with your draft findings is predicated on the full implementation of environmental commitments and minimization measures described in Appendix A and adoption of a program for reporting on or monitoring the changes which the lead agency has either required in the project or made a condition of approval to mitigate or avoid significant environmental effects.

Please consider the following specific comments as recommendations to improve the TCCA water transfers process in 2014 to ensure successful implementation of the proposed project.

- We request that DFW be consulted, along with U.S. Fish and Wildlife Service, to evaluate suitability of giant garter snake habitat (and other wetland dependent species) and to participate in implementation of the water transfer program overall. We suggest collaboratively developing a process to define how sellers that have lands with priority suitable habitat for giant garter snakes would be evaluated for participation in the water transfers program.
- We recommend that terms used in the Environmental Commitments, such as "adequate water," "drains," "canals," "conveyance infrastructure," and "major irrigation and drainage canals" be better defined so that it is abundantly clear what the sellers' responsibilities are under the water transfers program.

2-4

2-5

- Implementation of monitoring and mitigation plans for cropland idling and groundwater substitution transfers should be tailored to local conditions so that impacts to aquatic habitats and sensitive species will be avoided, minimized and mitigated. Monitoring and mitigation programs are also needed to ensure cumulative impacts are less than significant.

2-6

Thank you for the opportunity to provide comments on the 2014 Draft EA/IS and MND. The Department looks forward to working with Reclamation and TCCA to ensure that public trust resources are adequately protected as the 2014 water transfers are implemented. James Rosauer, Environmental Scientist, is available to further discuss any of our comments. He can be reached at (916) 445-8360 or James.Rosauer@wildlife.ca.gov.

2-7

Sincerely,



Scott Cantrell
Chief, Water Branch
California Department of Fish and Wildlife

Enclosure(s)

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Mr. Hubbard & Mr. Sutton
April 2, 2014
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Appendix B

Responses to Comments

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Appendix B Responses to Comments

This appendix contains responses to comments received on the Proposed MND and Draft EA/IS. The comment letters are included in Appendix A.

The comments received did not result in changes to the Proposed MND and Draft EA/IS text, analysis or mitigation; however, minor revisions to the text have been made that update, clarify, or amplify existing text, but represent insignificant modifications.

Pursuant to Section 15073.5 of the State CEQA Guidelines, recirculation of a negative declaration is required when a document must be substantially revised after public notice has been given. A "substantial revision" is defined under this section to mean:

- A new, avoidable significant effects have been identified and mitigation measures or project revisions must be added in order to reduce the effect to insignificance, or
- The Lead Agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significant and new measures or revisions must be required.

The minor revisions made do not change the project scope or any findings and conclusions as presented in the original document; therefore, no recirculation of the MND is required.

1 – Jim Brobeck, Water Policy Analyst, AquAlliance

Comment 1-1

AquAlliance's concern with water transfers, particularly groundwater substitution transfers is so noted. The Draft EA/IS addresses potential impacts to existing groundwater basins in the project study area and determined that no significant impacts would occur from the Proposed Action.

Comment 1-2

The text cited by the commenter is generally derived from the Draft EA/IS, with the understanding that the page number references in the comment are based on the document's PDF page numbering, not the actual page numbering, and the term "TCCA NEGDECTRANSFERS2014" is not from the Draft EA/IS, but

rather appears to be the commenter's way of referring to the Draft EA/IS document.

In response to the subject comment, the Draft EA/IS and proposed MND satisfy NEPA and CEQA requirements. NEPA requires federal agencies to prepare a detailed Environmental Impact Statement (EIS) on all major Federal actions significantly affecting the quality of the human environment (42 U.S.C. 4332 (2)(c)). Similarly, CEQA requires state agencies to prepare an Environmental Impact Report (EIR) if there is substantial evidence that a project may have a significant effect on the environment (CEQA Guidelines Section 15061(b)). The EA/IS provides a thorough and systematic evaluation of a broad range of environmental issues and demonstrates that no potentially significant impacts would occur over the transfer period as a result of the Proposed Action. The record contains no substantial evidence that any significant environmental impacts may occur as a result of the Proposed Action, as mitigated. Preparation of an EIS/EIR therefore is not warranted or required. In addition, the Proposed Action is not seen as a precedent setting action continuing on into the future, but rather provides for only temporary transfers during 2014 to meet the short-term needs of water suppliers that are facing water shortages.

As described in Section 1.5 of the Draft EA/IS, Reclamation and SLDMWA are preparing an EIS/EIR for long-term transfers to streamline the process for approving yearly temporary transfers and to accommodate transfers that may extend over multiple years. The current Proposed Action for temporary transfers during 2014 has independent utility and is not dependent on, nor does it dictate the nature and scope of, the long-term transfers to be addressed in the EIS/EIR. The record contains no substantial evidence that any significant environmental impact may occur as a result of the Proposed Action, as mitigated. Thus, it is entirely appropriate for the agencies to assess single-year 2014 transfers in an EA/IS and prepare a FONSI and MND, because substantial evidence demonstrates that the Proposed Action, as mitigated, will not result in a significant impact on the environment.

Comment 1-3

Please see response to Comment 1-1 above regarding the commenter's reference to page numbers in the Draft EA/IS and use of the term "TCCA NEGDECTRANSFERS2014." As indicated in Section 1.2 of the Draft EA/IS, the lead agencies recognize that 2014 is a critically dry year, which is not only a key factor in the purpose and objectives of the Proposed Action, but has also been taken into account in the impacts analyses in the Draft EA/IS. As discussed in Chapter 3, the agencies used a model to estimate potential impacts on groundwater. They chose to model the transfers in year 1977 because that was the driest year during the period included in the groundwater model. The model incorporates increased groundwater pumping during dry conditions as part of the baseline condition; therefore, modeling groundwater substitution transfers in 1977 enabled an analysis of whether groundwater substitution

transfers could exacerbate drought conditions in groundwater aquifers. The modeling results indicate that the groundwater substitution transfers would not cause significant groundwater level drawdowns, which led to the less-than-significant finding in Chapter 3.

Comment 1-4

Please see response to Comment 1-1 above regarding the commenter's reference to page numbers in the Draft EA/IS and use of the term "TCCA NEGDECTRANSFERS2014." The 2007 Framework for Sacramento Valley Water Resource Monitoring, Data Collection, and Evaluation Program (Framework) was developed as part of the Sacramento Valley Integrated Regional Water Management Plan (IRWMP) and is therefore a much broader effort than the monitoring needed for the proposed 2014 water transfers. Reclamation and DWR have identified monitoring requirements that will allow the agencies to assess changes to groundwater levels, quality, or subsidence associated with groundwater substitution transfers; these requirements are included in the *DRAFT Technical Information for Preparing Water Transfer Proposals* (DWR and Reclamation 2013) and summarized in Chapter 3 of the EA/IS. The Framework was designed to better characterize surface water and groundwater resources throughout the Sacramento Valley, which is a much broader goal that is better achieved through the IRWMP effort.

The EA/IS analyzed the potential effects to biological resources from groundwater substitution transfers, and found them to be less than significant. The *DRAFT Technical Information for Preparing Water Transfer Proposals* (DWR and Reclamation 2013) identifies the technical information that should be included in a Monitoring Plan, including provisions for monitoring potential effects to third parties, including biological resources, and a Mitigation Plan to address unanticipated impacts. The Monitoring and Mitigation Plans provide an extra precaution to prevent effects.

The comment refers to the Tuscan Aquifer System; however, pumping for groundwater substitution transfers from Glenn-Colusa ID would be from the Tehama Aquifer System, and not the Tuscan Aquifer System.

Comment 1-5

Please see response to Comment 1-1 above regarding the commenter's reference to page numbers in the Draft EA/IS and use of the term "TCCA NEGDECTRANSFERS2014." Implementation of the Framework is part of the IRWMP planning efforts in the Sacramento Valley, and is not a requirement for water transfers. The monitoring plans for transfers are designed specifically for transfers. The monitoring plan information needs are included in the *DRAFT Technical Information for Preparing Water Transfer Proposals* (DWR and Reclamation 2013) and summarized in Chapter 3 of the EA/IS. The groundwater analysis in Chapter 3 shows potential areas of groundwater

drawdown associated with the proposed groundwater substitution transfers, and the modeling does not indicate that the drawdown would extend into Butte County.

Comment 1-6

Please see response to Comment 1-1 above regarding the commenter's reference to page numbers in the Draft EA/IS and use of the term "TCCA NEGDECTRANSFERS2014." The groundwater model results show that drawdown levels near the Sacramento and American Rivers as a result of transfers are relatively small. The American River is disconnected from the groundwater basin, therefore; there would be no impacts to stream flows as a result of groundwater substitution transfers. The Sacramento River is connected to the basin. Transfers from the Sacramento River area have a 12 percent stream flow depletion factor associated with them to further reduce potential stream flow effects. There are no proposed water transfers near Mud Creek and groundwater model results do not show any potential drawdown in the area. Mud Creek is near Chico and is now operated as a flood control channel that does not support fisheries habitat.

Comment 1-7

See responses to Comments 1-4 and 1-5.

Comment 1-8

See responses to Comments 1-4 and 1-5.

Comment 1-9

Please see response to Comment 1-1 above regarding the commenter's reference to page numbers in the Draft EA/IS and use of the term "TCCA NEGDECTRANSFERS2014." Section 2.5.6.3 of the Draft EA/IS describes the environmental setting for groundwater in the Sacramento Valley. Excerpts from this section include:

"Cumulative change in groundwater storage has been relatively constant over the long term within the Sacramento Valley. Storage tends to decrease during dry years and increase during wetter periods."

The lead agencies have added groundwater monitoring data in Appendix F to provide additional background related to this statement. The hydrographs in Appendix F show that over time, water levels have decreased in drier periods but have not shown long-term increasing or decreasing trends. The commenter cites information from DWR that shows decreases in groundwater levels from 2004 to 2013 and 2011 to 2013; however, 2013 was a dry year. The DWR maps show the change from one point (either 2004 or 2011, respectively) to another point (2013). These maps show that the groundwater levels decline in a

dry year, but, as noted above, there is no evidence of a material increase or decrease in long-term trends for groundwater level when groundwater data for additional years, such as those shown in the hydrographs in Appendix F, are taken into account.

2 – Scott Cantrell, California Department of Fish and Wildlife

Comment 2-1

Reclamation and TCCA recognize the role of DFW and, as indicated in Section 4.5.2 of the Draft EA/IS, coordinated with DFW during preparation of the document, which including environmental commitments to include with the Proposed Action. DFW correctly summarizes the Proposed Action in the second paragraph of the comment letter.

Comment 2-2

Chapter 3, Section IV Biological Resources, discusses effects of water transfers to biological resources in Oroville and Shasta reservoirs and the Sacramento and Feather rivers qualitatively. Surface water modeling was not completed for the EA/IS because the maximum quantity of water transfers relative to total reservoir storage and river flows would be minor and the Proposed Action would not result in significant impacts to fish. DFW's concurrence with the findings of the EA/IS analysis is so noted.

Comment 2-3

Reclamation will ensure that all environmental commitments are implemented to reduce or avoid impacts to species. Reclamation staff will ensure that measures are being implemented through review of monthly reports, field visits, and necessary coordination with transfer participants.

Reclamation and TCCA have developed a Mitigation, Monitoring, and Reporting Plan, which is included in Appendix E of the Final EA/IS. The requirement of the monitoring and mitigation for each individual transfer will be included in the transfer approval.

Reclamation will coordinate with DFW and USFWS to identify priority habitat for species in potential area where water transfers could occur. Reclamation will continue to engage DFW and USFWS in the process of evaluation and monitoring water transfers on lands that are priority habitat for species to make sure that impacts are minimized.

Comment 2-4

Reclamation and TCCA will continue to collaborate and consult with DFW and USFWS on implementation of water transfers, particularly on transfers proposed in areas of suitable habitat for giant garter snake (GGS). Reclamation

appreciates DFW assistance in the development of the 2014 environmental commitments and will coordinate with DFW, as appropriate, in the provision of information regarding water transfer proposals, monitoring, and review of the monitoring data collected.

Comment 2-5

Reclamation met with USFWS and DFW on April 3, 2014 to further discuss conservation measures to support development of the Biological Opinion. The conservation measures have been revised based on discussions and agreements made at the meeting. The revised conservation measures are included in Chapter 2 of the Final EA/IS.

Comment 2-6

See response to Comment 2-2. Reclamation will review monitoring and mitigation based on local conditions for each transfer and the potential for cumulative effects.

Comment 2-7

Reclamation and TCCA will continue to collaborate with DFW, in addition to USFWS, on implementation of water transfers, particularly on transfers proposed in areas of suitable habitat for GGS and other special status species.

Appendix C

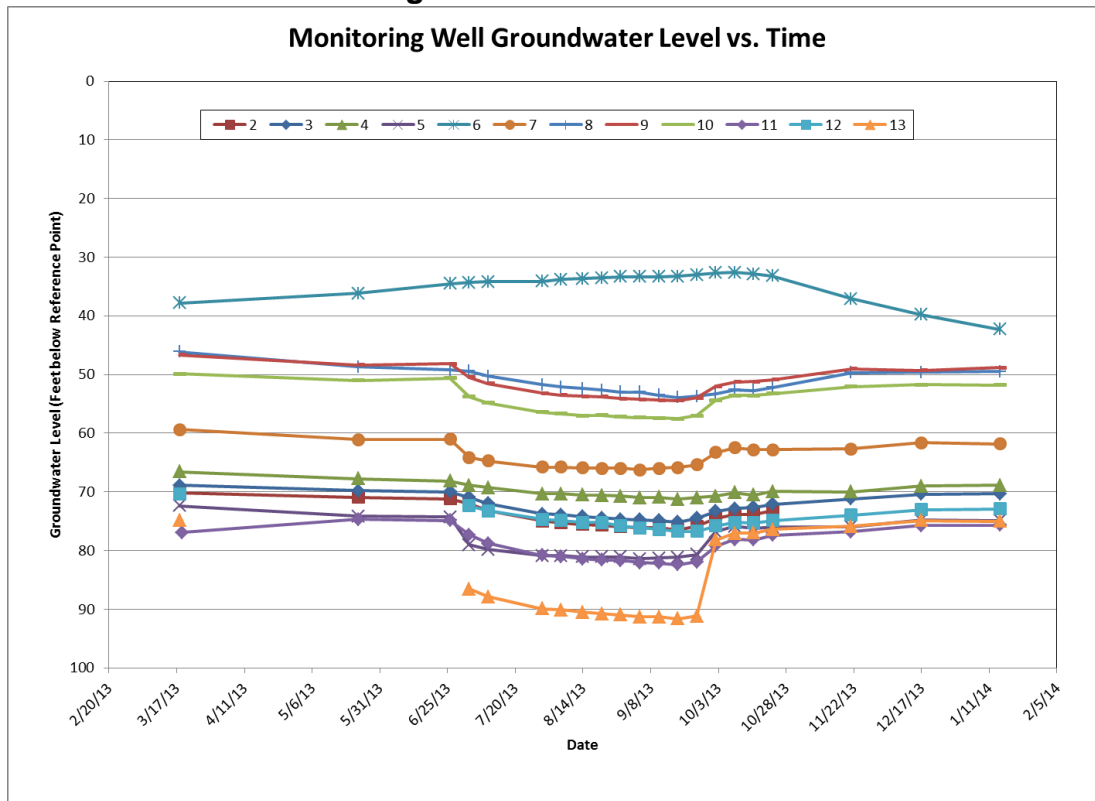
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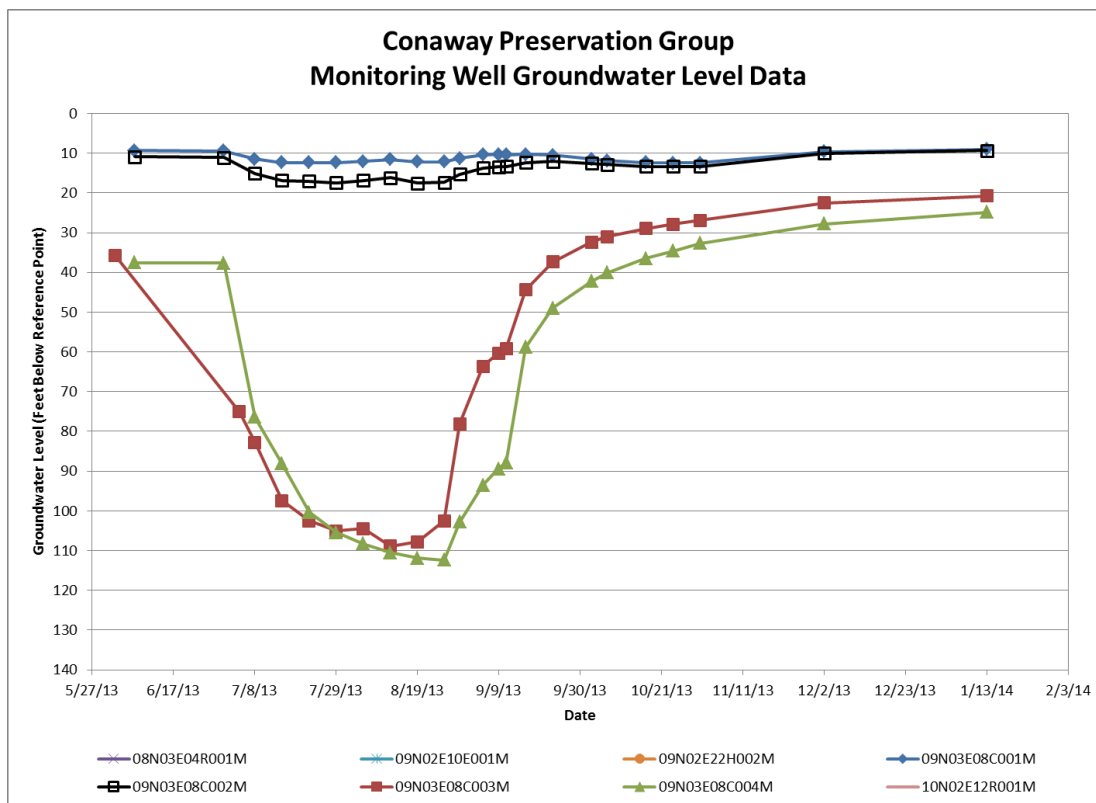
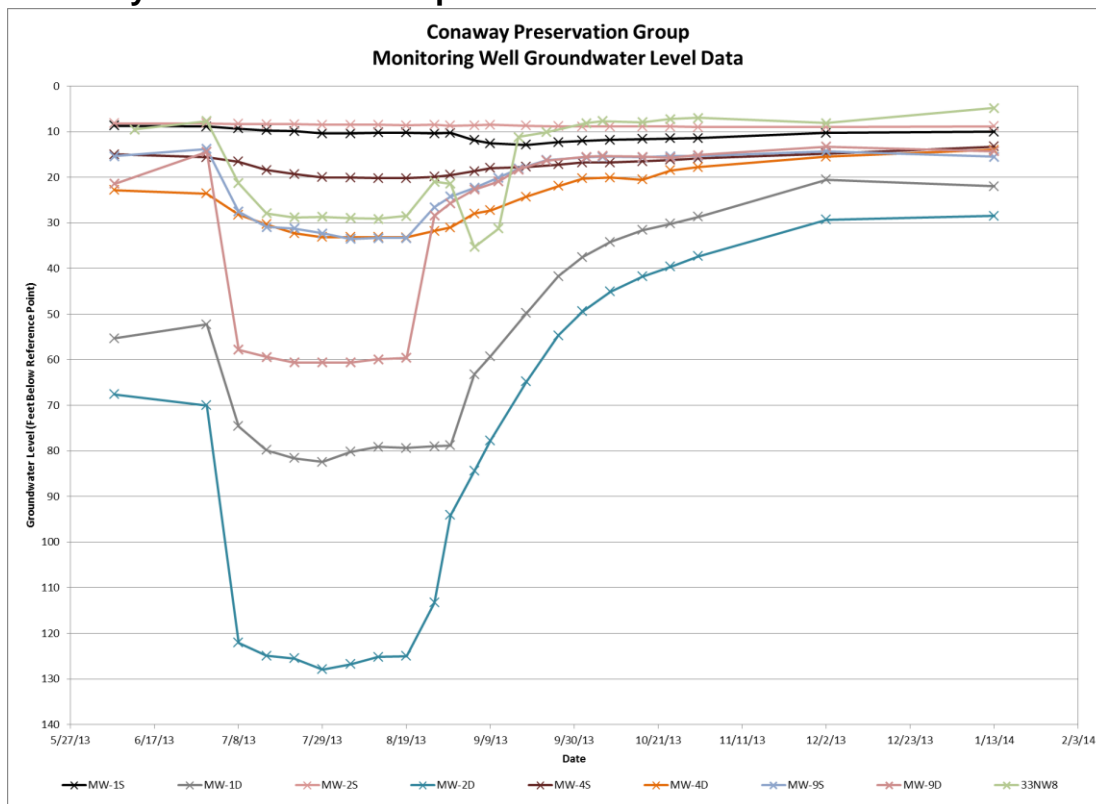
Appendix C

Groundwater Monitoring Data from 2013 Water Transfers

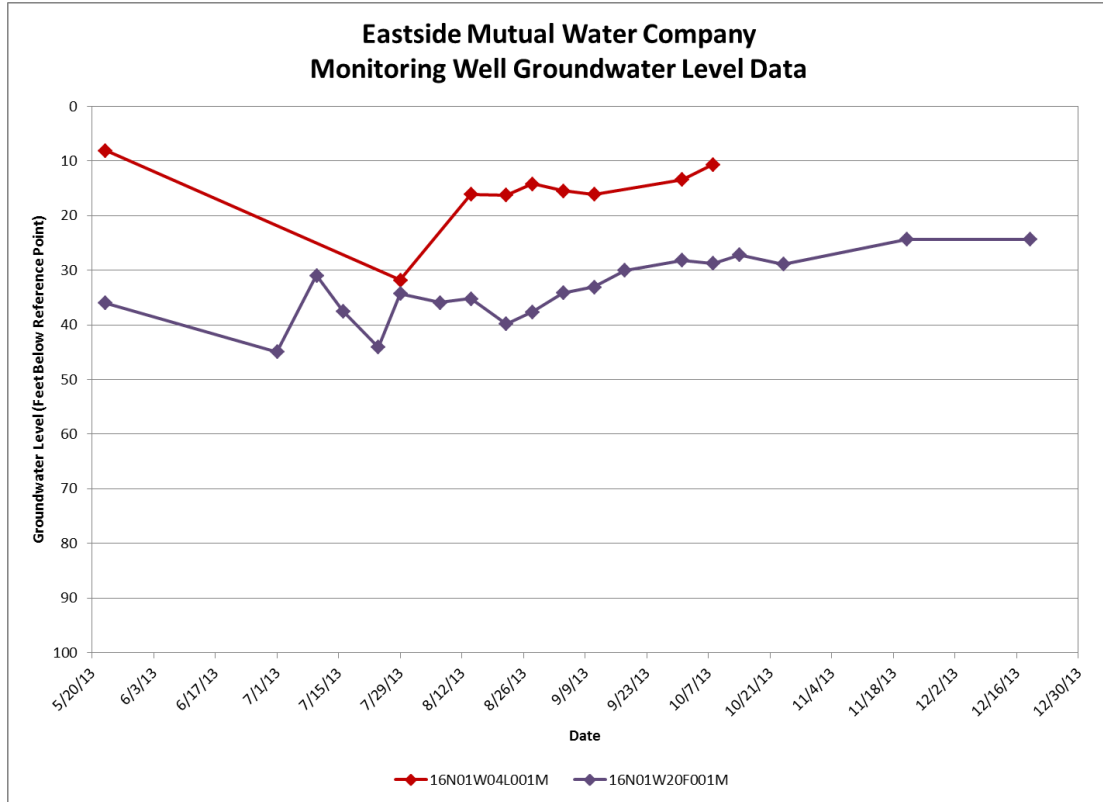
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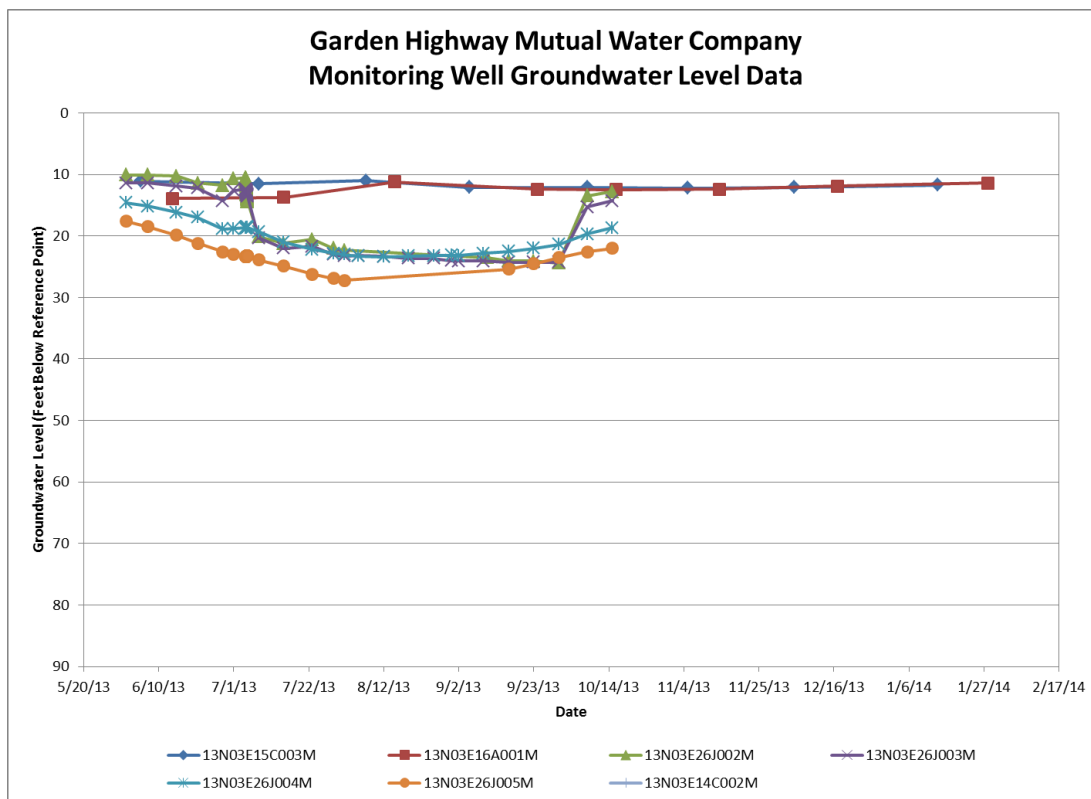
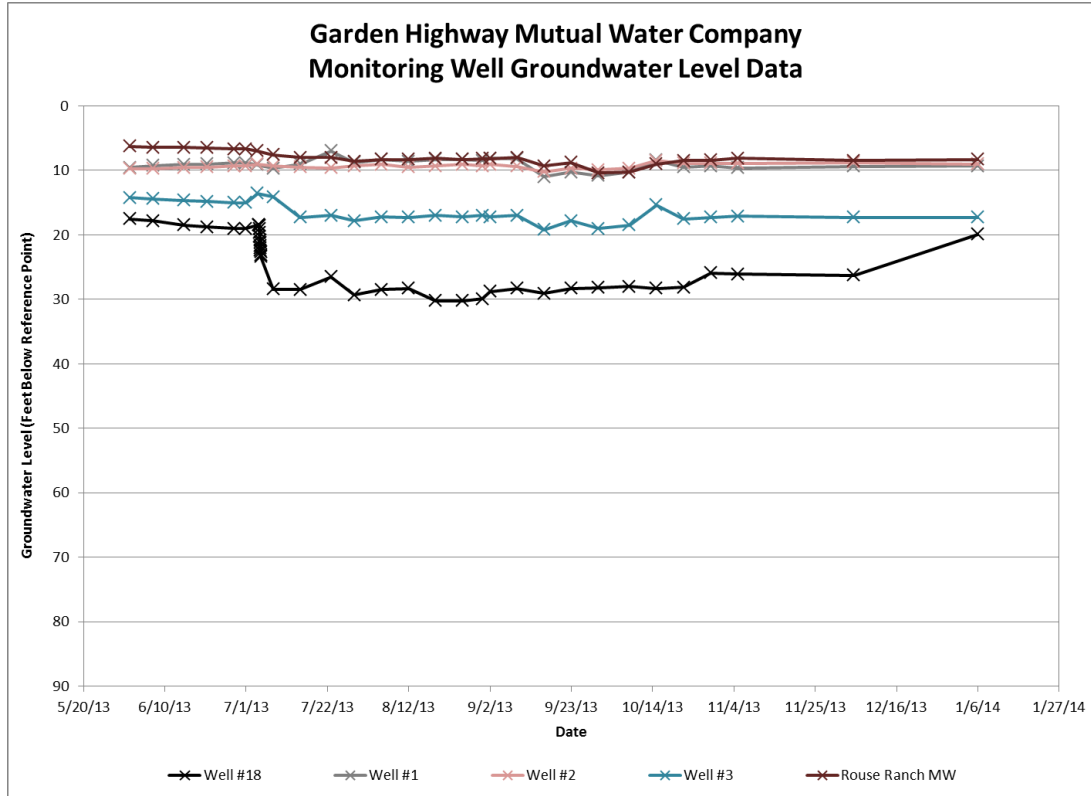
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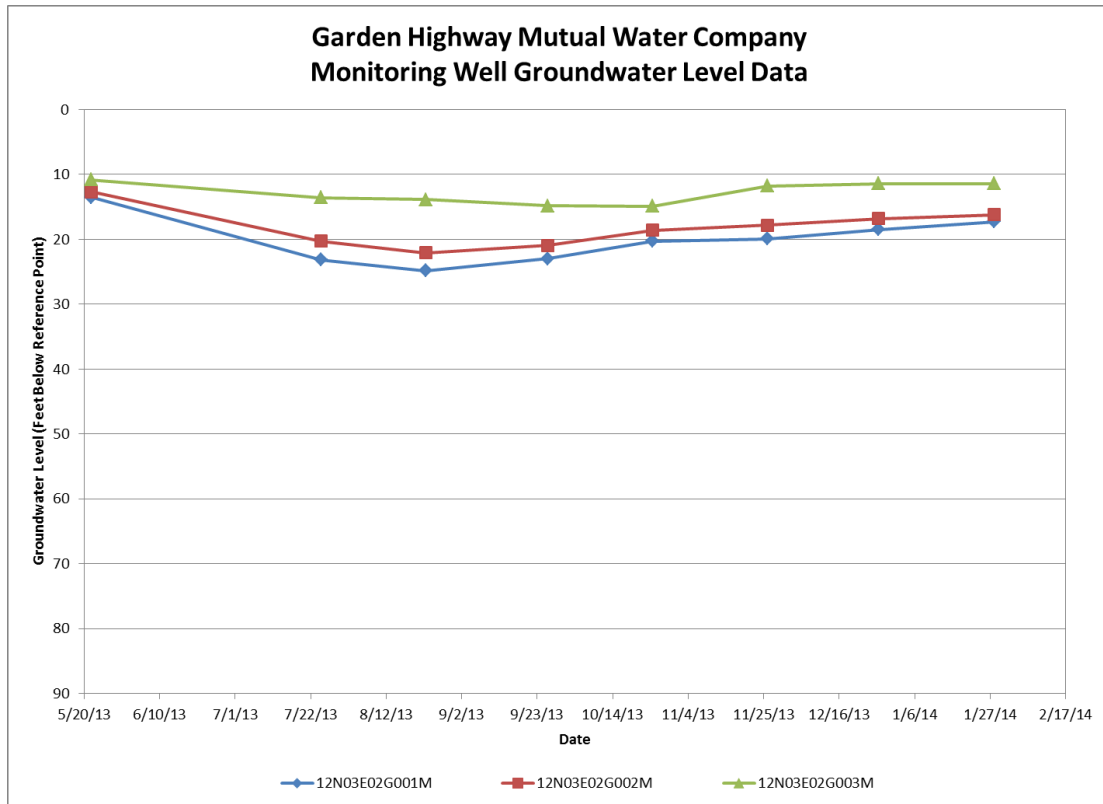


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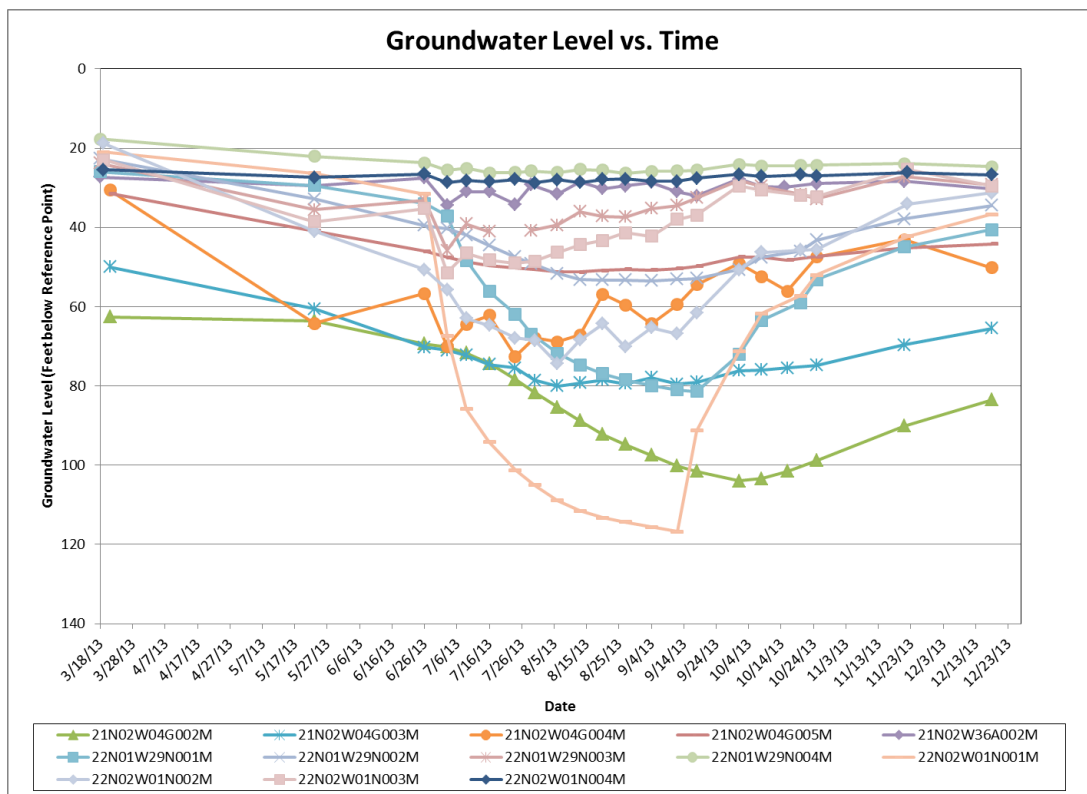
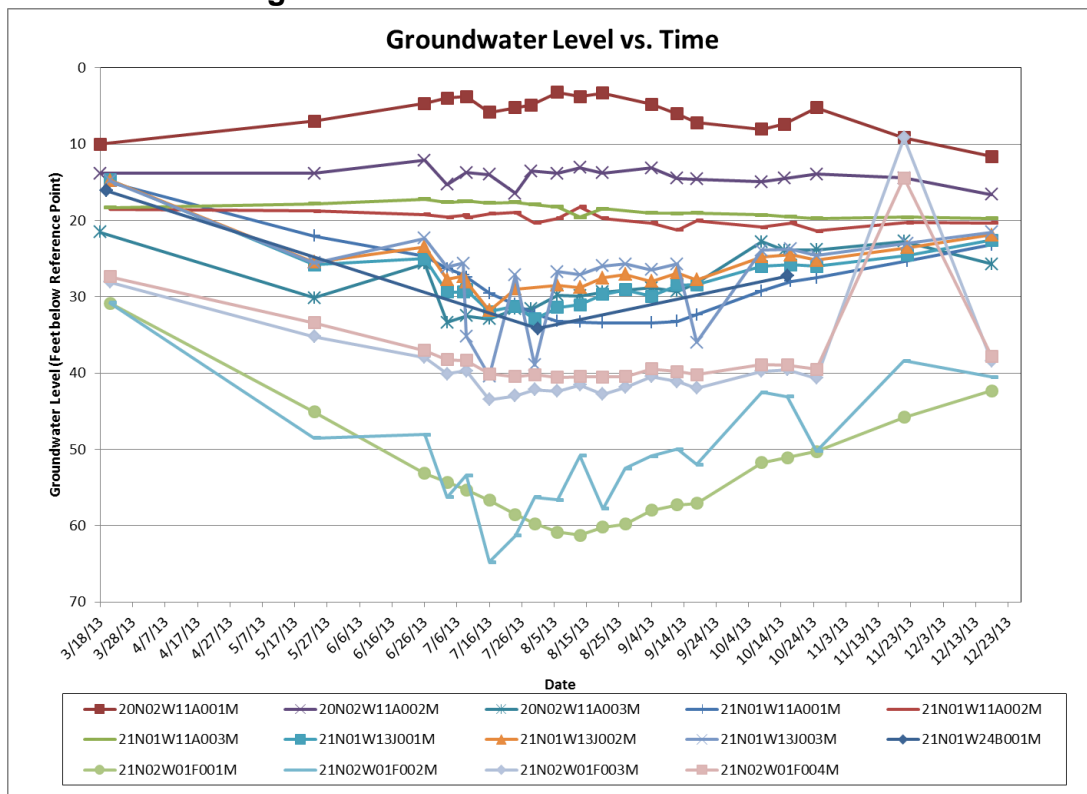


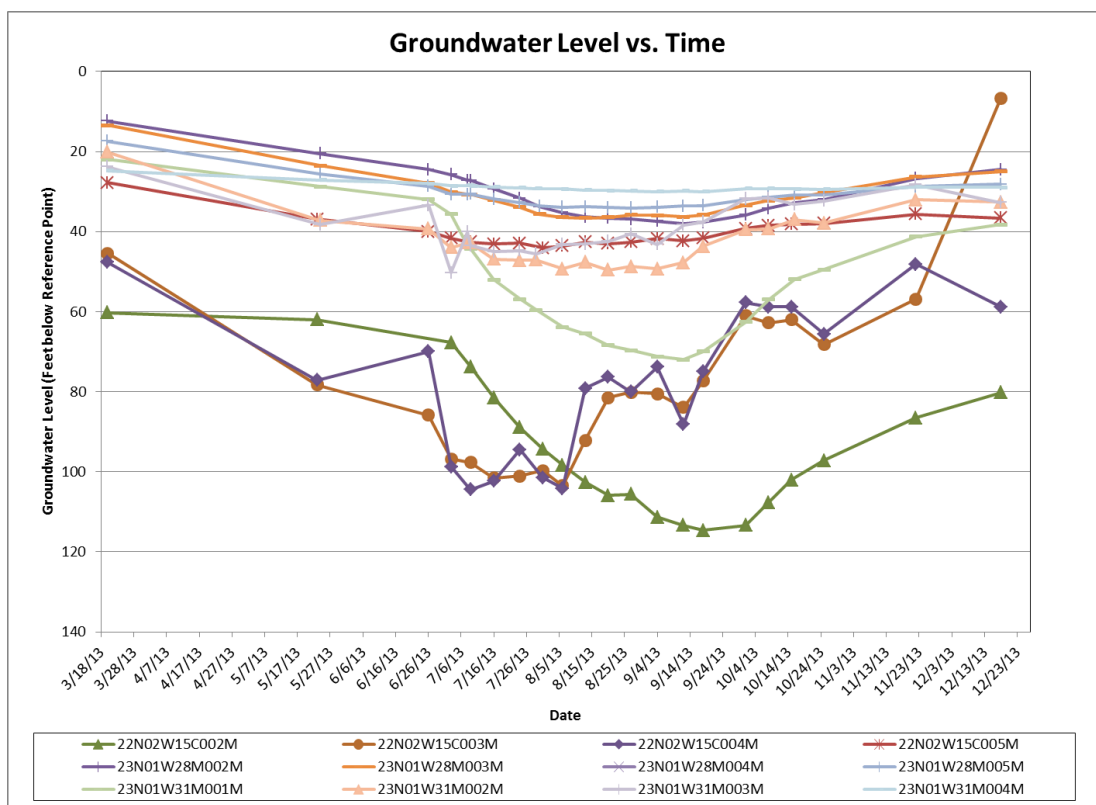
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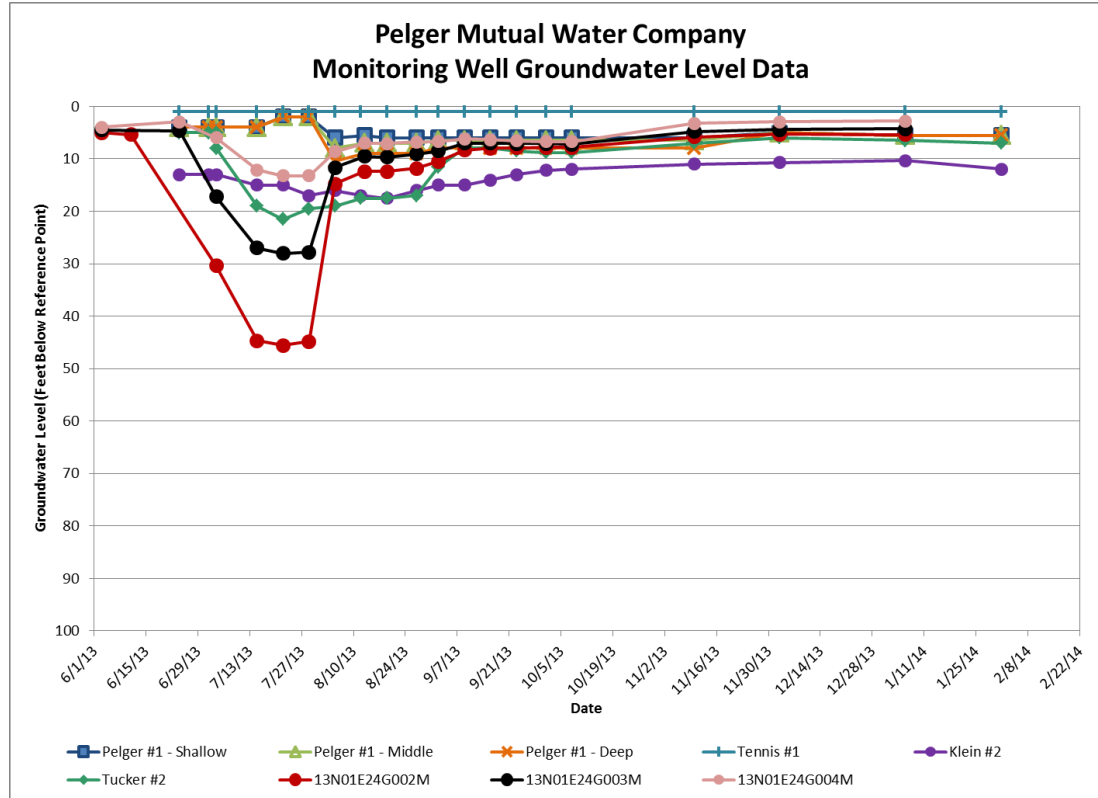


Glenn-Colusa Irrigation District

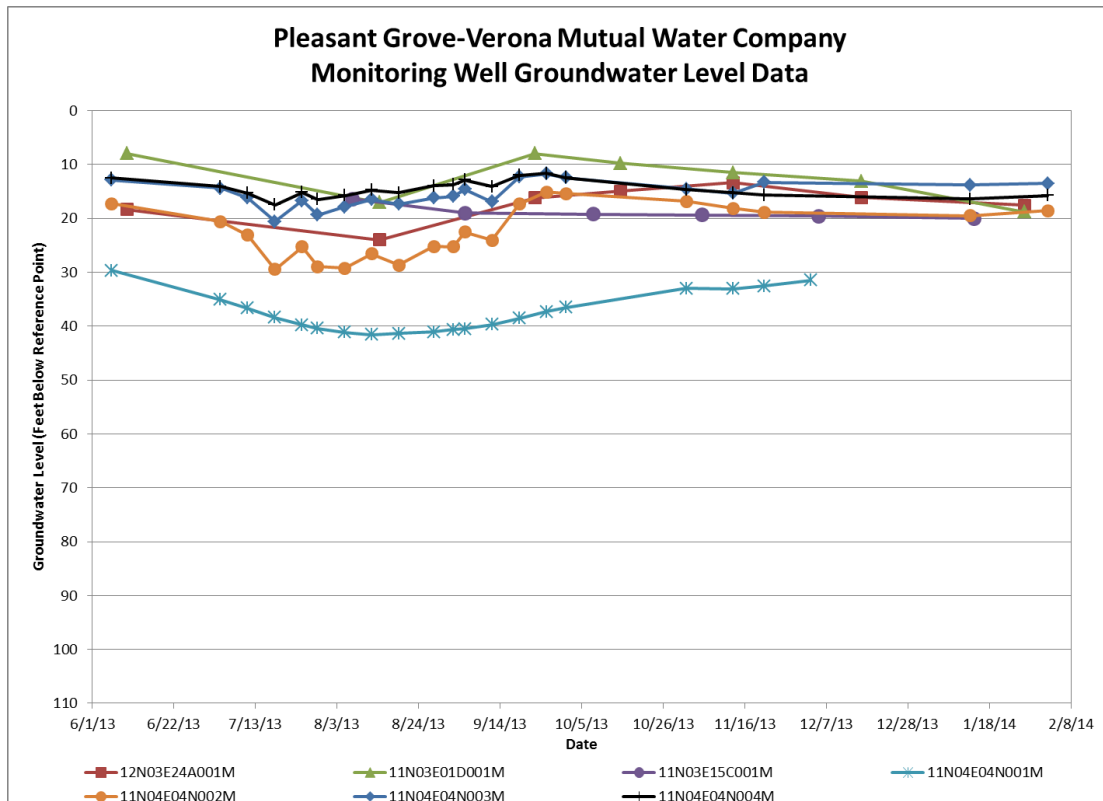
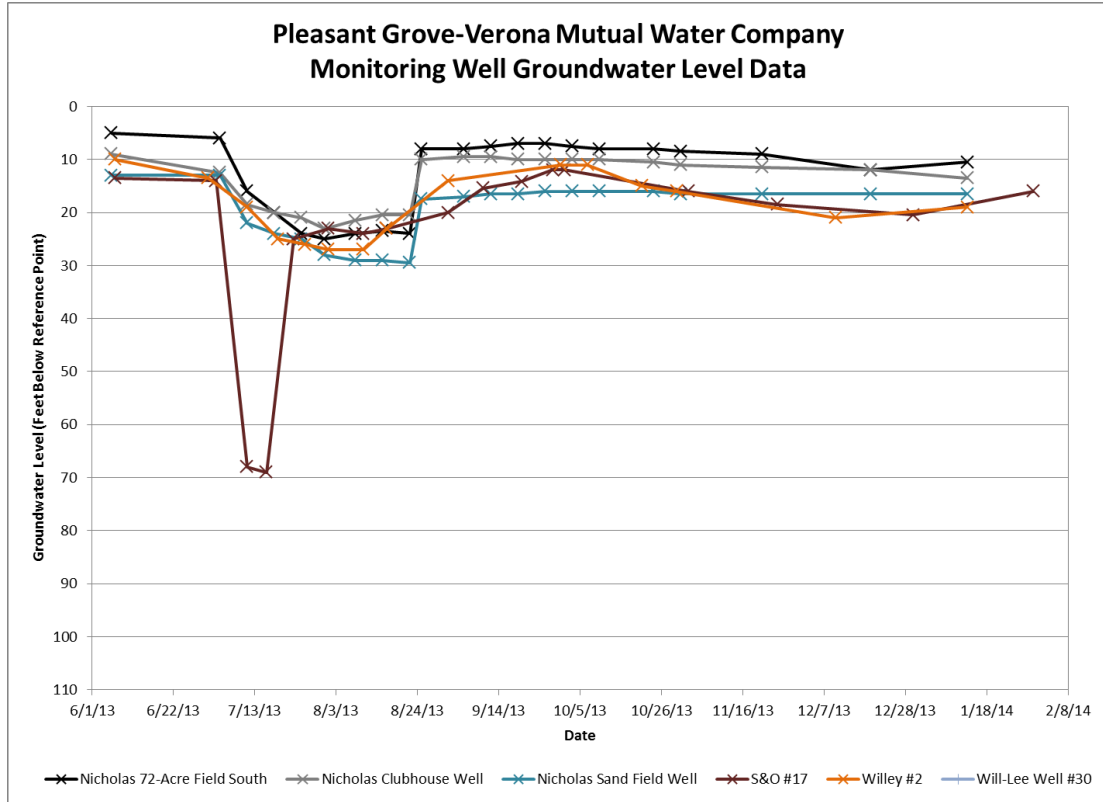




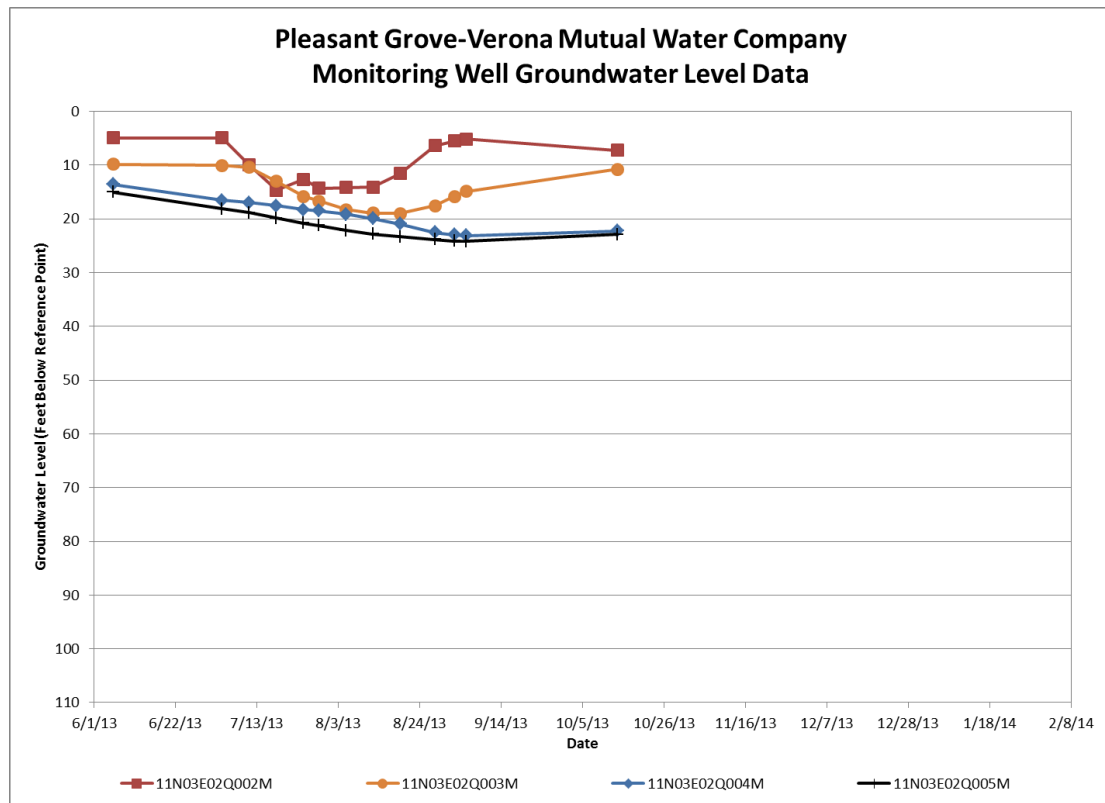
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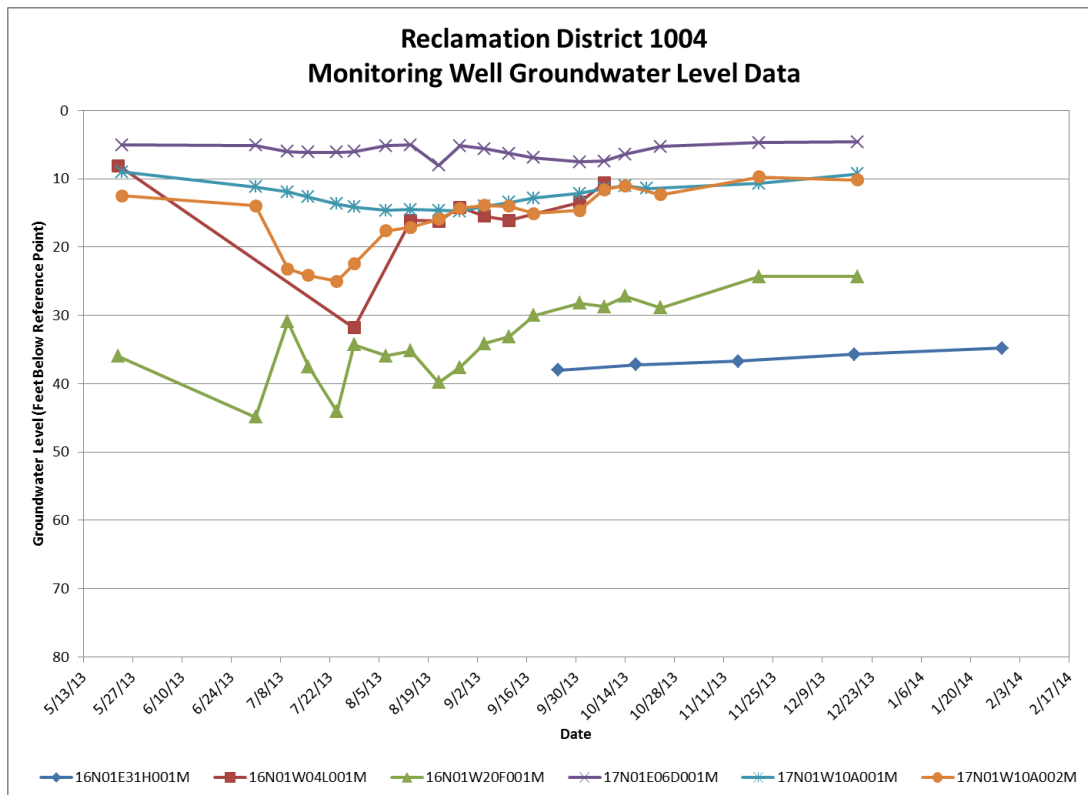
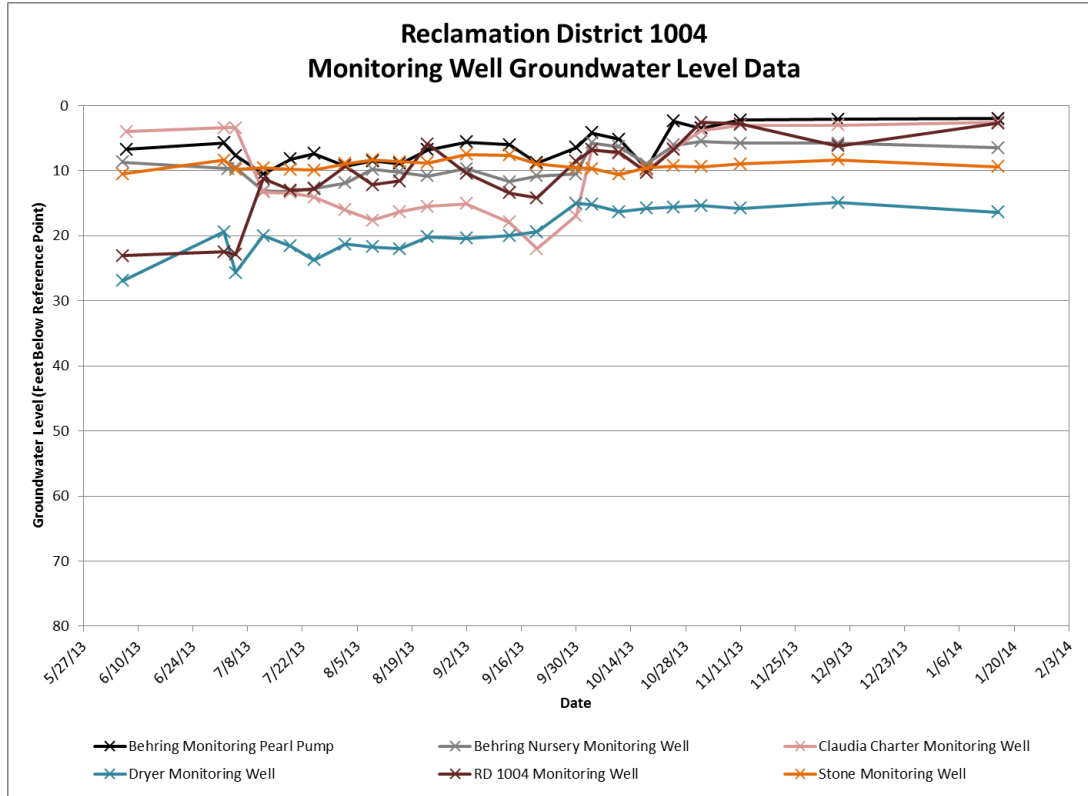
Pleasant Grove-Verona Mutual Water Company



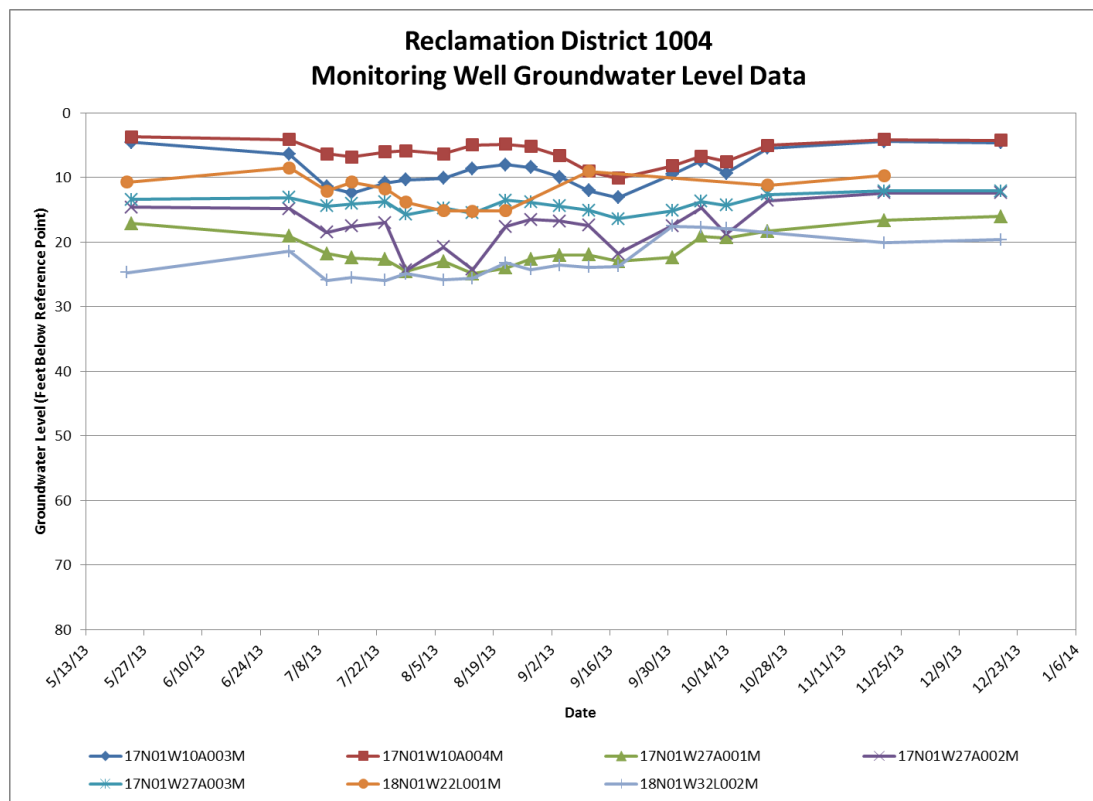
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Environmental Assessment/Initial Study



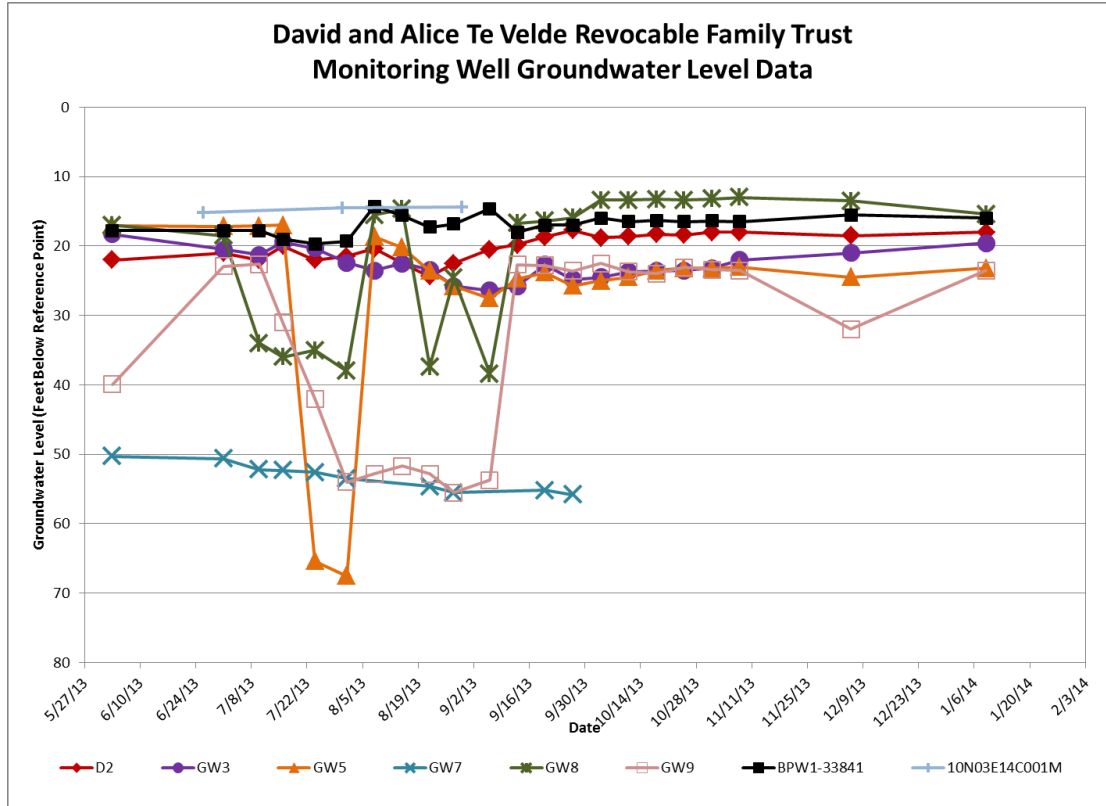
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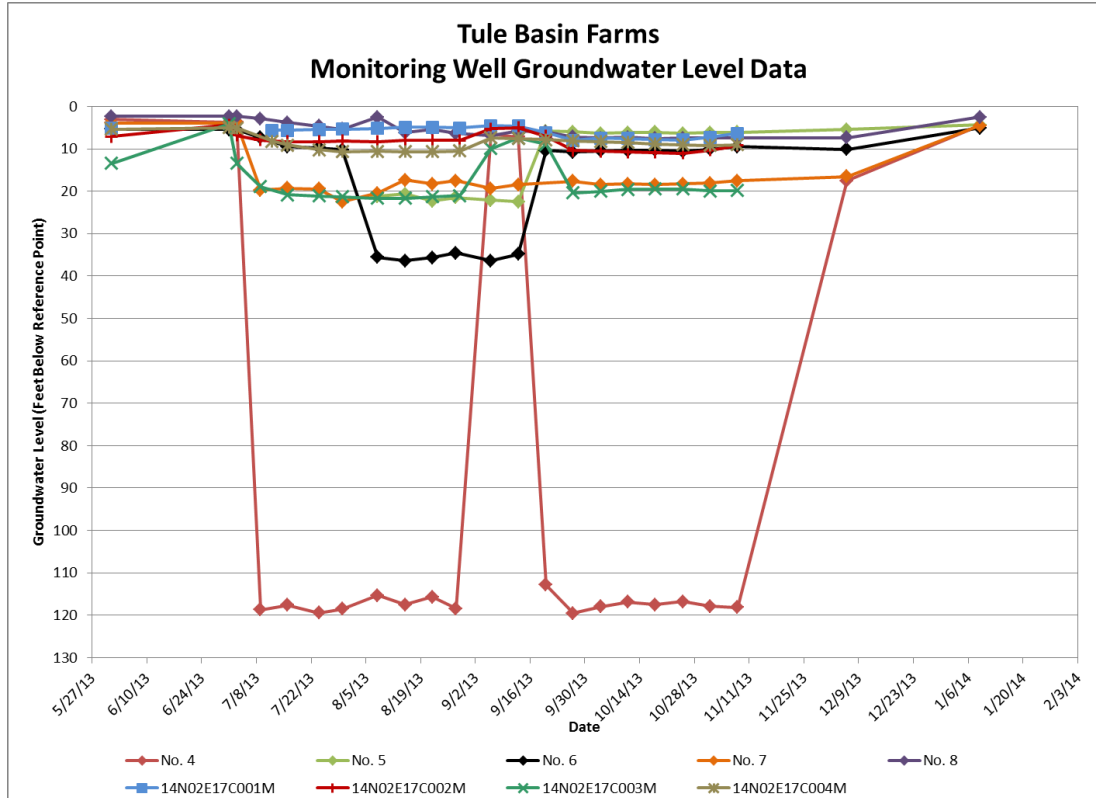
2014 Tehama-Colusa Canal Authority Water Transfers
Environmental Assessment/Initial Study



Te Velde Revocable Trust



Tule Basin Farms



Appendix D

Environmental Commitments and Minimization Measures

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Appendix D

Environmental Commitments and Minimization Measures

This appendix includes the environmental commitments and minimization measures for 2014 water transfers. Chapter 2 of the EA/IS includes the environmental commitments and Chapter 3 of the EA/IS includes an evaluation of environmental effects and associated minimization measures.

D.1 Environmental Commitments

Groundwater Substitution Transfers

- Well reviews and monitoring and mitigation plans will be implemented to minimize potential effects of groundwater substitution on nearby surface and ground water resources. Well reviews, monitoring and mitigation plans will be coordinated and implemented in conjunction with local ordinances, basin management objectives, and all other applicable regulations. DWR and Reclamation have published draft technical information related to cropland idling/shifting and groundwater substitution transfers titled *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2013), which is available at <http://www.water.ca.gov/watertransfers/>.
- In groundwater basins where sellers are in the same groundwater subbasin as protected aquatic habitats, such as giant garter snake (GGS) preserves and conservation banks, groundwater substitution will be allowed as part of the 2014 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.

Cropland Idling Transfers

- As part of the approval process, Reclamation will have access to the land to verify how the water transfer is being made available and to verify that the actions to protect the GGS are being implemented.

- Reclamation will provide a map(s) to United States Fish and Wildlife Service (USFWS) in May of 2014 showing the parcels of riceland that are idled for the purpose of transferring water in 2014. These maps will be prepared to comport to Reclamation's GIS standards.
- Water will not be purchased from a field fallowed during the two previous years (water may be purchased from the same parcel in successive years) (Reclamation and DWR 2013).
- Movement corridors for aquatic species include the major irrigation and drainage canals. The water seller will keep at least two feet of water in the major irrigation and drainage canals (but never more than existing conditions).
- In order to limit reduction in the amount of over-winter forage for migratory birds, including greater sandhill crane, transfers will minimize actions near known wintering areas in the Butte Sink.
- To ensure effects of cropland idling/shifting actions on western pond turtle habitat are avoided or minimized, canals will not be allowed to completely dry out.
- The focus of GGS mitigation in districts proposing water transfers made available from fallowed rice fields will be to ensure adequate water is available for priority suitable habitat with a high likelihood of GGS occurrence.
 - The determination of priority habitat will be made through coordination with GGS experts, GIS analysis of proximity to historic tule marsh, and GIS analysis of suitable habitat. The priority habitat areas are indicated on the priority habitat map which will be maintained by USFWS. In addition, fields abutting or immediately adjacent to federal wildlife refuges will be considered priority habitat.
 - Maintenance water in smaller drains and conveyance infrastructure support key habitat attributes such as emergent vegetation for GGS for escape cover and foraging habitat. If crop idling/shifting occurs in priority habitat areas, Reclamation will work with contractors to document that adequate water remains in drains and canals in those priority areas. Documentation may include flow records, photo documentation, or other means of documentation agreed to by Reclamation and USFWS.
 - Areas with known priority GGS populations will not be permitted to participate in cropland idling/shifting transfers. Water sellers can

request a case-by-case evaluation of whether a specific field would be precluded from participating in 2014 Water Transfers. These areas include:

- Fields abutting or immediately adjacent to Butte Creek, Colusa Drainage Canal, Gilsizer Slough, the land side of the Toe Drain along the Sutter Bypass, Willow Slough and Willow Slough Bypass in Yolo County, and
- Lands in the Natomas Basin.

D.2 Minimization Measures

Groundwater

The *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2013) and Addendum (Reclamation and DWR 2014) provide guidance for the development of proposals for groundwater substitution water transfers. The objectives of this process are: to mitigate adverse environmental effects that occur; to minimize potential effects to other legal users of water; to provide a process for review and response to reported third party effects; and to assure that a local mitigation strategy is in place prior to the groundwater transfer. The seller will be responsible for assessing and minimizing or avoiding adverse effects resulting from the transfer within the source area of the transfer.

Each entity participating in a groundwater substitution transfer will be required to confirm that the proposed groundwater pumping will be compatible with state and local regulations and groundwater management plans. Reclamation's transfer approval process and groundwater minimization measures set forth a framework that is designed to avoid and minimize adverse groundwater effects. Reclamation will verify that sellers adopt these minimization measures to minimize the potential for adverse effects related to groundwater extraction.

Well Review Process Potential sellers will be required to submit well data for Reclamation and, where appropriate, DWR review, as part of the transfer approval process. Required information is detailed in the *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2013) and Addendum (Reclamation and DWR 2014) for groundwater substitution transfers.

For the purposes of this EA/IS, Reclamation assumes that streamflow losses due to groundwater pumping to make water available for transfer are 12 percent of the amount pumped. Sellers may submit modeling information from approved models to demonstrate that this percentage should be different. Reclamation

continues to require well location and construction information to ensure that the criteria in the *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2013) are met.

Monitoring Program Potential sellers will be required to complete and implement a monitoring program that must, at a minimum, include the following components:

- *Monitoring Well Network.* The monitoring program will incorporate a sufficient number of monitoring wells to accurately characterize groundwater levels and response in the area before, during, and after transfer pumping takes place.
- *Groundwater Pumping Measurements.* All wells pumping to replace surface water designated for transfer shall be configured with a permanent instantaneous and totalizing flow meter capable of accurately measuring well discharge rates and volumes. Flow meter readings will be recorded just prior to initiation of pumping and at designated times, but no less than monthly and as close as practical to the last day of the month, throughout the duration of the transfer.
- *Groundwater Levels.* Sellers will collect measurements of groundwater levels in both participating transfer wells and monitoring wells. Groundwater level monitoring will include measurements before, during and after transfer-related pumping. The water transfer proponent will measure groundwater levels as follows:
 - Prior to transfer: Groundwater levels will be measured monthly from March 2014 until the start of transfer.
 - Start of transfer: Groundwater levels will be measured on the same day that the transfer begins, prior to the pump being turned on.
 - During transfer: Groundwater levels will be measured weekly throughout the transfer period.
 - Post-transfer: Groundwater levels will be measured weekly for one month after the end of transfer pumping, after which groundwater levels will be measured monthly until March 2015.
- *Groundwater Quality.* For municipal sellers, the comprehensive water quality testing requirements of Title 22 should be sufficient for the water transfer monitoring program. Agricultural sellers shall measure specific conductance in samples from each participating production

well. Samples shall be collected when the seller first initiates pumping, monthly during the transfer period, and at the termination of transfer pumping.

- *Land Subsidence.* Reclamation will work with the seller to develop the specifics of a mutually agreed upon subsidence monitoring effort. The extent of required land subsidence monitoring will depend on the expected susceptibility of the area to land subsidence. Areas with documented land subsidence will require more extensive monitoring than others.
- *Coordination Plan.* The monitoring program will include a plan to coordinate the collection and organization of monitoring data, and communication with the well operators and other decision makers.
- *Evaluation and Reporting.* The proposed monitoring program will describe the method of reporting monitoring data. At a minimum, sellers will provide data summary tables to Reclamation, both during and after transfer-related groundwater pumping. Post-program reporting will continue until groundwater levels recover to seasonal highs in March 2015. Water transfer proponents will provide a final summary report to Reclamation evaluating the effects of the water transfer. The final report will identify transfer-related impacts on groundwater and surface water (both during and after pumping), and the extent and significance, if any, of impacts on local groundwater users. It should include groundwater elevation contour maps for the area in which transfer operations are located, showing pre-transfer groundwater elevations, groundwater elevations at the end of the transfer, and recovered groundwater elevations in March 2015.

Mitigation Plan Potential sellers will also be required to complete and implement a mitigation plan. If the seller's monitoring efforts indicate that the operation of wells for groundwater substitution pumping are causing substantial adverse impacts, the seller will be responsible for mitigating any significant environmental impacts that occur. Mitigation actions could include:

- Curtailment of pumping until natural recharge corrects the issue.
- Lowering of pumping bowls in third party wells affected by transfer pumping.
- Reimbursement for significant increases in pumping costs due to the additional groundwater pumping to support the transfer.
- Other actions as appropriate.

To ensure that mitigation plans will be tailored to local conditions, the plan must include the following elements:

1. A procedure for the seller to receive reports of purported environmental or third party effects;
2. A procedure for investigating any reported effect;
3. Development of mitigation options, in cooperation with the affected third parties, for legitimate effects; and
4. Assurances that adequate financial resources are available to cover reasonably anticipated mitigation needs.

Air Quality

Emissions from Pelger Mutual Water Company, Pleasant Grove-Verona Mutual Water Company, and Tule Basin Farms would exceed the daily NO_x thresholds.

The following mitigation measures would reduce the severity of the air quality impacts:

- AQ-1 – All diesel-fueled engines would either be replaced with an engine that would meet the applicable emission standards for model year 2013 or would be retrofit to meet the same emission standards.
- AQ-2 – Natural gas engines will be retrofit with a selective catalytic reduction device (or equivalent) that is capable of achieving a NO_x control efficiency of at least 90 percent.
- AQ-3 – Any engines operating in the area of analysis that are capable of operating as either electric or natural gas engines would only operate with electricity during any groundwater transfers.
- AQ-4 – Selling agency would reduce pumping at diesel or natural gas wells to reduce emissions to below the thresholds.
- AQ-5 – Operation of the engines at Pleasant Grove-Verona Mutual Water Company will be limited to 6.5 hours per day per engine or 202 cumulative hours for all engines.

Appendix E

Mitigation Monitoring and Reporting Program

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Appendix E

Mitigation Monitoring and Reporting Program

The proposed Project would result in the potential for significant environmental impacts associated with air quality. Mitigation measures have been incorporated into the Project to reduce impacts to less than significant levels. The mitigation measures for the Project must be adopted by Reclamation and TCCA, in conjunction with adoption of the MND/IS.

Section 21081.6 of the Public Resources Code (PRC) and CEQA Guidelines section 15097 require the Lead Agency for each project that is subject to the CEQA to monitor performance of the mitigation measures included in any environmental document to ensure that implementation does, in fact, take place. The PRC requires the Lead Agency to adopt a monitoring and reporting program for assessing and ensuring the implementation of required mitigation measures.

In accordance with PRC Section 21081.6, TCCA has developed this Mitigation Monitoring and Reporting Program (MMRP) for the Project. The purpose of the MMRP is to ensure activities associated with transferring water comply with all applicable environmental mitigation requirements. Mitigation measures would reduce short-term environmental impacts associated with sellers making water available for transfer through groundwater substitution.

Table E-1 lists the mitigation measures identified in the EA/IS, responsible parties, the time frame for implementation, and the monitoring parties. A column is provided for the monitoring party to sign-off on the implementation of each mitigation measure.

In addition to the mitigation measures, several environmental commitments and minimization measures would be enacted to reduce potential environmental impacts from water transfers to biological and groundwater resources. The groundwater minimization measures are required to monitor and address potential groundwater level changes that could affect third parties or biological resources. The environmental commitments and minimization measures are included in this MMRP to verify compliance as transfers move forward. Table E-2 shows these commitments and measures, the responsible parties, time frame for implementation, and the monitoring parties.

Table E-1 Air Quality Mitigation Measures

Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
						Initials	Date
AQ-1	All diesel-fueled engines would either be replaced with an engine that would meet the applicable emission standards for model year 2013 or would be retrofit to meet the same emission standards.	Participating Sellers	Reclamation and TCCA	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		
AQ-2	Natural gas engines will be retrofit with a selective catalytic reduction device (or equivalent) that is capable of achieving a NOx control efficiency of at least 90 percent.	Participating Sellers	Reclamation and TCCA	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		
AQ-3	Any engines operating in the area of analysis that are capable of operating as either electric or natural gas engines would only operate with electricity during any groundwater transfers.	Participating Sellers	Reclamation and TCCA	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		
AQ-4	Selling agency would reduce pumping at diesel or natural gas wells to reduce emissions to below the thresholds.	Participating Sellers	Reclamation and TCCA	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		
AQ-5	Operation of the engines at Pleasant Grove-Verona Mutual Water Company will be limited to 6.5 hours per day per engine or 202 cumulative hours for all engines	Participating Sellers	Reclamation and TCCA	Seller transfer application package with field spot-checks	Ongoing		

Table E-2 Environmental Commitments and Minimization Measures for Biological Resources and Groundwater

Environmental Commitments and Minimization Measures	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
					Initials	Date
Well reviews and monitoring and mitigation plans will be implemented to minimize potential effects of groundwater substitution on nearby surface and ground water resources. Well reviews, monitoring and mitigation plans will be coordinated and implemented in conjunction with local ordinances, basin management objectives, and all other applicable regulations. DWR and Reclamation have published draft technical information related to cropland idling/shifting and groundwater substitution transfers titled <i>DRAFT Technical Information for Preparing Water Transfer Proposals</i> (Reclamation and DWR 2013), which is available at http://www.water.ca.gov/watertransfers/ .	Participating Sellers	Reclamation and TCCA	Seller transfer application package	Prior to 2014 water transfers		
In groundwater basins where sellers are in the same groundwater subbasin as protected aquatic habitats, such as giant garter snake (GGS) preserves and conservation banks, groundwater substitution will be allowed as part of the 2014 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.	Participating Sellers	Reclamation and TCCA	Seller transfer application package	Prior to 2014 water transfers		
As part of the approval process, Reclamation will have access to the land to verify how the water transfer is being made available and to verify that the actions to protect the GGS are being implemented.	Participating Sellers	Reclamation	Regular inspections	Access provided prior to 2014 water transfers; inspections ongoing		
Reclamation will provide a map(s) to USFWS in May of 2014 showing the parcels of riceland that are idled for the purpose of transferring water in 2014. These maps will be prepared to comport to Reclamation's Geographic Information System (GIS) standards.	Participating Sellers	Reclamation	Completed mapping package	Prior to 2014 water transfers		
Water will not be purchased from a field fallowed during the two previous years (water may be purchased from the same parcel in successive years).	Participating Sellers	Reclamation	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		

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Environmental Commitments and Minimization Measures	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
					Initials	Date
Movement corridors for aquatic species include the major irrigation and drainage canals. The water seller will keep at least two feet of water in the major irrigation and drainage canals (but never more than existing conditions).	Participating Sellers	Reclamation	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		
In order to limit reduction in the amount of over-winter forage for migratory birds, including greater sandhill crane, transfers will minimize actions near known wintering areas in the Butte Sink.	Participating Sellers	Reclamation	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		
To ensure effects of cropland idling actions on western pond turtle habitat are avoided or minimized, canals will not be allowed to completely dry out.	Participating Sellers	Reclamation	Regular inspections	Prior to 2014 water transfers		
<p>The focus of GGS mitigation in districts proposing water transfers made available from fallowed rice fields will be to ensure adequate water is available for priority suitable habitat with a high likelihood of GGS occurrence.</p> <ul style="list-style-type: none"> The determination of priority habitat will be made through coordination with GGS experts, GIS analysis of proximity to historic tule marsh, and GIS analysis of suitable habitat. The priority habitat areas are indicated on the priority habitat map which will be maintained by USFWS. In addition, fields abutting or immediately adjacent to Federal wildlife refuges will be considered priority habitat. Maintenance water in smaller drains and conveyance infrastructure support key habitat attributes such as emergent vegetation for GGS for escape cover and foraging habitat. If crop idling/shifting occurs in priority habitat areas, Reclamation will work with contractors to document that adequate water remains in drains and canals in those priority areas. Documentation may include flow records, photo documentation, or other means of documentation agreed to by Reclamation and USFWS. Areas with known priority GGS populations will not be permitted to participate in cropland idling/shifting transfers. Water sellers can request a case-by-case evaluation of whether a specific field would be precluded from participating in 2014 Water Transfers. 	Participating Sellers	Reclamation	Seller transfer application package with field spot-checks	Prior to 2014 water transfers		

Environmental Commitments and Minimization Measures	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
					Initials	Date
<p>These areas include:</p> <ul style="list-style-type: none"> Fields abutting or immediately adjacent to Butte Creek, Colusa Drainage Canal, Gilsizer Slough, the land side of the Toe Drain along the Sutter Bypass, Willow Slough and Willow Slough Bypass in Yolo County, and Lands in the Natomas Basin. 						
Potential sellers will be required to submit well data for Reclamation and, where appropriate, DWR review, as part of the transfer approval process. Required information is detailed in the <i>DRAFT Technical Information for Preparing Water Transfer Proposals</i> (Reclamation and DWR 2013) and Addendum (Reclamation and DWR 2014) for groundwater substitution transfers.	Participating Sellers	Reclamation and TCCA	Seller transfer information package	Prior to 2014 water transfers		
Potential sellers will be required to complete and implement a monitoring program will incorporate a sufficient number of monitoring wells to accurately characterize groundwater levels and response in the area before, during, and after transfer pumping takes place.	Participating Sellers	Reclamation and TCCA	Seller transfer application package	Plan submitted prior to 2014 water transfers; monitoring information submitted during and after transfer		
All wells pumping to replace surface water designated for transfer shall be configured with a permanent instantaneous and totalizing flow meter capable of accurately measuring well discharge rates and volumes. Flow meter readings will be recorded just prior to initiation of pumping and at designated times, but no less than monthly and as close as practical to the last day of the month, throughout the duration of the transfer.	Participating Sellers	Reclamation and TCCA	Seller transfer application package with field spot-checks	Ongoing		
<p>Sellers will collect measurements of groundwater levels in both participating transfer wells and monitoring wells. Groundwater level monitoring will include measurements before, during and after transfer-related pumping. The water transfer proponent will measure groundwater levels as follows:</p> <ul style="list-style-type: none"> <u>Prior to transfer</u>: Groundwater levels will be measured monthly from March 2014 until the start of transfer. <u>Start of transfer</u>: Groundwater levels will be measured on the same day that the transfer begins, prior to the 	Participating Sellers	Reclamation and TCCA	Regular inspections	Ongoing		

2014 Tehama-Colusa Authority Water Transfers
Environmental Assessment/Initial Study

Environmental Commitments and Minimization Measures	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
					Initials	Date
<p>pump being turned on.</p> <ul style="list-style-type: none"> • <u>During transfer</u>: Groundwater levels will be measured weekly throughout the transfer period. • <u>Post-transfer</u>: Groundwater levels will be measured weekly for one month after the end of transfer pumping, after which groundwater levels will be measured monthly until March 2015. 						
For municipal sellers, the comprehensive water quality testing requirements of Title 22 should be sufficient for the water transfer monitoring program. Agricultural sellers shall measure specific conductance in samples from each participating production well. Samples shall be collected when the seller first initiates pumping, monthly during the transfer period, and at the termination of transfer pumping.	Municipal Sellers	Reclamation and TCCA	Regular inspections	Ongoing		
Reclamation will work with the seller to develop the specifics of a mutually agreed upon subsidence monitoring effort. The extent of required land subsidence monitoring will depend on the expected susceptibility of the area to land subsidence. Areas with documented land subsidence will require more extensive monitoring than others.	Participating Sellers	Reclamation	Regular inspections	Ongoing		
The proposed monitoring program will describe the method of reporting monitoring data. At a minimum, sellers will provide data summary tables to Reclamation, both during and after transfer-related groundwater pumping. Post-program reporting will continue until groundwater levels recover to seasonal highs in March 2015. Water transfer proponents will provide a final summary report to Reclamation evaluating the effects of the water transfer. The final report will identify transfer-related impacts on groundwater and surface water (both during and after pumping), and the extent and significance, if any, of impacts on local groundwater users. It should include groundwater elevation contour maps for the area in which transfer operations are located, showing pre-transfer groundwater elevations, groundwater elevations at the end of the transfer, and recovered groundwater elevations in March 2015.	Participating Sellers	Reclamation and TCCA	Seller transfer application package	Plan submitted prior to 2014 water transfers; monitoring information submitted during and after transfer		

Environmental Commitments and Minimization Measures	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
					Initials	Date
<p>Potential sellers will also be required to complete and implement a mitigation plan. If the seller's monitoring efforts indicate that the operation of wells for groundwater substitution pumping are causing substantial adverse impacts, the seller will be responsible for mitigating any significant environmental impacts that occur. Mitigation actions could include:</p> <ul style="list-style-type: none"> • Curtailment of pumping until natural recharge corrects the issue. • Lowering of pumping bowls in third party wells affected by transfer pumping. • Reimbursement for significant increases in pumping costs due to the additional groundwater pumping to support the transfer. • Other actions as appropriate. <p>To ensure that mitigation plans will be tailored to local conditions, the plan must include the following elements:</p> <ol style="list-style-type: none"> 1. A procedure for the seller to receive reports of purported environmental or third party effects; 2. A procedure for investigating any reported effect; 3. Development of mitigation options, in cooperation with the affected third parties, for legitimate effects; and 4. Assurances that adequate financial resources are available to cover reasonably anticipated mitigation needs. 	Participating Sellers	Reclamation and TCCA	Regular inspections	Ongoing		

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Appendix F

Groundwater Monitoring Data

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