

Appendix V

Mitigation Monitoring and Reporting Plan

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1 **Appendix V**

2 **Mitigation Monitoring and Reporting Program**

3 **V.1 Introduction**

4 The proposed Long-Term Water Transfers (Project) would result in the potential for significant
5 environmental impacts associated with water supply, air quality, groundwater resources, and
6 agricultural land use. Mitigation measures have been incorporated into the Project to reduce
7 impacts to less than significant levels. The mitigation measures for the Project must be adopted
8 by Reclamation and the San Luis & Delta-Mendota Water Authority (SLDMWA), in
9 conjunction with adoption of the Environmental Impact Statement/Environmental Impact Report
10 (EIS/EIR).

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

17 In accordance with PRC Section 21081.6, SLDMWA has developed this Mitigation Monitoring
18 and Reporting Program (MMRP) for the Project. The purpose of the MMRP is to ensure
19 activities associated with transferring water comply with all applicable environmental mitigation
20 requirements.

21 **V.2 Mitigation and Monitoring**

22 Table V-1 lists the mitigation measures identified, responsible parties, the time frame for
23 implementation, and the monitoring parties. A column is provided for the monitoring party to
24 sign-off on the implementation of each mitigation measure.

**Table V-1.
 Mitigation Measures**

Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
						Initials	Date
WS-1	<p>The purpose of Mitigation Measure WS-1 is to address potential streamflow depletion effects to Central Valley Project (CVP) and State Water Project (SWP) water supply. Reclamation will apply a streamflow depletion factor to mitigate potential water supply impacts from the additional groundwater pumping due to groundwater substitution transfers. The streamflow depletion factor equates to a percentage of the total groundwater substitution transfer that will not be credited to the transferor and is intended to offset the streamflow effects of the added groundwater pumping due to transfer.</p> <p>As described in the impact analysis, the magnitude of the potential water supply impact depends on hydrologic conditions surrounding the transfer period (both before and after). The exact percentage of the streamflow depletion factor will be assessed and determined on a regular basis by Reclamation and California Department of Water Resources (DWR), in consultation with buyers and sellers, based on the best technical information available at that time. The percentage will be determined based on hydrologic conditions, groundwater and surface water modeling, monitoring information, and past transfer data. Application of the streamflow depletion factor will offset potential water supply effects and reduce them to a less than significant level. The streamflow depletion factor may not change every year, but will be refined as new information becomes available and may become more site specific as better data and groundwater modeling becomes available. The minimum streamflow depletion factor (based on modeling completed for this EIS/EIR) will be 13</p>	Reclamation	Reclamation and DWR	CVP and SWP operations reporting.	Ongoing.		

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	<p>percent, but this factor may be adjusted based on additional information on local conditions.</p> <p>Reclamation and DWR require the imposition of a streamflow depletion factor because they will not move transfer water if doing so will violate the no injury rule. This process to evaluate and determine the streamflow depletion factor will help verify that the factor reduces potential impacts to avoid legal injury to CVP or SWP water supplies and a substantial impact or injury.</p>						
GW-1	<p>The objective of Mitigation Measure GW-1 is to avoid potentially significant adverse environmental effects from groundwater level declines such as (1) impacts to other legal users of water; (2) land subsidence; (3) adverse effects to groundwater-dependent vegetation and or (4) migration of reduced quality groundwater. The mitigation measure also requires prompt corrective action so that impacts discussed previously will be reduced to less than significant in the event unanticipated effects occur. The measure accomplishes this by monitoring groundwater levels and land subsidence in the period during which groundwater is being pumped in lieu of diverting the surface water. Additionally, the mitigation plan identifies necessary preventative action measures if monitoring shows that identified trigger points are reached during transfer-related pumping</p> <p>Reclamation will verify that sellers implement the monitoring program and mitigation plan to avoid potentially significant adverse effects of transfer-related groundwater extraction. In addition, each entity making surface water available for transfer through groundwater substitution actions must confirm that the proposed groundwater pumping will be compatible with state and local regulations and Groundwater Management Plans (GMPs). As</p>	Participating Sellers	Reclamation	Seller transfer application package.	Prior to water transfers.		

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	Groundwater Sustainability Plans (GSPs) are developed by Groundwater Sustainability Agencies, potential sellers must confirm that the proposed pumping and the following Monitoring Program and Mitigation Plan verified by Reclamation is compatible with applicable GSPs.						
GW-1	<u>Well Review Process</u> Potential sellers must submit well data for Reclamation and, where appropriate, DWR review, as part of the transfer approval process. Required information will be detailed in the most current version of the <i>DRAFT Technical Information for Preparing Water Transfer Proposals</i> (Reclamation and DWR 2014).	Participating sellers	Reclamation	Seller transfer application package.	Prior to water transfers.		
GW-1	<u>Monitoring Program</u> Potential sellers must complete and implement a monitoring program subject to Reclamation's approval that shall include, at a minimum, the following components:	Participating sellers	Reclamation	Seller transfer application package and monitoring reports.	Prior to, during, and after water transfers.		
GW-1	<u>Monitoring Well Network</u> The monitoring program shall incorporate a sufficient number of monitoring wells, as determined by Reclamation, to accurately characterize groundwater levels from the appropriate aquifers and their response in the area before, during, and after transfer pumping takes place. Depending on local conditions, additional groundwater level monitoring may be required near ecological resource areas. It should be noted that monitoring well networks have been established for some of the participating pumping wells that have participated in water transfers in previous years. For wells that have not participated in water transfers previously, the sellers would identify suitable monitoring wells as defined below for review and approval by Reclamation prior to transfer. If a suitable monitoring well(s) is not identified for a participating pumping well, the participating	Participating sellers	Reclamation	Seller transfer application package and monitoring data.	Plan submitted prior to water transfers; monitoring information submitted during and after transfer.		

Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
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	<p>pumping well will not be allowed to participate in water transfer until a suitable monitoring well(s) is identified.</p> <p>The monitoring well network would include the participating pumping well and a suitable groundwater level monitoring well(s) in the vicinity of the participating pumping well(s). Suitable monitoring well(s) would: (1) be within a two-mile radius of the seller's transfer pumping well; (2) be located within the same Bulletin 118 subbasin as the pumping well; and (3) have a screen depth(s) in the same aquifer level (shallow, intermediate, or deep) as the pumping well. Wells with short historic records could be considered, but short records (that do not extend to 2014 or earlier) could limit the transfer because the historic low would not reflect the persistent dry weather from 2011 to 2015. In this situation, the lowest groundwater level for the short period of record would be used, but because the groundwater level would likely be higher than the historic low during the prior drought period, the groundwater level triggers (described below) would be more restrictive (i.e., the lowest recorded groundwater level could be reached more quickly during transfer-related pumping than occurred in the short period of record when groundwater levels were higher.</p> <p>Monitoring requirements at the participating pumping well and suitable monitoring well(s) would detect impacts to third parties and land subsidence. Monitoring and mitigation for impacts to groundwater dependent deep-rooted vegetation and migration of reduced quality groundwater are discussed below under Other Monitoring.</p>						

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GW-1	<p><i>Groundwater Level Monitoring</i> Sellers will collect measurements of groundwater levels in both the participating wells (those wells being used in lieu of diverting surface water that is being made available for transfer) and monitoring wells. Groundwater level measurements will be used to identify potential concerns for both third party impacts and irreversible subsidence based on the identified trigger points. Groundwater level monitoring will include measurements before, during, and after transfer-related substitution pumping. The seller will measure groundwater levels as follows:</p> <ul style="list-style-type: none"> • Prior to transfer: Groundwater levels will be measured in both the participating pumping well(s) and the monitoring well(s) monthly from March in the year of the proposed transfer-related substitution pumping until the start of the transfer. Monitoring will also be conducted on the day that the transfer-related substitution pumping begins, prior to the pump being turned on. • During transfer-related substitution pumping: Groundwater levels will be measured in both the participating pumping well(s) and the monitoring well(s) weekly throughout the transfer-related substitution pumping period. • Post-transfer pumping: Groundwater levels will be measured in both the participating well(s) and the monitoring well(s) weekly for one month after the end of transfer-related substitution pumping, after which groundwater levels will be measured monthly through March of the year following the transfer. 	Participating sellers	Reclamation	Seller transfer application package with field spot-checks and monitoring data.	Prior to, during, and after water transfers.		
GW-1	<p><i>Groundwater Level Triggers</i> The primary criteria used to identify potentially significant impacts to groundwater levels are the BMOs set by GMPs. In the Sacramento Valley,</p>	Participating sellers	Reclamation	Regular inspection, monitoring data, and report if triggers are	Plan submitted prior to water transfers; monitoring		

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	<p>Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Nevada, Placer, Sacramento and Yolo counties have established GMPs to provide guidance in managing the resource.</p> <p>In areas where quantitative BMO groundwater level triggers exist, sellers will manage groundwater levels to these triggers and initiate the mitigation plan (discussed below) if groundwater levels reach the trigger. In areas where quantitative BMOs do not exist, sellers will manage groundwater levels to maintain them above the identified historic low groundwater level (trigger) and will initiate the mitigation plan (discussed below) if groundwater levels reach the trigger. Most of the quantitative BMOs within the Seller Service Area are tied to historic low groundwater levels. Therefore, the use of historic low groundwater levels in areas without quantitative BMOs is consistent with the approach for areas with quantitative BMOs. As part of a seller's transfer proposal subject to Reclamation's review and approval, the seller will need to identify the monitoring wells and the specific groundwater level trigger for each well (established through the local BMO or the historic low groundwater level for that well).</p> <p>Groundwater level declines due to pumping occur initially at the pumping well and then propagate outward from that location. The magnitude of groundwater level decline caused by pumping also decreases with increasing distance from the pumping well. Therefore, groundwater level declines caused by transfer pumping would be measured first at the pumping well and subsequently at the monitoring well. The decline would be greatest at the pumping well and lower at the monitoring well. Therefore, it is likely that groundwater levels in the pumping well would decline to the historic low level sooner than at the</p>			exceeded, if necessary.	information submitted during and after transfer.		

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	monitoring well(s). The monitoring well(s) would provide information surrounding the well to avoid potential cumulative impacts.						
GW-1	<i>Groundwater Quality</i> For municipal sellers, the comprehensive water quality testing requirements of Title 22 are considered 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 pumping period, and at the termination of transfer pumping.	Municipal sellers	Reclamation	Inspections during transfer period and monitoring data.	Prior to, during, and after water transfers.		
GW-1	<i>Groundwater Pumping Measurements</i> All wells pumping to replace surface water made available 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 transfer related pumping and no less than monthly throughout the duration of the transfer, as close as practical to the last day of the month. Readings will also be recorded just after cessation of transfer-related pumping. Flow meter installation and calibration, in accordance with recommendation by manufacturer, will be submitted by the seller.	Participating sellers	Reclamation	Inspections during transfer period and monitoring data.	Prior to, during, and after water transfers.		
GW-1	<i>Shallow Groundwater Level Monitoring for Deep Rooted Vegetation</i> To avoid significant effects to vegetation and allow sellers to modify actions before significant effects occur, sellers will monitor groundwater level data to verify that significant adverse effects to deep-rooted vegetation are avoided. This monitoring is only required in areas with deep-rooted vegetation (i.e. oak trees and riparian trees that would have tap roots greater than 10 feet deep) within a one-half mile radius of the participating pumping well and	Participating sellers	Reclamation	Inspection, monitoring data, and report if deep rooted vegetation are impacted (only required in areas with deep-rooted vegetation).	Plan submitted prior to water transfers; monitoring information submitted during and after transfer.		

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	<p>areas where groundwater levels are between 10 to 25 feet below ground surface prior to starting the transfer of surface water made available from groundwater substitution actions. This monitoring is not required in areas with no deep-rooted vegetation (i.e., areas without oak trees and riparian trees that would have tap roots greater than 10 feet deep) within one-half mile of the participating wells or in areas where vegetation is located along waterways or irrigated fields that will continue to have water during the period of transfer. The seller would be required to identify if monitoring for deep rooted vegetation is required in their transfer proposal to Reclamation and DWR. Existing resources such as DWR's groundwater dependent ecosystem maps (https://gis.water.ca.gov/app/NCDataSetViewer/) or any existing biological survey data in the area could be used to identify deep rooted vegetation near the participating pumping well.</p> <p>If deep rooted vegetation is identified near the participating pumping well, a groundwater level monitoring well with the following requirements would need to be identified and monitored: (1) monitoring well is within a one-half mile radius of the deep-rooted vegetation; (2) monitoring well would measure shallow groundwater level changes (within the interval between 10 to 25 feet below ground surface). The participating production well can function as the monitoring well if previously mentioned requirements are met. If monitoring data at the well indicate that groundwater levels have dropped below root zones (i.e., more than 10 feet, where groundwater was 10 to 25 feet below ground surface prior to starting the transfer of surface water made available from groundwater substitution actions), the seller must implement actions set forth in the mitigation plan. If historic data show that</p>						

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	<p>groundwater levels in the area where actions are being taken to make water available for transfer have typically varied by more than this amount annually during the proposed transfer period, then the transfer may be allowed to proceed. The seller must submit historic data showing groundwater variances to Reclamation prior to transfer pumping. If no monitoring wells with the requirements discussed in the previous paragraph exist, monitoring would be based on visual observations by a qualified plant ecologist/certified arborist of the health of these areas of deep-rooted vegetation until it is feasible to obtain or install shallow groundwater monitoring. Monitoring of these areas would include a pre-pumping vegetation assessment within a half-mile radius of the pumping well followed by an assessment near the end of the pumping season but prior to fall/autumn leaf-drop. The assessment of post-pumping impacts on deep-rooted vegetation will be conducted by a qualified plant ecologist/arborist and will take into account the existing health conditions of the vegetation prior to pumping, species present, size-class of trees, and rainfall data from the previous water years. If Reclamation the qualified plant ecologist/certified arborist determines, based on site-specific circumstances in consultation with a plant ecologist/arborist, that groundwater pumping has caused significant adverse impacts to deep-rooted vegetation (that is, any loss of the deep-rooted vegetation), the seller must implement restoration actions set forth in the mitigation plan . Findings from the pre-pumping and post pumping assessment will be reported to Reclamation.</p>						
GW-1	<p><i>Coordination Plan</i> The monitoring program will include a plan to coordinate the collection and organization of monitoring data. This plan will describe how input from third parties (i.e. groundwater wells not</p>	Participating sellers	Reclamation	Seller transfer application package with Coordination Plan.	Prior to water transfers.		

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	<p>participating in water transfers) will be incorporated into the monitoring program and will include a plan for communication with Reclamation as well as other decision makers and third parties. Additionally, Reclamation, SLDMWA, and potential seller(s) will coordinate closely with potentially affected third parties to collect and monitor groundwater data. If a third party expects that it may be affected by a proposed transfer, that party should contact Reclamation and the seller with its concern. The burden of collecting groundwater data will not be the responsibility of the third party. If warranted, additional groundwater level monitoring to address the third-party's concern may be incorporated in the monitoring and mitigation plans required by Mitigation Measure GW-1.</p>						
GW-1	<p><i>Evaluation and Reporting</i> The 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 substitution pumping. Post-transfer reporting will continue through March of the year following the transfer. Sellers will provide a final summary report to Reclamation evaluating the effects of the water transfer. The final report will identify transfer-related effects on groundwater and surface water (both during and after pumping), and the extent of effects, if any, on local groundwater users. It shall include groundwater level contour maps for the area in which transfer related pumping action is located, showing pre-transfer groundwater levels, groundwater levels at the end of the transfer period, and recovered groundwater levels in March of the year following the transfer. Groundwater level contour maps for different aquifer depths should also be included where data is available. The summary report shall also identify the extent of</p>	Participating sellers	Reclamation	Seller transfer application package and monitoring data and report.	Plan submitted prior to water transfers; monitoring information submitted during and after transfer.		

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Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
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	transfer-related effects, if any, to ecological resources such as fish, wildlife, and vegetation resources.						
GW-1	<p><u>Mitigation Plan</u> Potential sellers must complete and implement a mitigation plan to avoid potentially significant groundwater impacts and ensure prompt corrective action in the event unanticipated effects occur. This plan must document the planned actions if there are unanticipated impacts to groundwater resources or groundwater-dependent vegetation. This plan must be submitted to Reclamation as part of the transfer approval process.</p>	Participating sellers	Reclamation	Mitigation plan, monitoring data for mitigation activities, and regular inspections of mitigation activities.	Submit Mitigation Plan to Reclamation prior to water transfers.		
GW-1	<p><i>Groundwater Resource Mitigation</i> If groundwater level triggers are reached at the participating pumping well(s) or the suitable monitoring well (s) (either BMO triggers or historic low groundwater levels), transfer-related pumping would stop from the participating pumping well that reached the trigger. Transfer related pumping would be stopped when the trigger is first reached at either the participating pumping well(s) or the suitable monitoring well(s). Transfer-related pumping could not continue from this well (in the same year or a future year) until groundwater levels recovered to above the groundwater level trigger. Implementation of the mitigation plan thus avoids any potentially significant groundwater impacts. Other corrective actions could include:</p> <ul style="list-style-type: none"> • Lowering of pumping bowls in non-transferring wells affected by substitution pumping. • Reimbursement to non-transferring third parties for significant increases in their groundwater pumping costs due to the groundwater substitution pumping action, as compared with their costs absent the transfer. 	Participating sellers	Reclamation	Mitigation plan, monitoring data for mitigation activities, and regular inspections of mitigation activities.	Prior to, during and after water transfers		

Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
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	<ul style="list-style-type: none"> • Reimbursement to non-transferring third parties for modifications to infrastructure that may be affected. • Other appropriate actions based on local conditions. 						
	<p><i>Groundwater-Dependent Vegetation Mitigation</i></p> <p>If shallow groundwater levels monitoring suggests that groundwater levels have dropped below root zones, the seller must stop transfer-related pumping at the participating pumping well. Transfer-related pumping from the participating pumping well would be stopped until groundwater levels have recovered to levels above the root zones. If historic data at the location indicates shallow groundwater levels typically dropped and remained below the root zones (i.e., more than 10 feet, where groundwater was 10 to 25 feet below ground surface prior to starting the transfer of surface water made available from groundwater substitution actions) over the proposed transfer period, then the transfer may be allowed to proceed.</p> <p>In areas where visual monitoring is conducted to monitor health of deep-rooted vegetation, the seller must stop transfer-related pumping at the participating well if the qualified plant ecologist/arborist, determines a loss or substantial risk of loss of vegetation.</p> <p>If adverse impacts to deep-rooted vegetation occur, the seller will perform restoration activities by replanting similar vegetation at a 1:1 ratio (for every 1 inch diameter at breast height (dbh) lost, 1 inch in dbh will be planted. For example if 12-inch dbh of oak is lost then the seller would have to plant 12 gallon oak sapling at around 1-inch dbh. Therefore, the seller would plant more trees than lost.). The seller will plant, irrigate, maintain, and monitor restoration of vegetation for 3 years to replace the losses. All plantings will be fitted with exclusion</p>	Participating sellers	Reclamation	Mitigation plan, monitoring data for mitigation activities, and regular inspections of mitigation activities.	Prior to, during and after water transfers		

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	<p>cages or other suitable protection from herbivores. Plantings will be irrigated for 3 years or until the survival criterion is met. If 75% of the plants survive at the end of the 3-year monitoring period, the revegetation will be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and corrected. Annual monitoring reports, prepared by a qualified plant ecologist/arborist, will document the status of the plantings and recommendations for remediation as necessary. The monitoring reports will be provided to the seller and Reclamation by August 31 following each year of monitoring (generally July 1 through June 30) to allow time for additional planting activities, if necessary.</p> <p>Transfer-related pumping could not continue at the subject well while vegetation restoration activities consistent with the requirements above are ongoing (i.e. 3 years or until the survival criterion is met).</p> <p>Transfer-related pumping at the subject well could not resume after restoration unless the seller provides evidence that resuming pumping will not affect deep-rooted vegetation (such as data from the installation of a new shallow groundwater level monitoring well within a one-half mile radius of the deep-rooted vegetation that indicates stable shallow groundwater levels at less than 10 feet).</p>						

Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
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AQ-1	<p>Selling agency would reduce pumping at diesel or natural gas wells to reduce emissions to below the thresholds. If an agency is transferring water through cropland idling and groundwater substitution in the same year, the reduction in vehicle emissions can partially offset groundwater substitution pumping at a rate of 4.25 acre-feet (AF) of water produced by idling to one acre-foot of groundwater pumped. Agencies may also decide to replace old diesel or natural gas wells to reduce emission below the thresholds.</p> <p>Any selling agencies with potentially significant emissions, as determined by this EIS/EIR, will be required to maintain daily recordkeeping logs that document the specific engine to be used for groundwater substitution transfers, the power rating (hp), and applicable emission factors. Emission calculations will be completed daily for comparison to the significance thresholds determined for each selling agency. The recordkeeping logs will be sent to Reclamation monthly for verification that emissions are within the allowable limits.</p> <p>Reclamation will also work with the water agencies to inform individual growers of incentive funding available through the Natural Resources Conservation Service's Environmental Quality Incentives Program. Funded conservation practices including the replacement of internal combustion engines in irrigation pumps; therefore, the program may be used by growers to further reduce criteria pollutant emissions.</p>	Selling agency	Reclamation	Daily recordkeeping logs specifying the engines operated by each selling agency with potentially significant emissions and calculated criteria pollutant emissions.	Monthly during transfer.		

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Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
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AQ-2	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. Any selling agencies with these engines will be required to maintain daily recordkeeping logs that document the engines used for groundwater substitution transfers and the type of fuel used. The recordkeeping logs will be sent to Reclamation monthly for verification that the engines are operating in compliance with the mitigation measure.	Selling agency	Reclamation	Daily recordkeeping logs documenting the engines used for groundwater substitution transfers and the fuel type used.	Monthly during transfer.		
LU-1	Water would not be acquired from a particular parcel of land if idling the land would result in a lower classification of Important Farmland as defined under the Farmland Mapping and Monitoring Program (FMMP). The selling agency will provide cropping history of specific parcels to be idled for the transfer to Reclamation to determine if idling will result in a change in classification from Important Farmland.	Selling agency	Reclamation	Maps of fields to be idled with land classification and past cropping patterns for field to be idled.	Prior to water transfer.		
VEG and WILD-1	Mitigation Measure VEG and WILD-1 includes measures to avoid potentially significant impacts to terrestrial species associated with cropland idling transfers and reduce any potential impacts to less than significant: As part of the review and approval process for proposed water transfers, Reclamation will have access to the land to verify how the water for transfer is being made available and to verify that actions to protect the giant garter snake are being implemented.	Participating Sellers	Reclamation	Seller transfer package with maps of fields to be idled.	Ongoing during transfer season.		
VEG and WILD-1	Movement corridors for aquatic species (including pond turtle and giant garter snake) include major irrigation and drainage canals. The water seller will keep adequate water in major irrigation and drainage canals. Canal water depths should be similar to years when transfers do not occur or, where information on existing water depths is	Participating Sellers	Reclamation	Seller transfer application package with field spot-checks.	Ongoing during transfer season.		

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	limited, at least two feet of water will be considered sufficient.						
VEG and WILD-1	Maintaining water in smaller drains and conveyance infrastructure supports key habitat attributes such as emergent vegetation for giant garter snake escape cover and foraging habitat. If cropland idling/shifting occurs, Reclamation will work with sellers to document that adequate water remains in drains and canals. Documentation may include flow records, photo documentation, or other means of documentation subject to approval by Reclamation and USFWS.	Participating Sellers	Reclamation	Seller transfer application package with field spot-checks.	Ongoing during transfer season.		
VEG and WILD-1	Fields abutting or immediately adjacent to areas with known important giant garter snake populations (Appendix N) will not be permitted to participate in cropland idling/shifting transfers. Important giant garter snake populations are defined for purposes of this mitigation measure as populations previously identified by biologists from USFWS, USGS, and possibly contract biologists. These populations of giant garter snakes were identified early on as identified in previous consultations and are in, or connected to, areas that are considered public or protected. Most of these areas have specific management plans for giant garter snakes either for mitigation or as wildlife refuges. One factor influencing the importance of these areas is that they can provide a refuge for snakes independent of rice production. Fields abutting or immediately adjacent to the following areas are considered important giant garter snake populations:	Participating Sellers	Reclamation	Seller transfer application package, maps of fields to be idled, and field spot-checks of land idled.	Prior to and during water transfers.		

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	<ul style="list-style-type: none"> • Little Butte Creek between Llano Seco and Upper Butte Basin Wildlife Area • Butte Creek between Upper Butte Basin and Gray Lodge Wildlife areas • Colusa Basin drainage canal between Delevan and Colusa National Wildlife Refuges • Gilsizer Slough • Colusa Drainage Canal • Land side of the Toe Drain along the Sutter Bypass • Willow Slough and Willow Slough Bypass in Yolo County • Hunters and Logan Creeks between Sacramento and Delevan National Wildlife Refuges • Lands in the Natomas Basin 						
VEG and WILD-1	<p>At the end of the water transfer year, Reclamation will prepare an annual monitoring report that contains the following:</p> <ul style="list-style-type: none"> • Maps of rice production and all cropland idling actions within the seller district that occurred within the range of potential transfer methods analyzed in this EIS/EIR. • Results of current scientific research, summary of monitoring pertinent to water transfer actions, and new giant garter snake detections. • Discussion of conservation measure effectiveness. 	Reclamation	Reclamation	Review of monitoring report and annual meeting with USFWS	After water transfers.		

Appendix V
Mitigation Monitoring and Reporting Program

Measure No.	Mitigation Measure	Responsible Party	Monitoring Party	Method of Verification	Timing of Verification	Verification of Completion	
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	<ul style="list-style-type: none"> Cumulative history of crop idling and crop shifting specifically to make water available for transfers within the sellers area. <p>The report will be submitted to the USFWS and CDFW no later than January 31, prior to the next year of potential transfers.</p>						
VEG and WILD-1	Reclamation will establish annual meetings with the Service to discuss the contents and findings of the annual report. These meetings will be scheduled following the distribution of the monitoring report and prior to February 28.	Reclamation	Reclamation	Distribution of monitoring report to USFWS and occurrence of annual meeting.	Meeting occurs prior to the next transfer season.		
VEG and WILD-1	If, upon Reclamation's review of monitoring reports or other scientific literature, it appears that the Project is having unanticipated effects on the giant garter snake, Reclamation will contact the Service to discuss the information available and effectiveness of Project conservation measures.	Reclamation	Reclamation	Review of monitoring report by Reclamation and occurrence of annual meeting with USFWS.	Meeting occurs prior to the next transfer season.		
VEG and WILD-1	Reclamation will monitor the effectiveness of the conservation measures by funding giant garter snake distribution and occupancy research. The research, conducted by USGS, includes annual sampling of giant garter snake within the action area and focuses on their distribution and occupancy dynamics. The research is designed to evaluate the effectiveness of the conservation measures to maintain giant garter snake occupancy at sites transferring water via this program.	Reclamation	Reclamation	Reclamation funding of giant garter snake research.	Ongoing.		

1 **V.3 List of Acronyms**

- 2 AF – Acre-feet
- 3 BMOs – Basin Management Objectives
- 4 CDFW – California Department of Fish and Game
- 5 CEQA – California Environmental Quality Act
- 6 CVP – Central Valley Project
- 7 DWR – California Department of Water Resources
- 8 EIR – Environmental Impact Report
- 9 EIS – Environmental Impact Statement
- 10 FMMP – Farmland Mapping and Monitoring Program
- 11 GIS – Geographic Information System
- 12 GMP – Groundwater Management Plan
- 13 GSP – Groundwater Sustainability Plan
- 14 GPS – Global Positioning System
- 15 MMRP – Mitigation and Monitoring Program
- 16 PRC – Public Resources Code
- 17 Reclamation – Bureau of Reclamation
- 18 SLDMWA – San Luis & Delta–Mendota Water Authority
- 19 SWP – State Water Project
- 20 USFWS – United States Fish and Wildlife Service

21 **V.4 References**

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