RECORD OF DECISION

Madera Irrigation District Water Supply Enhancement Project

ROD 06-127

Recommended by:

Michael P. Jackson  
Area Manager  
South-Central California Area Office

Date: 7/19/2011

Concurred by:

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Mid-Pacific Regional Office

Date: 7/25/2011

Approved by:

Donald R. Glaser  
Regional Director  
Mid-Pacific Regional Office

Date: 8/1/2011

U.S. Department of the Interior  
Bureau of Reclamation  
Mid Pacific Region  
South Central California Area Office  
Fresno, California  
July 2011
Introduction

Madera Irrigation District (MID) approved a Water Supply Enhancement Project (WSEP) located on the property known as Madera Ranch, west of the city of Madera, in Madera County, California in September 2005. MID adopted a Notice of Determination based on the Madera Irrigation District Water Supply Enhancement Project Final Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act.

In 2006, MID approached The U.S. Department of the Interior, Bureau of Reclamation (Reclamation) to request the use of Central Valley Project (CVP) contract water outside of MID’s current service area, modification of CVP facilities and federal funding for the WSEP. MID has been working toward securing federal funds to assist in the cost of purchasing Madera Ranch, as well as certain pre-construction, and construction activities associated with the WSEP.

In March 2009, the “Omnibus Public Land Management Act of 2009” (Public Law 111-11; H.R. 146-308) became law. Section 9102 of P.L. 111-11 includes authorization for the Secretary of the Interior to enter into a cooperative agreement through Reclamation with MID for the support of the final design and construction of the WSEP. Among other things, the cooperative agreement will address costs associated with the planning, design, permitting, and construction of the WSEP. Section 9102 limits the federal cost share to 25% of the total cost of the project or $22.5 million, whichever is less. Though federal funding is authorized none has yet to be appropriated.

Reclamation, as lead federal agency, prepared an Environmental Impact Statement (EIS 06-127) to analyze the impacts of approving the banking of MID CVP water outside MID’s service area in the proposed WSEP, the modification of Reclamation’s 24.2 Canal, and any potential federal funding to assist in the cost of the project. The U.S. Army Corps of Engineers (USACE) and the U.S. Fish and Wildlife Service (USFWS) were cooperating agencies during preparation of the EIS.

The Draft EIS was made available for public review for 60 days ending September 25, 2009, during which time Reclamation held a public meeting. Reclamation prepared responses to comments received during the public review and those responses were included in the Final EIS noticed in the Federal Register on June 8, 2011.

This Record of Decision (ROD) documents Reclamation’s decision to approve Reduced Alternative B which includes the banking of MID CVP water outside MID’s service area in the proposed WSEP, modification of Reclamation’s 24.2 canal and potential federal funding. This ROD was prepared in accordance with the National Environmental Policy Act [NEPA] (42 USC 4321 et seq.) and the Council on Environmental Quality’s NEPA implementing regulations (40 CFR 1500-1508). The decision made herein is based on the information and analysis contained within the Final EIS for the Madera Irrigation District Water Supply Enhancement Project. Reclamation has considered all comments received on the Proposed Action in developing this ROD.
Background

Currently, farmers in MID’s service area use a combination of groundwater and surface water. During dry years there is not adequate surface water to meet the water demand and groundwater pumping increases substantially. The amount of groundwater pumped from the aquifer in the vicinity of Madera Ranch exceeds the amount of water recharged to the aquifer, resulting in groundwater overdraft. Even in wet years, the groundwater basin is in severe overdraft because groundwater pumping is steadily increasing for agricultural, municipal, and industrial use. This overdraft has caused the water table to decline resulting in degraded water quality and excess space in the aquifer that could be used to bank surface water.

The purpose of the proposed project is to:

- enhance water supply reliability and flexibility by using the excess aquifer space for surface water storage (water banking);
- reduce existing and future aquifer overdraft;
- reduce groundwater pumping costs;
- increase groundwater quality;
- encourage conjunctive use in the region as a means toward regional self-sufficiency.

The purpose of the proposed Federal action is to analyze the impacts of banking MID CVP water outside MID’s service area, modifying of Reclamation’s 24.2 Canal and potentially providing federal funding to assist in the cost of the project.

Decision

Reduced Alternative B, identified in Section 1.2 of the Final EIS as the Preferred Alternative, has been chosen as the best overall alternative as it meets a portion of MID’s current and future water storage needs; utilizes space underground for surface water storage; reduces aquifer overdraft; encourages conjunctive use as a means toward regional self-sufficiency; and is the environmentally preferable alternative.

Reduced Alternative B directs recharge activities in fewer swales than Alternative B on a priority basis to help avoid effects to vernal pools, and limits the number of recharge basins to the minimum needed to meet the purpose of the action. Reduced Alternative B also incorporates other best management practices and mitigation measures as described in Section 2.7 of the Final EIS. These measures are required to implement the preferred alternative.

Reduced Alternative B will complete the water bank in two phases. Phase 1 will involve constructing necessary delivery infrastructure improvements, selectively using 550 acres of natural swales for recharge, and installing approximately five soil berms to direct recharge flows. Phase 2 will involve constructing 323 acres of recharge basins and facilities for recovery of banked water. Reclamation would approve banking of CVP water outside the MID service area and alteration of Reclamation’s 24.2 canal.
Alternatives Considered in the Final EIS

Four Action Alternatives and a No Action Alternative were considered in the Final EIS. Each alternative other than the No Action Alternative met the purpose and need of the action however they varied in design features, cost and potential environmental impacts. The following is a brief description of project alternatives; specific details were published in the Final EIS.

Alternative A

For Alternative A, the No Action Alternative, MID would not bank MID CVP water (MID Long-Term Water Service Contract supplies from both the Friant Division and Hidden Unit) on Madera Ranch and Reclamation’s delivery canals would not be altered. MID could bank non-CVP water on the property, and other limited on-site water banking and recovery facilities may be constructed if MID is able to find participants and funding to support these efforts.

MID estimates they would be able to apply less than 5,000 acre-feet (AF) per year of their own non-CVP water. Recovery operations likewise would be limited if Reclamation-owned facilities were not altered. This Alternative would not satisfy the purpose and need, and groundwater overdraft would continue in Madera County.

Alternative B

For Alternative B, Reclamation would approve a total banking capacity of 250,000 AF of MID CVP water outside the MID service area and the issuance of an MP-620 permit (a Reclamation Mid-Pacific Region permit issued for additions or alterations to Reclamation facilities) for modification to Reclamation’s 24.2 canal and potential federal funding. After modification of the 24.2 canal and certain MID facilities, MID would be able to recharge and recover a maximum of 55,000 AF annually.

Alternative B will complete the water bank in two phases. Phase 1 will involve constructing necessary delivery infrastructure improvements using 700 acres of select natural swales for recharge, and will install approximately five soil berms to direct recharge flows. Phase 2 will involve constructing 1000 acres of recharge basins and facilities for recovery of banked water.

Alternative B met the purpose and need of the action, however, this Alternative could result in adverse effects to upland species and wetlands and as such resulted in the development of Reduced Alternative B.

Reduced Alternative B

Reduced Alternative B has a smaller footprint than Alternative B. As with Alternative B, this alternative will complete the water bank in two phases. Phase 1 will involve constructing necessary delivery infrastructure improvements using select natural swales for recharge (550 acres versus 700 acres as proposed under Alternative B), and will install approximately five soil berms to direct recharge flows. As with Alternative B, Reduced Alternative B will require issuance of a MP-620 permit for modification to Reclamation’s 24.2 canal. Phase 2 will involve constructing a limited number of recharge basins (323 acres versus up to 1,000 acres under
Alternative B) and facilities for recovery of banked water. Reclamation will approve banking of CVP water outside the MID service area, alteration of the canal and potential federal funding.

**Alternative C**

Alternative C is a variation of Reduced Alternative B that would replace natural swale recharge solely with recharge basins. Phase 1 would involve recharge-related facilities only. Phase 2 would involve facilities for recovery of banked water. Reclamation would approve banking of CVP water outside the MID service area and alteration of Reclamation-owned facilities and potential federal funding.

This Alternative was considered financially infeasible for MID due to the construction costs for 1,000 acres of recharge basins during Phase 1.

**Alternative D**

For Alternative D, MID would enter into an agreement with Gravelly Ford Water District (GFWD) to improve the Gravelly Ford (GF) Canal to allow water to be conveyed from the San Joaquin River through the GF Canal. The water would be banked at Madera Ranch for later recovery and delivery through the canal back to the San Joaquin River. The existing GFWD pumping plant would be enlarged; the existing, associated pipeline replaced with a larger-diameter line; the GF Canal re-graded to a flat-bottom configuration to allow two-way flow; a new connection to the river constructed to allow recovery water to reach the river without flowing through the pumps; and appropriate gate structures constructed. On-site improvements allowing water banking and extraction, including a pumping plant and pipeline to allow distribution of water uphill from the GF Canal, would be constructed.

Phase 1 would involve recharge-related facilities only. Phase 2 would involve supplemental recharge facilities and facilities for recovery of banked water. Reclamation would approve banking of CVP water outside the MID service area and potential federal funding but no alteration of Reclamation-owned facilities would occur.

Alternative D was eliminated from consideration because it would require that the bank operate solely through water exchanges along the San Joaquin River which would have made MID dependent on other agencies to receive water. In addition, this Alternative would rely on San Joaquin River restoration operations that have not yet been finalized and that may not occur within the desired implementation time frame.

**Basis of Decision, Issues Evaluated, and Factors Considered**

Reclamation evaluated the potential direct, indirect and cumulative effects of the proposed alternatives. Resources evaluated include: aesthetics, agriculture, air quality, biological resources, cultural resources, environmental justice, geology, soils, seismicity and erosion, global climate change, growth inducing effects, hazards, public health and safety, land use, noise,
public services and utilities, socioeconomics, traffic and circulation, water resources, water supply and wetlands.

In addition, Reclamation’s evaluation determined that none of the alternatives would affect Indian Trust Assets (ITA) as the nearest ITA to the WSEP is the Table Mountain Rancheria which is located approximately 28 miles east-northeast of the Action area. No tribes possess legal property interests held in trust by the United States in the area affected by any of the alternatives.

Public and public agency comments were considered by Reclamation and addressed in the Final EIS. Concerns included potential impacts on water quality, water supply, water rights issues, impacts on biological resources, determination of the least environmentally damaging practicable alternative (LEDPA), Fish and Wildlife Coordination Act compliance, impacts to wetlands, mitigation and monitoring, habitat loss, and socioeconomic concerns related to economic impacts on farmers.

**Environmentally Preferable Alternative**

The President’s Council on Environmental Quality Regulations Section 1505.2(b) states that where an EIS has been prepared, the Record of Decision shall “Identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable”.

Given the elimination of the Section 8 Canal Southwest Extension, reduction in the total number of swales used to minimize effects to wetlands, and identification of fewer basins to be constructed, Reclamation considers Reduced Alternative B the environmentally preferable alternative. In addition, it will have less adverse effects on both water quality and water supply in Madera Ranch and the surrounding area than Alternative A, the No Action Alternative; has less adverse effects to upland species and wetlands than Alternative B; is more financially feasible than Alternative C; and would not have to rely on San Joaquin River restoration operations as anticipated in Alternative D.

**Implementing the Decision and Environmental Commitments**

Reclamation will serve as project lead for the implementation of laws to protect water quality, natural resources and cultural resources including but not limited to the:

- National Environmental Policy Act;
- Clean Water Act;
- Clean Air Act;
- Endangered Species Act;
- National Historic Preservation Act;
Archaeological Resources Protection Act;
• Native American Graves Protection and Repatriation Act.

Environmental Commitments
The following table describes the environmental commitments developed through a cooperative process involving Reclamation, USACE, USFWS, CDFG and MID. Each commitment will be implemented in accordance with the policies, guidance, and authorities of the agency having jurisdiction. Additional details on the environmental commitments are included in the Final EIS. The Final EIS also includes the Madera Ranch Mitigation, Grazing and Management Plan and the Monitoring and Operational Constraint Plan as appendices.

It should be noted that one of the planned locations (Section 5) for vernal pool creation discussed in the Final EIS is no longer suitable due to the July 2011 observation of blunt nosed leopard lizards (fully protected under the California Fish and Game Code). Additional environmental analysis and documentation would be required if the vernal pools are located outside of the area previously analyzed for potential impacts.
# Record of Decision

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<tr>
<th>Identifier</th>
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<tr>
<td>AG-1</td>
<td>Permanently Preserve Farmland by Exploiting a Compensation Easement on Agricultural Land</td>
<td>MDI will establish conservation easements on agricultural land at an effort-to-mitigation ratio of 2:1 to prevent permanent conversion of the land to urban uses and to increase farm viability. This mitigation will be in kind and used to mitigate the loss of farmland classified as prime farmland or farmland of statewide importance.</td>
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| AQ-1       | Implement San Joaquin Valley Air Quality Control District Regulation VII Control Measures for construction emissions of PM10 | - All disturbed areas, including storage pads, that are not being actively used for construction purposes will be effectively stabilized against dust emissions using water, chemical stabilization/suppression, and vegetation cover. Chemical stabilization/suppression will not be used near water bodies in the United States.  
- All construction roads and off-site proposed access roads used during construction will be effectively stabilized against dust emissions using water or chemical stabilization/suppression.  
- All land clearing, grading, scraping, screening, land levelling, grading, cut-and-fill, and demolition activities will be effectively controlled against fugitive dust emissions by applying water or chemical stabilization/suppression.  
- All operations will last or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours during operations (The use of dry rotary brushes is expressly forbidden except where preceded or accompanied by sufficient waiting to limit visible dust emissions. The use of broom devices is expressly forbidden.) After materials are added to or removed from the surface of stockpile storage pads, the pads will be effectively stabilized against further dust emissions using sufficient water or chemical stabilization/suppression. |
| AQ-2       | Reduce Emissions Associated with Using Equipment | The requirements are described in Regulation VII, Sections 1480 and 1485, which limit idling of diesel-powered construction motor vehicles. MDI will ensure that all diesel engines be shut off when not in use to reduce emissions from idle. |
| AQ-3       | Use Electric-Pumps | MDI will use as many electric pumps as possible for irrigation, construction, and transportation associated with construction emissions associated with pumps. If pumps are needed, MDI will use engines with catalytic controls and that meet EPA/California Ultra-low Emission Technology (ULET) requirements for engines over 50 hp. |
| BIO-1      | Establish a Grasslands Conservation Easement | Mitigation for the loss of the California annual grassland, alkali grassland, or Great Valley inland brush scrub would consist of establishing a grasslands conservation easement at Maderna Ranch over an area of habitat larger than the area subject to long-term degradation (~1 acre) (i.e., 1 acre for salamanders) or permanent loss (~3 acres, 0.5 acre for salamanders). MDI also would implement the following measures.  
| BIO-2a     | Use Preconstruction Surveys/Effects Easements on Vernal Pools and Alkaline Rams Pools | MDI will maintain effects on species in the habitat by avoiding those wetlands to the extent practical. A buffer area will be established around suitable habitat for listed cranes and other species, i.e., vernal pools. Buffer areas will be demarcated by planting buffer strips (200 feet from each pool edge). A qualified biologist will flag the pools to be fenced, and temporary fences will be installed at the first order of work. Construction-related fencing will be placed at the edge of the buffer areas. Temporary fences will be furnished, constructed, maintained, and removed as shown on the site plan. The use of fences will be designed by the project engineer. Temporary fencing will be four feet high, orange, and commercially available polystyrene no. 2 sheeting, and the use of fences will be determined based on wetland locations, soil conditions, and consultation with the Corps, soils, hydrology, vegetation, and species will be monitored. The performance standard for fenced vernal pools is to ensure the new vernal pools emulate the natural pools at Maderna Ranch. Created vernal pools would have similar plant species composition and vegetation cover and invertebrate fauna as the vernal pools that are being removed by activities associated with the Proposed Action. Success of the vernal pool creation will be assessed by comparing the pools with unfenced natural vernal pools at Maderna Ranch. Relevant vernal pools will have similar success criteria. This mitigation would compensate for the loss of vernal pool habitat. Restoration is more likely to be successful in areas with degraded habitat and where preservation is the most assured. In addition, MDI will comply with the California wetlands mitigation and enhancement program, which focuses on protecting, restoring, and enhancing wetlands and ensuring no overall net loss of wetlands. Wetland mitigation creation and restoration sites will be monitored until it is proven successful to the Corps, EPA, USFWS, and DOI. Mitigation sites must function for at least three years without human intervention. |
| BIO-2b     | Create, Restore, and/or Preserve Vernal Pools | MDI will restore, maintain and/or preserve vernal pool habitat at Maderna Ranch in an area protected under a conservation easement. Five acres of vernal pool habitat will be restored and/or preserved for each one acre of vernal pool that was lost. MDI anticipates that the approximate split of these losses will be 3:1 in preservation and 2:1 in restoration/creation. This standard will be determined based on wetland locations, soil conditions, and consultation with the Corps, soils, hydrology, vegetation, and species will be monitored. The performance standard for fenced vernal pools is to ensure the new vernal pools emulate the natural pools at Maderna Ranch. Created vernal pools would have similar plant species composition and vegetation cover and invertebrate fauna as the vernal pools that are being removed by activities associated with the Proposed Action. Success of the vernal pool creation will be assessed by comparing the pools with unfenced natural vernal pools at Maderna Ranch. Relevant vernal pools will have similar success criteria. This mitigation would compensate for the loss of vernal pool habitat. Restoration is more likely to be successful in areas with degraded habitat and where preservation is the most assured. In addition, MDI will comply with the California wetlands mitigation and enhancement program, which focuses on protecting, restoring, and enhancing wetlands and ensuring no overall net loss of wetlands. Wetland mitigation creation and restoration sites will be monitored until it is proven successful to the Corps, EPA, USFWS, and DOI. Mitigation sites must function for at least three years without human intervention. |
| BIO-3a     | Avoid Effects on Inland Bush Scrub | MDI will locate the wet and pipeline to avoid direct effects on inland brush/scrub/habitat in the northern portion of Section 7 associated with construction activities. If wells and pipelines need to be constructed in this habitat, MDI will conduct botanical surveys and mark plants to be avoided during construction.  
| BIO-3b     | Survey for Sensitive Plants | During Phase 1, 2 botanical conduct surveys for palatable/tractable birds (e.g. California tiger salamander) for the area, including vegetation and plant species. If signs of the California tiger salamander are found, MDI will perform an assessment of the habitat and impact of the construction activities on the California tiger salamander.  
| BIO-4a     | Preconstruction Surveys for California Tiger Salamander | A USFWS-approved biologist will conduct preconstructions for California tiger salmoner (Ambystoma californiense). The surveys will be conducted in April and July and reference populations will be identified. No new areas were to be affected that day for California tiger salmonards. The biologist also will examine any open branches, which will have traps or be closed when unattended, for the presence of salamanders. If a salamander is found in the construction area, the approved biologist will remove the animal from the area and release it into a suitable burn area at least 200 feet outside the construction area. The biologist will conduct the surveys using preselected stock survey survey design, which will be the land on at M6.  
| BIO-4b     | Restrict Construction Activity in Suitable Aquatic and Upland Habitat for California Tiger Salamander to the Dry Season (April 1-November 1) | To avoid and minimize potential mortality and injury of breeding and dispersing California tiger salmoners, construction will take place only during the dry season (between April 1 and November 1 or before the onset of the rainy season, whichever occurs first) in suitable aquatic and upland habitat for the species. Upland habitat is defined as all habitat within one mile of occupied or suitable aquatic habitat.  
| BIO-4c     | Fence the Construction Zone and Implement Erosion Control Measures in Areas Where Suitable Aquatic Habitat for California Tiger Salamander Is Present | The construction zone will be fenced in areas where suitable aquatic habitat for California tiger salmonard is adjacent to the construction area. The purpose of the fence is to restrict construction equipment to the designated area only. Erosion-control measures will also be implemented in these areas to prevent any wash or other materials from entering aquatic habitat. Locations of temporary fences and erosion control measures will be determined by the project engineer. Fence materials will be installed around the work area as soon as possible. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. New construction activities will be permitted outside the designated construction area after other activities necessary to prevent the fencing. Erosion-control measures will be installed... |
BIO-5 Pre-Activity Surveys for Blunt-Nosed Leopard Lizard

The objective of the blunt-nosed leopard lizard (Gambelia? crotophylla) (BLNL) pre-activity surveys is to avoid take of blunt-nosed leopard lizard during use of the sewers for water banking and construction of water delivery canals and other facilities. Specific measures for linear facilities and sewers are described below.

Identifier Environment Commitment Commitment Specifications
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BIO-5 Pre-Activity Surveys for Blunt-Nosed Leopard Lizard

Prior to construction of linear facilities in grassland and/or saltbush scrub/Valley scrub habitat and adjacent dirt roadways, the biologists shall perform pre-activity surveys to observe blunt-nosed leopard lizards for take near or within the survey areas. These surveys shall be conducted in grassland and/or scrubby habitats where BLNL have been observed or are expected.
**Record of Decision**

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<td>Recharge Basins</td>
<td>MOID in consultation and coordination with qualified wildlife biologist, shall create appropriately sized recharge basin construction areas before construction of recharge basins in grassland and/or siltbush scrub/Valley scrub shrubland and adjacent dirt roadways within the former center pivot areas of Sections 16, 17, and 18 on Madera Ranch. Construction areas shall be prioritized initially for reconnaissance surveys no more than 60 days prior to any basin construction activities or ground disturbance to identify areas with the fewest burrows and least suitable habitat for BNLL. Construction of basins will be restricted to May 1st through August 1st and may commence in areas identified through the above referenced reconnaissance surveys only after BNLL pre-construction surveys are completed by way of the BNLL Pre-Construction Survey Parameters (See paragraph 9A above). The information gathered from these surveys will be used by DFG to determine which habitat is most likely occupied and to identify appropriate exclusion areas. Basins shall initially be planned to be sized in the former center pivot areas of Sections 16, 17, and 18. If no BNLL is observed within 3 days after the completion of the BNLL pre-construction survey, biologists shall create an exclusion area by installing non-gapping non-climable barrier. The installation for such barrier shall comply with the installation guidelines listed above under linear facilities, and must be supervised by a qualified BNLL biologist. (See paragraph 9A above). Construction of the recharge basins is permitted from one hour prior to sunrise to one hour before sunset. (See I.E. above). More than one percolation basin construction area may be established and under construction at the same time provided the minimum number of biologists and biological monitors are present at each of the sites at all times during construction or related activities. Throughout construction, biologists shall conduct walking surveys of the construction areas to determine whether there is any detection of the BNLL. The survey procedures shall comply with paragraph 9C, listed above. Also during construction, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered as described under I.D. above, to prevent inadvertent entrapment of BNLL or any other wildlife. Finally, if any dead or injured BNLL are observed on or adjacent to the construction site, then MOID must notify DFG and USFWS in accordance with the outline procedures listed above I.D. If the BNLL fully protected status is rescinded and an incidental take permit is granted, then these measures will not be required. MOID will have an agency approved biologist review future ground disturbance facility maintenance work locations and sizes to evaluate the potential for effects to BNLL. If the activity is in suitable habitat and could affect burrows, MOID will conduct the work during the appropriate seasonal window and implement site-specific exclusion measures such as fencing and additional surveys as prescribed above for linear facilities. MOID will conduct BNLL and burrow surveys of sites prior to inundation in swales. Those portions of swales that have been inundated annually for extended periods prior to Project approval will not be surveyed because potential burrows likely have been inundated and exodised, and BNLL are unlikely to relocate in these areas. Pre-wetting BNLL surveys will be consistent with the BNLL Pre-Construction Survey Parameters listed above under I.A. The information from these surveys will be used to determine which habitat is most likely occupied and to identify appropriate swale use areas. If no BNLL are found during the surveys, water may be applied throughout that following year. If a BNLL is sighted within the first year of a swale (i.e., the expected inundation area) it will be difficult to determine whether the burrows in the area are being used for nesting or not. Therefore, MOID will delay using the swale for banking until the active season (April 28 to July 7) then MOID will apply water to the swale slowly (i.e., approximately 12 inches per minute) to ensure fafs can escape burrows. These measures shall not be required if the species’ fully protected status is rescinded and MOID obtains incidental take authorization from DFG for the species for this project. MOID will implement other protective measures for blunt-nosed leopard lizard. MOID would create at least three canal crossings along Gravelly Ford Canal and 6 canal crossings along the Section 8 Canal Northern Extension, the width of the crossings will vary from approximately 16 feet along Gravelly Ford Canal to approximately eight feet along the Section 8 Canal Northern Extension. While making Gravelly Ford Canal improvements and installing the Section 8 Canal Northern Extension, MOID would excavate slightly below the bottom grade of the canal to install a culvert and provide for a crossing to connect the habitat units. The area would be backfilled, covering the crossing with soil from the canal improvement. A similar concept would be employed for the Section 8 Canal Northern Extension, though the length of the pipe segment would be four to eight feet and because of the flat hydraulic grade one larger pipe may be used. Additionally, on-ranch canal side slopes will be designed to allow BNLL to avoid entrapment. Preconstruction surveys would determine whether any sensitive receptors are nesting at Madera Ranch. A new is occupied at the time of construction, construction activities will be restricted to areas outside 0.5 mile of the tree. Saltbush will be marked with brightly colored temporary fencing. Preconstruction Surveys and Avoidance Activities for Raptors</td>
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Because of historical records and suitable San Joaquin kill fox (Vulpes macroura macroura) habitat on or in the vicinity of Madera Ranch, it is assumed that kill foxes could be present at Madera Ranch. To avoid potential mortality of kill fox, agency approved by USFWS and DFG experienced biologists will survey to locate any kill fox dens, non-racial active dens, and/or potential dens in the Proposed Action areas. Visual surveys will be conducted during monitoring transects of the 1,000-foot corridor. If an active rachal den is found, USFWS and DFG will be notified and MOID will delay construction within 1,000-feet of the den until the site has been cored and its size is determined, and/or potential den for active dens not cut out to 100 feet. If an active den is found, it will be avoided until the foxes have vacated the den. All potential dens will be flagged. Any potential den immediately in the construction corridor may need additional monitoring. Because construction is expected to proceed quickly—approximately 1,500 feet per day with torches being open one to two nights—potential dens will not be collapsed. All surveys will be conducted within 30 days of site-specific construction by a qualified biologist. In addition, during construction, USFWS standard fox conservation measures such as speed limits, wet runs, controlling trash (oil and gas from construction equipment, and covering pipes will be implemented to prevent harm or disturbance to kill foxes. Any open pipes, newly dug pipeline trenches, and canals will be surveyed daily prior to construction to ensure kill foxes are not present. The objective of the Fresno kangaroo rat (Dipodomys nitratoides nitratoides) surveys is to determine whether the Fresno kangaroo rat is present on the portion of Madera Ranch that could be affected by use of the swales for water banking and construction of water delivery canals. Initial trapping focused on the swales and canals east of GF Canal and determined the species was not present. Subsequent trapping will occur 1 year before use of swales or construction of facilities west of GF Canal. Surveys in swales will be conducted 1 to 2 years before the first wetting of the swales and will be held for 5 years after the wetting of the swales. If the swales is re-wetted within the 5-year period, it will not need to be surveyed for another 5-year period. No additional survey efforts will be conducted of any swales. |
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<td>BIO-10</td>
<td>Conduct Preconstruction Surveys for Sensitive Species along the Off-Ranch Portion of Gravelly Ford Canal</td>
<td>Proposed off-ranch work areas associated with GP. Special improvements will be evaluated by a USFWS approved biologist to determine whether habitat suitable to support sensitive species is present. If suitable habitat is discovered, M1D will evaluate work locations to determine which species could be present and whether additional surveys may be needed. Depending on the results of this survey, M1D may implement Environmental Commitment BIO-7: Pre-construction Surveys and Avoidance Activities for Reptiles, Amphibians, and Mammals for Gravelly Ford Canal.</td>
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<td>BIO-11</td>
<td>Implement Protective Measures for Anadromous Fish</td>
<td>M1D would work with Restoration and the National Marine Fisheries Service (NMFS) to determine appropriate protective measures for migratory fish once they are relocated to the San Joaquin River, including seasonal restrictions on diversions or intake screening in the event water is moved to and from Madera Ranch via GP Canal (Alternative D). Inter-agency discussions would occur at least two years in advance of the reintroduction of these species to the San Joaquin River.</td>
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### Biological Opinion Commitments

On April 26, 2011, the USFWS issued a Biological Opinion to Reclamation (File Number 81420-2008-F-0279-1) to address the impacts of Reduced Alternative B on Federally listed species. The Biological Opinion was included in the Final EIS as Appendix B. The following additional commitments (terms and conditions) are also imposed on Reduced Alternative B from the incidental take statement that was provided with the Biological Opinion.

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<th>Reasonable and Prudent Measures</th>
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<td>The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the effects of the proposed Medora Irrigation District Water Supply Enhancement Project on the San Joaquin kill fish, blunt-nosed leopard lizard, Fresno kangaroo rat, wetland pool fairy shrimp, and California tiger salamander.</td>
<td>In order to be exempt from the prohibitions of section 9 of the Act, Reclamation must comply with the following terms and conditions, which implement the reasonable and prudent measures. These terms and conditions are non-discretionary.</td>
</tr>
<tr>
<td>1. All Environmental Commitments as described in the Biological Assessment, and as restated here in the Description of the Proposed Action of this Biological Opinion, must be fully implemented and adhered to.</td>
<td>To implement Reasonable and Prudent Measure #1, Reclamation shall ensure through conditions in its approval letter or any funding for the proposed project that Medora Irrigation District fully implements and adheres to the Environmental Commitments presented in the Biological Assessment and restated here in this Biological Opinion. These Environmental Commitments must be adhered to, regardless of species status under the California Endangered Species Act.</td>
</tr>
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| 2. Land that is to be set aside as habitat compensation and managed for the primary purpose of benefiting those listed species impacted by the proposed project must be protected in perpetuity, and with the intent to provide optimum conditions for those species. | To implement Reasonable and Prudent Measure #2, Reclamation shall ensure through conditions in its approval letter for the proposed project the following Terms and Conditions:  
  a. Reclamation shall ensure that Medora Irrigation District grants and records an appropriate Service-approved Conservation Easement with a Service-approved Conservation Easement holder for the mitigation lands described in the Biological Assessment, prior to project implementation.  
  b. Reclamation shall ensure that Medora Irrigation District incorporates by reference its Mitigation and Management Plan developed for these mitigation lands, into said Conservation Easement.  
  c. Reclamation shall ensure that Medora Irrigation District includes language in the Conservation Easement stating that the Mitigation and Management Plan created for this project is a living document, to be viewed and used as an adaptive management plan under the direction and approval of the Service, COFG, and Corps, with the goal of ensuring optimum habitat conditions for the species of concern.  
  d. Reclamation shall ensure that Medora Irrigation District has in place prior to project implementation an adequate, Service-approved funding mechanism, such as a non-wasting endowment held by a Service-approved endowment holder to fund the long-term management activities on their mitigation lands. |
<p>| 3. To ensure that the expected changes to ecological conditions resulting from seepage inundation do not result in a loss of Fresno kangaroo rat and blunt-nosed leopard lizard populations, these species must be monitored and adjusted, if necessary, to ensure that the time interval between seepage flooding events does not result in a biological &quot;sink&quot; for Fresno kangaroo rats and blunt-nosed leopard lizards, whereby individuals of these species that may re-colonize burrows in or immediately adjacent to seepages during dry periods are then taken by subsequent flooding. These adjustments could include repeated and/or more frequent wetting if the water supply is available, varying the prioritization of wetted seepages, scaling back seepage operations consistent with overall banking operational objectives, or other measures agreed to by MD, Reclamation, the Service, and COFG. | To implement Reasonable and Prudent Measure #3, Reclamation shall ensure through conditions in its approval letter or any funding instrument for the proposed project that MD develops and implements an appropriate Service-approved hydrological study or studies, designed to monitor and report on conditions related to changing ecosystem characteristics in and adjacent to the seepages used for water banking purposes. Such studies, and the information obtained from them, shall be used to inform Reclamation and MD of the degree and nature of habitat modification from current conditions, and whether take resulting from vegetative changes beyond the perimeter of water applications (i.e., greater than 20 percent) is exceeded. The information gathered from these studies shall be provided to the Service and COFG on thirty-day cycles or within thirty days of conclusion of a study cycle. |
| 4. The periodicity of seepage inundation over the duration of this project must be monitored and adjusted, if necessary, to ensure that the time interval between seepage flooding events does not result in a biological &quot;sink&quot; for Fresno kangaroo rats and blunt-nosed leopard lizards, whereby individuals of these species that may re-colonize burrows in or immediately adjacent to seepages during dry periods are then taken by subsequent flooding. These adjustments could include repeated and/or more frequent wetting if the water supply is available, varying the prioritization of wetted seepages, scaling back seepage operations consistent with overall banking operational objectives, or other measures agreed to by MD, Reclamation, the Service, and COFG. | To implement Reasonable and Prudent Measure #4, Reclamation shall ensure through conditions in its approval letter or any funding for the proposed project that Medora Irrigation District develops a Service-approved monitoring and reporting approach for the monitored seepages and adjacent habitat sufficient to determine whether Fresno kangaroo rats and blunt-nosed leopard lizards re-colonize these areas during dry periods. |</p>
<table>
<thead>
<tr>
<th>Identifier</th>
<th>Environmental Commitment</th>
<th>Commitment Specifications</th>
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<tbody>
<tr>
<td>CR-1</td>
<td>Stop Construction if Cultural Resources Are Discovered</td>
<td>In the event of any inadvertent cultural resources discovery, human or otherwise, uncovered during construction or other ground-disturbing activities, the construction contractor will immediately stop work in the immediate vicinity and a minimum 100-foot buffer area from the find. The contractor will notify MD immediately and MD will notify Reclamation of the inadvertent discovery. A professionally qualified archaeologist will be sent to evaluate the inadvertent discovery for National Register of Historic Places (NRHP) eligibility. If human remains are discovered during ground-disturbing activities, the party responsible for CEQA will comply with state laws related to the disposition of human remains pursuant to Public Resources Code (PRC) section 6597. Reclamation may have additional responsibilities under Section 106 of the NHPA and will follow the procedures in 36 CFR Part 800.13.</td>
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<td>GEO-1</td>
<td>Amend Soils as Required in Topsoiled Areas</td>
<td>Topsoiled areas with insufficient vegetation cover will be amended with gypsum and/or elemental sulfur in combination with high-quality irrigation water to reduce soil salinity, alkalinity, and exchangeable sodium to acceptable levels, such that acceptable vegetation cover is established in such areas within one year after topsoil is applied. All soil testing and amendment recommendations will be conducted by, or under the supervision of, a certified professional soils scientist.</td>
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<tr>
<td>GEO-2</td>
<td>Stop Work in Event of Fossil Discovery</td>
<td>In the event that a fossil or material that could be a fossil is unexpectedly discovered during excavation operations, work will cease in the immediate vicinity of the find. A qualified paleontologist will be called to the site to evaluate the find and determine the sensitivity of the fossil. If the fossil is determined to be sensitive, the paleontologist will recover it from the site and submit it to an appropriate museum or other repository for curation.</td>
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<td>PhS-1a</td>
<td>Implement Necessary Emergency Preparedness Plan(s)</td>
<td>MD will work with the Madera County Department of Public Health and the local fire districts to coordinate the preparation of emergency preparedness plan(s) that may be required by federal, state, and County statutes and regulations.</td>
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<td>PhS-1b</td>
<td>Comply with Local Fire District Requirements</td>
<td>MD will consult the local fire districts to ensure that all regulations are compiled with during construction.</td>
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<td>PhS-2</td>
<td>Implement an Agreement with the Madera County Mosquito and Vector Control District</td>
<td>MD will enter into an agreement with the Madera County Mosquito Abatement &amp; Vector Control District (MCMAVCD) regarding a specific mosquito abatement program. The agreement will allow the MCMAVCD to access Madera Ranch and also will include quantitative abatement thresholds and financial compensation requirements for MCMAVCD activities. If necessary, the MCMAVCD will monitor mosquito larvae production in the recharge basins, drainage, and distribution canals at no cost to MD, given that the amount of monitoring required is not excessive. Larval populations will be tracked using methods and thresholds approved by the MCMAVCD, and suppression measures will be employed when thresholds are exceeded. Suppression measures may include environmental and biological methods, such as stacking mosquito nests, controlling emergent vegetation, and applying insecticides. Insecticide controls will be used only as a last resort, and use of insecticides over open water will be minimized to the extent feasible, given the mosquito abatement mandate of the MCMAVCD. The insecticides that may be used are only those that are approved for such-use by the U.S. Environmental Protection Agency (EPA). Mosquito, if used, will need to be stocked annually by the MCMAVCD. If operations result in an increase in mosquito production such that an extensive monitoring program is needed, MD will hire a professional pest control service and will bear the cost of that service.</td>
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| Noise      | The construction contractor will employ noise-reducing construction practices so that noise from construction does not exceed County noise-level standards at adjacent residences. | Measures to be implemented would include the following:  
- Reduce construction noise levels by at least 10 decibels (dB) below the maximum permissible noise levels at all times of construction.  
- Reduce noise levels at the station by 5 dB and the lift station by 10 dB.  
- Use acoustic barriers around noise-generating elements of the driving operation.  
- Use sound attenuation enclosures around noise-generating elements of the driving operation.  
- Use sound attenuation enclosures designed to achieve noise reduction sufficient to comply with County standards for noise-generating elements of the well operation when no other feasible control method is available. |
| NOI-1      | The construction contractor will employ noise-reducing methods during well drilling operations. | The well drilling contractor will employ noise-reducing construction practices so that noise from drilling does not exceed County noise-level standards at adjacent residences. Measures to be implemented may include these following:  
- Reduce well drilling to beyond 2,200 feet from residences during nighttime hours (10 p.m. to 7 a.m.), where feasible.  
- Use sound attenuation enclosures around noise-generating elements of the drilling operation. |
| NOI-2      | The construction contractor will employ noise-reducing practices so that noise from well operations does not exceed County noise-level standards at adjacent residences. | Measures to be implemented may include:  
- Reduce well drilling to beyond 2,200 feet from residences during nighttime hours (10 p.m. to 7 a.m.).  
- Use sound attenuation enclosures designed to achieve noise reduction sufficient to comply with County standards for noise-generating elements of the well operation when no other feasible control method is available. |
| NOI-3      | The construction contractor will employ noise-reducing practices so that noise from lift station operations does not exceed County noise-level standards at adjacent residences. | Measures to be implemented may include:  
- Reduce lift station installations to beyond 1,800 feet from residences, where feasible.  
- Use electric pumps where lift station installations are within 1,800 feet of residences; or  
- Use sound attenuation enclosures designed to achieve noise reduction sufficient to comply with County standards for noise-generating elements of the lift station operation when no other feasible control method is available. |

1) Madera Ranch does not include federal land, so only state human remains laws apply.
Public Services

PSU-1a Notify Emergency Response Agencies of Proposed Traffic-Route Changes

Before beginning construction activities, MID or the construction contractor will contact local emergency response agencies (law enforcement and fire protection) to provide information on the timing and location of any traffic control measures required during construction activities. Emergency response agencies will be notified of any change to traffic control measures as the construction phases proceed so that emergency response providers can modify their response routes to ensure that response time would not be affected.

PSU-1b MID will require the construction contractor to prepare and implement a traffic safety plan (TSP) before the onset of construction activities.

The TSP will address:
- Appropriate vehicle size and speed, travel routes, detour or lane-closure plans, flag person requirements, locations of turnouts to be constructed, coordination with law enforcement and fire control agencies,
- Coordination with California Department of Transportation (Caltrans) personnel (for work affecting state road rights of way),
- Emergency access to ensure public safety, and
- Traffic and speed limit signs.

Traffic

TRA F- 1 MID will require the construction contractor to prepare and implement a road improvement plan (RIP) before the onset of the construction phase.

The RIP will identify road segments, bridges, and culverts that need to be improved and workaround locations that need to be constructed (as applicable) to accommodate construction activities. The plan also will identify damage that is caused by construction vehicles and that needs to be repaired.

Water Resources

WG-1a Comply with National Pollutant Discharge Elimination System General Construction Permit

To reduce or eliminate construction-related water quality effects, before onset of any construction activities, MID or its contractor will obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. MID will be responsible to ensure that construction activities comply with the conditions in this permit, which will require development of a stormwater pollution prevention plan (SWPPP) for all construction activities. The SWPPP will describe BMPs identified in the SWPPP, and monitoring to ensure that effects on water quality are minimized.

As part of this process, MID will implement multiple erosion and sediment control BMPs in areas with potential to flow to surface water (see Section 3.6, Geology). For a discussion of erosion and sediment control BMPs, see SWPPP. These BMPs will be selected to achieve maximum sediment removal and represent the Best Available Technology (BAT) that is economically achievable. BMPs to be implemented as part of this environmental commitment may include, but are not limited to, the following measures:
- Temporary erosion control measures (such as silt fences, silted ditches, borrowpits, and temporary revegetation or other ground cover) would be employed to control erosion from disturbed areas,
- Drainage facilities in downstream off-site areas would be protected from sediment using BMPs acceptable to the Regional Water Quality Control Board (RWQCB).

MID or its agent will perform routine inspections of the construction area to verify that the BMPs specified in this SWPPP are properly implemented and maintained. MID will notify its contractors immediately if there is a noncompliance issue and will require compliance.

WG-1b Implement a Spill Prevention and Control Program

MID or its contractor will develop and implement a spill prevention and control measures program (SPCoP) to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities for all contractors. The program will be completed before any construction activities begin. Implementation of this program will comply with state and federal water quality regulations and minimize the effects of the Proposed Action.

MID will review and approve the SPCoP before the onset of construction activities. MID will routinely inspect the construction area to verify that the measures specified in the SPCoP are properly implemented and maintained. MID will notify its contractors immediately if there is a noncompliance issue and will require compliance.

The federal spotters spill quantity for petroleum products, as defined in the EIP/O C FR 40 CFR 110), is any oil spill that (1) violates applicable water quality standards, (2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or (3) causes a scum or emulsion to be deposited beneath the surface of the water or on adjoining shorelines. If a spill is reportable, the contractor’s superintendent will notify MID, and MID will notify the contractor, the appropriate state and local emergency and environmental control measures will be implemented. The contractor will coordinate with responsible regulatory agencies to implement measures to prevent and abate contamination.

Before discharging any water from dewatering operations to surface water, MID or its contractors will obtain an NPDES permit and Waste Discharge Requirements (WDRs) from the RWQCB. Depending on the volume and character of the discharge, coverage under the RWQCB’s General Construction Permit or General Dewatering Permit is possible. As part of the permit, the permittee would design and implement measures as necessary so that the discharge limits identified in the relevant permit are met. As a performance standard, these measures will be selected to achieve maximum sediment removal and represent the BAT that is economically achievable. Implemented measures may include reduction of water from dewatering operations until particulate matter has settled before it is discharged, use of infiltration areas, and other BMPs. Final selection of water control measures will be subject to approval by the RWQCB.

MID will verify that coverage under the appropriate NPDES permit has been obtained before allowing discharging activities to begin. MID or its agent will perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. MID will notify its contractors immediately if there is a noncompliance issue and will require compliance.

Wetlands

WET-1 Preservation of vernal pools and adjacent riparian areas.

Implementation of Environmental Commitment BIO-2a Preconstruction Survey/avd Effects on Vernal and Alkal Rain Pools and BIO-2c. Create, Restore, or Preserve Vernal Pools would minimize the extent of and compensate for adverse effects.

WET-2 Reduction of impacts to Wadis of the United States from the discharge of will.

In GF Canal there are seasonal wetlands, including approximately 2 acres of freshwater marsh that would be affected. These areas would be affected by the development of freshwater marsh within GF Canal during operation and formation of seasonal wetlands within the reservoir during banking.
Comments on the Final Environmental Impact Statement

Reclamation’s Notice of Availability of the Final EIS was published June 8, 2011 and the U.S. Environmental Protection Agency’s Notice of Availability was published June 17, 2011. Copies of the FEIS were distributed to those who requested a copy. A press release was issued June 9, 2011 and the Final EIS was made available on Reclamation’s website:

http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=3128

One comment letter on the Final EIS was received from the Environmental Protection Agency during the 30-day waiting period. The issue raised and Reclamation’s responses follow:

Nature of Comment: The Environmental Protection Agency recommended that the additional discretionary conservation recommendations identified in the Biological Opinion to Reclamation (File Number 81420-2008-F-0279-1) dated April 26, 2011 issued by USFWS be considered for inclusion in the Environmental Commitments.

Agency Response: As stated in the April 26, 2011 Biological Opinion: “Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to implement recovery actions, to help implement recovery plans, to develop information, or otherwise further the purposes of the Act”. As such, Reclamation in cooperation with MID will continue to seek funding opportunities to implement the discretionary conservation recommendations described in the Biological Opinion.