

RECLAMATION

Managing Water in the West

Environmental Assessment

Cawelo Water District Calloway Canal Lining Project – Reach B EA-14-02-MP



Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Acronyms and Abbreviations

APE	Area of potential effect
CAA	Clean Air Act
CALFED	CALFED Bay-Delta Program
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal regulations
CNDDDB	California Natural Diversity Data Base
CWD	Cawelo Water District
Delta	Sacramento-San Joaquin River Delta
DOI	Department of the Interior
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
ITA	Indian Trust Assets
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NKWSD	North Kern Water Storage District
O & M	Operation and maintenance
PM ₁₀	Particulate matter less than 10 micrometers in diameter
PM _{2.5}	Particulate matter less than 2.5 micrometers in diameter
Reclamation	U.S. Bureau of Reclamation
ROW	Right-of-way
Service	U.S. Fish and Wildlife Service
SJVAB	San Joaquin Valley Air Board
SJVAPCD	San Joaquin Valley Air Pollution Control District
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOIP	System Operations Improvement Project
SWP	State Water Project
TLHR	Tulare Lake Hydrologic Region
USGS	U. S. Geological Survey

Section 1 Introduction

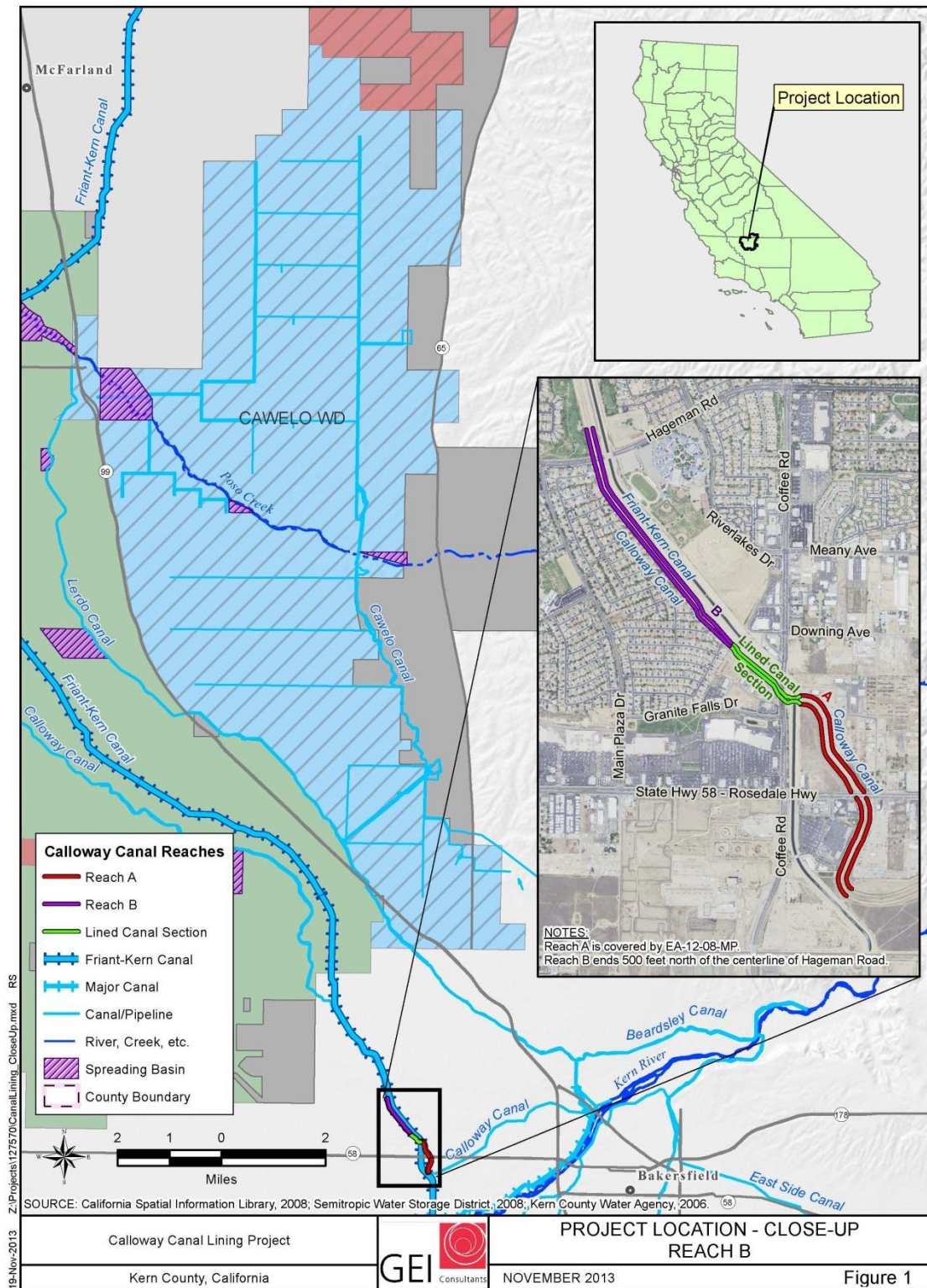
1.1 Background

In conformance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508), and DOI Regulations (43 CFR Part 46), the Bureau of Reclamation (Reclamation) has prepared this Environmental Assessment (EA) to evaluate and disclose any potential environmental impacts associated with implementation of the Cawelo Water District's (CWD) Calloway Canal Lining Project, Reach B (Proposed Action). (See Figure 1). The Proposed Action would decrease seepage to a groundwater basin containing constituents of concern by lining 4,124 linear feet of the Calloway Canal with concrete. The Proposed Action would further the goals and objectives of the CALFED program as they apply to water supply reliability and water quality. Reclamation proposes to provide a Department of the Interior (DOI) CALFED Bay-Delta Program grant to the CWD to support implementation of the Proposed Action.

The CWD was formed in 1965 as part of the State Water Project (SWP). The district is located in the Southern San Joaquin Valley, Kern County, California. Encompassing nearly 45,000 acres, the district lies between State Highway 99 on the west, State Highway 65 on the east, Oildale on the south and the community of McFarland on the north (Figure 1). About 34,000 of CWD's 45,000 acres are irrigated. The principle crops are grapes, citrus, deciduous fruits, and nuts. The CWD's average annual water supply is 44,052 acre-feet per year. CWD provides raw water for direct irrigation or water spreading for groundwater recharge, with no water provided for municipal services.

The Calloway Canal is a 30-mile long canal that is both lined and unlined. The first seven miles of canal were constructed between 1975 by O.P. Calloway and 1977 by the Kern County Land and Water Company, who subsequently expanded it to its current 30 mile length. Shortly after its creation, the CWD began cooperating with neighboring North Kern Water Storage District (NKWSD) in the use of conveyance facilities. In 2006, CWD and NKWSD formulated a plan to enhance the flexibility and efficiency of coordinated operations. The overall project, known as the Systems Operation Improvement Project (SOIP), consists of canal interties, pump stations, flow control structures, and canal lining. In conformance with the California Environmental Quality Act guidelines, NKWSD prepared and completed an Initial Study/Negative Declaration (IS/ND) for the SOIP, including plans to line the length of the Calloway Canal. (NKWSD 2006).

Previously, CWD, in partnership with NKWSD, applied for and was selected as a recipient of a CALFED Water Use Efficiency Grant to help fund lining 3,523 feet of the Calloway Canal (Reach A) between the CVC Intertie and Coffee Road. Reclamation prepared an EA and signed a Finding of No Significant Impact (FONSI) in April, 2013 on the lining of Reach A of the canal (Reclamation 2013).



This EA describes the existing environmental resources in the Proposed Action area, evaluates the effects of the No Action and Proposed Action alternatives on the resources, and proposes measures to avoid, minimize, or mitigate any adverse effects.

1.2 Need for the Proposal

Currently, Reach B loses approximately 1,442 acre-feet per year or over 72,100 acre-feet over the life of the project through seepage to a groundwater basin in the Tulare Lake Hydrologic Region containing phenol, a constituent of concern (DWR 2009). Water is not recovered from the groundwater basin due to the cost of treatment to remove the contaminant. The implementation of the Proposed Action would increase operational efficiency in the CWD and decrease recharge to the underlying groundwater basin.

Section 2 Alternatives Including Proposed Action

This EA considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment that would result from implementation of the Proposed Action.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not award a CALFED Water Use Efficiency Grant to the CWD that would partially fund the lining of Reach B of the Calloway Canal. The unlined canal would continue to lose water to seepage.

2.2 Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation would award CWD with a \$500,000 CALFED Water Use Efficiency Grant to assist in funding the lining of Reach B to reduce surface water and increase water supply reliability. CWD will split the local cost share with neighboring North Kern WSD. The two districts will provide the \$1,216,704 in funding from capital improvement accounts supported with water fees or from sale of past bonds.

Reach B extends from Coffee Road in the south to 500 feet north of Hageman Road. (See Figure 2). The total length of Reach B is 4,265 linear feet of which 141 feet are already lined; the total length to be lined is therefore 4,124 feet. The Proposed Action would be implemented when the canal is not being utilized for surface water conveyance within the CWD and therefore canal dewatering measures would not be necessary. The proposed land disturbance activities would include trimming the sides and bottom of the Calloway Canal to the desired design depths prior to lining the canal. All associated construction activities would occur on existing facilities and previously disturbed right-of-way's (ROW) that are owned and operated by the CWD. The material that would be removed from the areas where the canal is too narrow and/or shallow would be utilized in the areas where the canal section is too wide and/or deep. Access to the project site would be obtained through the existing Calloway Canal Operations and Maintenance (O&M) roads. Additional fill material is not anticipated for the completion of the Proposed Action during this study.



Figure 2. Calloway Canal Lining Project Detailed Area

Construction activities would include the following:

- The existing canal would be trimmed to provide a canal prism with a 50-foot wide bottom width, 8.5-foot nominal depth and approximately 29-foot sides 3:1 side slopes.
- Trimming foundation work and the placement of backfill would be completed with an excavator, loader, and compaction equipment.
- Concrete lining work would be completed with a self-propelled lining machine. About 5,500 cubic yards of concrete would be used assuming a liner thickness of 4-inches.

Proposed construction activities would start in April 2014 if it is a dry year but in August 2014 if it is a wet year. The construction would take approximately 4 months.

2.2.1 Environmental Protection Measures

CWD would implement the following environmental protection measures to reduce potential environmental consequences associated with the Proposed Action (Table 1). Environmental consequences for resource areas assume the measures specified would be fully implemented.

Table 1. Environmental Protection Measures	
Resource	Measure
Biological Resources	CWD would follow Standardized Recommendations for Protection of the San Joaquin kit fox prior to and during ground disturbance (Service 2011). This includes conducting U.S. Fish and Wildlife Service (Service) approved pre-construction protocol level surveys for San Joaquin kit fox no fewer than 14 days and no more than 30 days prior to the onset of any ground-disturbing activity (Service 2011).
Biological Resources	A protocol level pre-construction burrowing owl survey shall be conducted within 250 feet of areas subject to disturbance no fewer than 14 days and no more than 30 days prior to start of construction according to established guidelines (CDFG 2012). Appropriate avoidance, minimization, or protection measures shall be determined in consultation with the California Department of Fish and Wildlife in the event an active burrow or nest is located in an area subject to disturbance, or within the typical setback.
Air Quality	Implement control measures for construction emissions of particulate matter less than 10 microns in diameter (PM ₁₀) according to the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Regulation VIII (SJVAPCD 2012b). One measure includes the use of water with all "land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities" for fugitive dust suppression.

Section 3 Affected Environment & Environmental Consequences

This section identifies the potentially affected environmental resources and the environmental consequences that could result from the Proposed Action and the No Action Alternatives.

3.1 Resources Not Analyzed in Detail

Department of the Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of the following items when preparing environmental documentation:

3.1.1 Cultural Resources

Reclamation conducted historic property identification efforts and identified that the Calloway Canal was previously determined to be ineligible for inclusion in the National Register of Historic Places under consensus with the State Historic Preservation Officer (SHPO). With no historic properties within the area of potential effect, Reclamation determined that a finding of no historic properties affected, pursuant to 36 CFR §800.4(d)(1), was appropriate for this undertaking.

Reclamation initiated consultation with the SHPO on August 1, 2013 via a mailed consultation package for this undertaking. On August 13, 2013, Reclamation received concurrence on this finding of effect. (See Appendix A).

3.1.2 Indian Trust Assets

ITAs are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. There are no Indian reservations, rancherias or allotments in the project area. The nearest ITA is a Public Domain Allotment approximately 39 miles east of the project location. The Proposed Action does not have a potential to affect ITAs. (See Appendix B).

3.1.3 Indian Sacred Sites

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." The Proposed Action would not affect and/or prohibit access to and ceremonial use of Indian sacred sites.

3.1.4 Environmental Justice

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. No significant changes in agricultural communities or practices would result from the Proposed

Action. Therefore, , the Proposed Action would not have a significant or disproportionately negative impact on low-income or minority individuals within the Proposed Action area.

3.2 Water Resources

3.2.1 Affected Environment

Surface Water Resources

A large portion of CWD's surface water supplies is SWP water, through a contract with Kern County Water Agency, with supplementary supplies from the Kern River, Poso Creek and recycled water. In order to meet CWD's average requirements of over 100,000 acre-feet, amounts in excess of available surface water supplies are met through groundwater sources. The Calloway Canal's nominal design is 1,000 cubic feet per second and may convey water up to nine months of the year.

Groundwater Resources

The underlying groundwater is part of the Kern County subbasin of the Tulare Lake Hydrologic Region (TLHR), one of seven subbasins designated by the California Department of Water Resources (DWR 2006). The region is essentially a closed basin, with principal drainages from the Kings, Kaweah, Tule, and Kern Rivers. These streams are the principal source of natural recharge to the underlying groundwater basin with applied irrigation also being a large contributor. Figure 3 shows that the underlying aquifer in the area of the Proposed Action is contaminated by phenol due to refinery operations. (Kern County Water Agency 1979). While this map was prepared in 1979, recent inquiry to the Regional Water Quality Control Board database indicates that several sites in this vicinity are still under active cleanup orders. CWD does not operate any groundwater recovery wells in the location of the Proposed Action although CWD has groundwater wells in other areas where there is no contamination.

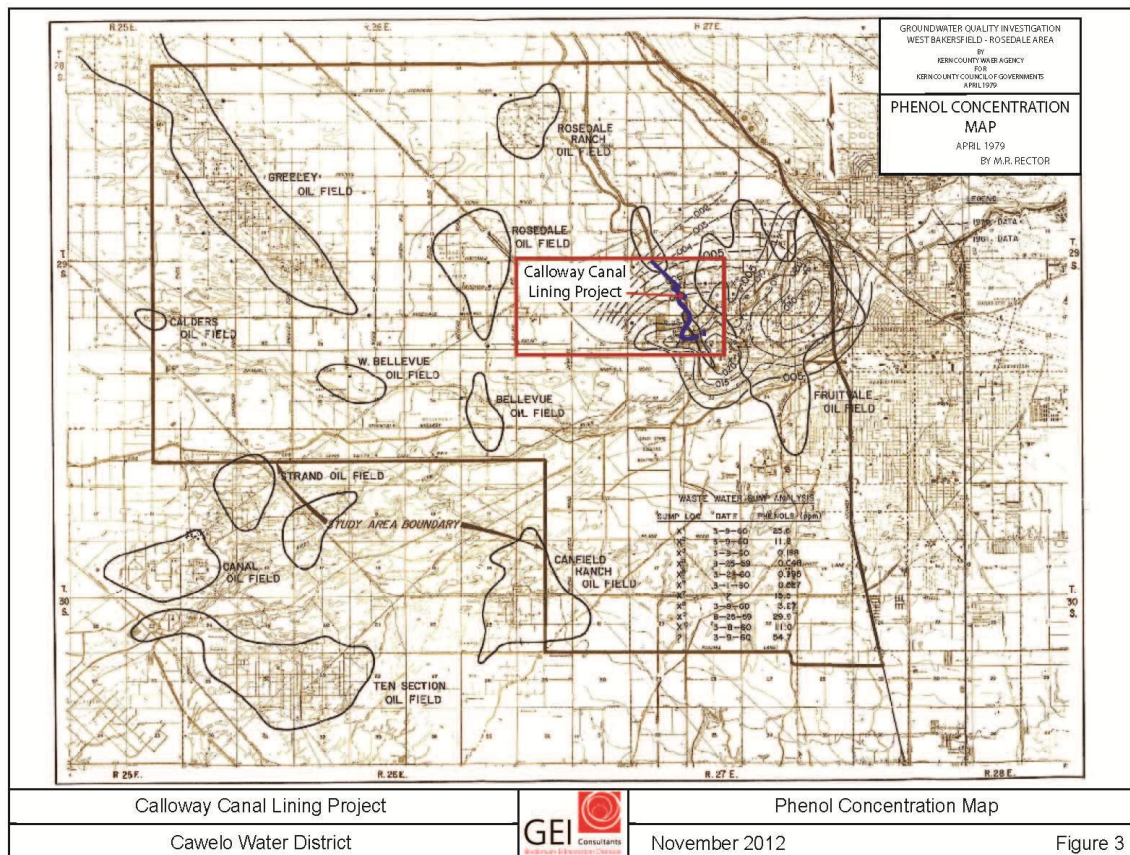
3.1.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing operations of both surface water and ground water would be utilized under their current conditions and seepage into the groundwater basin would continue.

Proposed Action

Surface Water Resources - Through the Proposed Action, surface water would be conserved that would otherwise be recharged from the unlined canal; potentially about 1,442 acre-feet per year of surface supply would be conserved, based on historic use and use by new facilities under construction. (See Appendix D for how this was calculated). The conserved water would be delivered directly to the growers for crop irrigation or spread for groundwater recharge in an area where the groundwater is of usable quality. The conserved water would result in reduced



dependence on Bay-Delta diversions during the typical nine month duration that the CWD receives water. In addition to direct water savings the project would result in more beneficial use of water supplies, increased regional flexibility, increased operational efficiency, and associated water quality benefits. The Proposed Action would be implemented when the canal is not being utilized for surface water conveyance within the CWD and therefore canal dewatering measures would not be necessary.

Groundwater Resources – Implementation of the Proposed Action would reduce groundwater recharge in the vicinity of the Calloway Canal Reach B area where there is phenol contamination. There are no plans to treat and use the contaminated water, so the Proposed Action would not affect the use of this groundwater.

Once the canal is lined, the surface supply would be delivered within the irrigation district, thus offsetting an equal amount of groundwater pumping in the groundwater basin in areas with groundwater of quality suitable for irrigation. The irrigation demand would remain the same, with or without the Proposed Action. The total potential conserved water with the Proposed Action is 1,442 acre-feet per year. (Appendix D describes how this was calculated.) If the saved

groundwater is not used for other demands, reducing groundwater pumping could allow groundwater levels to rise in areas of usable groundwater. This could reduce the pumping lift and thus reduce the cost of pumping.

3.2 Biological Resources

3.2.1 Affected Environment

The Proposed Action would occur within a maintained canal right-of-way (ROW) and surrounded entirely by fully developed urban areas (Figure 2). There is no natural habitat remaining on the canal ROW or the immediately adjoining areas due to operation and maintenance activities occurring throughout the year. There is no critical habitat in the affected area.

On July 30, 2013, a species list of federally listed, proposed and candidate species potentially occurring in Kern County and the Oildale 7 ½ minute U.S. Geological Survey (USGS) Quadrangle was obtained from the Service's website. Table 2 summarizes the species' status, determination of effects from the Proposed Action, and a summary of the rationale supporting the determination.

Based on the habitat requirements of the listed species that could potentially occur within the Proposed Action area, suitable habitat is absent for the Swainson's hawk, Southwestern willow flycatcher, vernal pool fairy shrimp, valley elderberry longhorn beetle, Tipton kangaroo rat, Bakersfield cactus, San Joaquin woolly-threads, blunt-nosed leopard lizard, giant garter snake, and delta smelt. Therefore, these species are not discussed in this section.

Western Burrowing Owl

Although not listed under the federal Endangered Species Act, the burrowing owl is protected by the Migratory Bird Treaty Act (MBTA). This small ground-dwelling owl is a year-long resident that exhibits high site fidelity. They live in ground squirrel and other mammal burrows that it appropriates and enlarges for its own purposes (CDFG 2012). Burrowing owls are typically found in short-grass grasslands, open scrub habitats, and a variety of open, human-altered environments, such as the edges of canals or roadways, ditches, and drains along agricultural fields. These owls are active day and night and are opportunistic feeders. Their diet includes insects, amphibians, reptiles, small mammals, and grass material.

Burrowing owls have shown significant declines throughout California in recent years principally due to the conversion of grassland and pasturelands to agricultural and urban uses, and to poisoning programs to control California ground squirrels. Other hazards common to agricultural areas in the state that could impact burrowing owls include automobiles, barbed-wire fences, and electric fences (Gervais et al. 2008). CNDDDB records indicate owl burrows and kit fox occurrences within a 1-mile radius and den sites historically within a 3 mile radius of the project.

A field inspection of the canal right-of-way in August 2013 did not find any burrowing owls, burrowing owl tracks, whitewash, or pellets outside potential dens and burrows along the Calloway Canal (Meier 2013). Another survey was done in September 2013 (Vanherweg 2013) following guidelines contained in the CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995). Again, no burrowing owls or sign were found. Burrowing owls have been seen by residents who frequent the area; these are from the adjacent Friant-Kern Canal.

San Joaquin Kit Fox

The San Joaquin kit fox is federally listed as an endangered species. Their diet varies based on prey availability, and includes small to mid-sized mammals, ground-nesting birds, and insects. Kit foxes excavate their own dens, or may use other animals', and human-made structures (culverts, abandoned pipelines, and banks in sumps or roadbeds).

Table 2. Special Status Species in Surrounding USGS 7.5-minute Quadrangles

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u> ₁	<u>Effect</u> ²	<u>Summary of Effects Determination</u> ³
Birds				
Swainson's hawk	<i>Buteo swainsoni</i>	MBTA	NE	CNDDDB ⁴ records indicate this species occurs within a 10-mile radius of the Proposed Action area. No suitable habitat present.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E, MBTA	NE	No suitable habitat in the Proposed Action area.
Western burrowing owl	<i>Athene cunicularia</i>	MBTA	NLAA	Surveys did not find indication of owls along canal although CNDDDB ⁴ records indicate this species occurs within a 1-mile radius of the Proposed Action area. Environmental Protection Measures would be implemented to avoid potential effects.
Invertebrates				
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	NE	No suitable habitat in the Proposed Action area. No elderberry shrubs would be disturbed.
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T	NE	No suitable habitat in the Proposed Action area. No elderberry shrubs would be disturbed.
Mammals				
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E	NLAA	Potential kit fox dens within canal right-of-way for Reach B. Known kit fox dens greater than 200 feet north of Reach B. CWD would implement the Service's <i>Standardized Recommendations for Protection of the San Joaquin Kit Fox</i>
Tipton kangaroo rat	<i>Dipodomys nitratoideus nitratoideus</i>	E	NE	Previously recorded CNDDDB ⁴ sites within a 5-mile radius of the Proposed Action area have been developed for housing. No suitable habitat in project area.
Plants				
Bakersfield cactus	<i>Opuntia treleasei</i>	E	NE	CNDDDB ⁴ records indicate isolated clumps in Kern County, about 5 miles northeast of project area. Believed to be extirpated from Bakersfield due to development. No suitable habitat in project area.

San Joaquin woolly-threads	<i>Monolopia congdonii</i>	E	NE	Native vegetation and habitat has been eliminated at previously recorded CNDDB ⁴ sites. Believed to be extirpated from Bakersfield due to development. No suitable habitat in project area.
Reptiles				
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	E	NE	CNDDB ⁴ records indicate this species occurs within the Oildale Quad and a 5-mile radius of the project area. No suitable habitat present.
Giant garter snake	<i>Thamnophis gigas</i>	T	NE	No suitable habitat present.
Amphibians				
California red-legged frog	<i>Rana draytonii</i>	T	NE	No suitable habitat present.
Fish				
Delta smelt	<i>Hypomesus transpacificus</i>	T	NE	No suitable habitat present.

¹ Status= Listing of Federally special status species, unless otherwise indicated

E: Listed as Endangered

MBTA: Birds protected by the Migratory Bird Treaty Act

T: Listed as Threatened

X: Critical Habitat designated for this species

² Effects = Effect determination

NE: No Effect to federally listed species anticipated from the Proposed Action.

NLAA: Not Likely to Adversely Affect with Environmental Protection Measures

MA: May Affect federally listed species

³ Summary of rationale supporting determination

⁴ CNDDB = California Natural Diversity Database 2013

Kit fox currently inhabit the western and southern San Joaquin Valley in grassland and scrubland communities. Primary reasons for the species' decline include loss and degradation of habitat (Service 1998), in addition to vehicular traffic.

Surveys conducted between 1998 and 2004 to support a report prepared for the California Department of Transportation (Caltrans), indicates that there is known San Joaquin kit fox activity in the immediate vicinity of Calloway Canal (Bjurlin, Cypher, Wingert, & Job, 2005). Kit fox were observed during daytime and nighttime during this study.

A biologist walked the canal right-of-way in August 2013 (Meier 2013). Evidence was found that red fox use the canal corridor. The presence of tracks, scat, and dens that would be made only by foxes smaller than the red fox indicate that there is the potential for San Joaquin kit fox to use the Calloway Canal corridor not only for movement, but also for denning.

Another biologist conducted a similar daytime ground survey for San Joaquin kit foxes, their dens, and sign at the proposed project corridor in September 2013. (Vanherweg 2013). The ground surveys were completed by walking transects 50 feet wide. The survey found 12 potential kit fox dens along the proposed project corridor for Reach B. Potential kit fox dens and known kit fox dens were found along the canal north of Reach B; kit fox and red fox scat was found at all the known dens. The nearest known den was more than 200 feet from the northern end of Reach B.

3.2.1 Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not provide grant funds for the lining of the Calloway Canal and conditions would remain the same as described above. There would be no impacts to wildlife and special-status species as no new construction would occur and historical operation and maintenance practices would continue.

Proposed Action

Western Burrowing Owl

The Proposed Action is not likely to adversely affect the Western burrowing owl since they were not found along the canal. Since they have been found within a mile of the canal and appropriate burrows are present along the canal, one or more pair could potentially occupy a burrow prior to construction. Construction could affect the owl's survivorship or disturb their foraging habitat if the owls are within or along the edge of the canal (Gervais et al. 2008). Owls could also become disturbed from factors such as noise and vibration due to heavy equipment which could cause the owls to flee and result in nest failure as well as vehicular strikes. During construction, there is the potential that if owls are present along or near the canal, they could become buried inside burrows.

Environmental Protection Measures

A survey for burrowing owls would be conducted by a qualified biologist within 250 feet of the project area no fewer than 14 days and no more than 30 days prior to construction activities (CDFG 2012). (CDFG is now the California Department of Fish and Wildlife (CDFW)). If the

survey indicates the presence of burrowing owls, then the mitigation measures to minimize impacts to burrowing owls, their burrows and foraging habitat according to established guidelines would be followed. CDFW would be consulted in the event occupied burrows or nests within 150 feet of an area subject to disturbance during the non-breeding season (September 1 through January 31), or within 250 feet of an area subject to disturbance during the breeding season (February 1 through August 31) are discovered within the Proposed Project area (CDFG 2012).

San Joaquin Kit Fox

The Proposed Action could cause negative impacts to prey abundance or reduce the number of potential den sites through habitat modification during construction (Service 1998). Impacts to kit foxes may also result if an individual uses the canal as a migratory corridor during construction. The Proposed Action is not likely to adversely affect the kit fox since known kit fox dens do not occur within 200 feet of Reach B, and because CWD will implement following measures:

Environmental Protection Measures

A Service approved pre-construction protocol level survey would be conducted for kit fox no fewer than 14 days and no more than 30 days prior to initiation of any ground disturbance or construction activity (Service 2011). If the surveys find that no special-status species are present within the project area, Reclamation's determination of "not likely to adversely affect" would remain. If the surveys detect the presence of listed species, then the Proposed Action would halt while Reclamation coordinates with the Service and the appropriate corrective measures have been completed or it has been determined that the species would not be harmed.

To ensure that the construction areas remain unoccupied by kit fox prior to and during ground disturbance, CWD would implement the following avoidance measures for construction and operational requirements, as outlined in the Service's *Standardized Recommendations for Protection of the San Joaquin Kit Fox* (Service 2011):

All project-related vehicle traffic would be restricted to established roads, construction areas, and other designated areas. In order to reduce impacts by project-related vehicles, workers would observe the following:

- Maintain a daytime speed of 20-mph throughout the site.
- Minimize construction at night when kit foxes are most active (thirty minutes prior to sunset and 30 minutes after sunrise).

Inadvertent entrapment would be prevented via the following activities:

- Cover all excavated, steep-walled holes or trenches more than 2-feet deep with plywood or similar materials at the close of each working day.
- Construct one or more escape ramps of earthen-fill or wooden planks if the trenches cannot be closed.
- Thoroughly inspect all holes and trenches before they are filled.

- Thoroughly inspect all construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site overnight before the pipe is subsequently buried, capped or otherwise used in any way.
- All food-related trash items would be disposed of in securely closed containers and removed at least once a week from the project site.

An employee education program would be conducted by a qualified biologist consisting of a brief presentation in kit fox biology and regulatory protection to explain endangered species concerns to contractors, their employees, and agency personnel involved in the project. The program would include a description of the San Joaquin kit fox and its habitat needs, an explanation of the status of the species and its protection under the Endangered Species Act, and a list of measures being implemented to avoid and minimize the chance of impacts to the species during project construction and implementation. A fact sheet conveying this information would be provided to project personnel. The Sacramento U.S. Fish and Wildlife Service Office and CDFW shall be notified in writing within three working days of any accidental death or injury to a kit fox during project related activities.

With implementation of the previously described avoidance and minimization measures, Reclamation has determined that there would be no direct or indirect effects of the action on the species and there would be no interrelated or interdependent effects of other actions. The Proposed Action would not result in a significant change in the surrounding environment and would not result in short-term or long-term adverse impacts to biological resources.

3.3 Air Quality

Section 176 (c) of the Clean Air Act (CAA) (42 USC 7506 (c)) requires that any entity of the Federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the CAA (42 USC 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact conform to the applicable SIP before the action is taken.

3.3.1 Affected Environment

The Proposed Action lies within the San Joaquin Valley Air Basin (SJVAB), the second largest air basin in the State. Air basins share a common "air shed", the boundaries of which are defined by surrounding topography. Although mixing between adjacent air basins inevitably occurs, air quality conditions are relatively uniform within a given air basin. The San Joaquin Valley experiences episodes of poor atmospheric mixing caused by inversion layers formed when temperature increases with elevation above ground, or when a mass of warm, dry air settles over a mass of cooler air near the ground.

Despite years of improvements, the SJVAB does not meet all State and Federal health-based air quality standards. To protect health, the SJVAPCD is required by Federal law to adopt stringent control measures to reduce emissions. On November 30, 1993, the Environmental Protection Agency promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed Federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by a proposed action equal or exceed certain emissions thresholds, thus requiring the Federal agency to make a conformity determination.

3.3.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to air quality since no construction would take place.

Proposed Action

Construction emissions would vary from day to day and by activity, timing and intensity, and wind speed and direction. Generally, air quality impacts from the Proposed Action would be localized in nature.

Short-term air quality impacts would be associated with construction, and would generally arise from dust generation (fugitive dust) and operation of construction equipment. Fugitive dust results from land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. Fugitive dust is a source of airborne particulates, including PM₁₀ and PM_{2.5}.

Earth-moving equipment, trucks, and other mobile sources powered by diesel or gasoline are also sources of combustion emissions, including nitrogen dioxide, carbon monoxide, volatile organic compounds, sulfur dioxide, and small amounts of air toxics. Table 3 below shows the type of equipment and duration of operation estimated for the Proposed Action. Table 4 below provides a summary of the estimated emissions during construction against federal and local emission thresholds in tons per year. Calculated emissions from the Proposed Action were estimated using the 2013 California Emissions Estimator Model (CalEEMOD) software (version 2013.2.1), which incorporates emission factors for reactive organic gases (ROG), NO_x, CO, SO₂, and both fugitive and exhaust PM₁₀, and PM_{2.5}.

Comparison of the estimated Proposed Action emissions (without mitigation) and the thresholds for Federal and local conformity determinations (Table 4) indicates that project emissions are estimated to be below these thresholds. Nonetheless, the Proposed Action would implement the SJVAPCD's Regulation VIII (SJVAPCD 2012b) control measures for construction emissions of PM₁₀. One of these control measures includes the use of water with all "land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities" for fugitive dust suppression.

Table 3- Type of Equipment and Duration of Operation for Reach B Lining			
Type of Equipment	Proposed Use	Number of Equipment	Duration of Operation ¹
Skip Loader	Loading of excess materials, moving material, cleanup	1	1.5-2 months
Compactor	Scarify and re-compact material	1	1.5-2 months
Excavator	Digging and material handling	1	1.5-2 months
Power-Operated Vibratory Screed	Leveling out/vibrating concrete mixture	1	1.5-2 months
Concrete Trucks	Transportation of concrete mix	1	1.5-2 months
Motor Grader	Final grading of canal embankments and clean up	1	1.5-2 months
Water Truck	Dust abatement and moisture conditioning of soil	2	1.5-2 months
Pick-up Trucks	Service of equipment	2	3 months

¹Equipment operated 8 hours/day for 5 days/week

Table 4 - Estimated Calloway Canal Reach B Lining Emissions During Construction and Federal and Local Emissions Thresholds in tons per year				
Pollutant	Attainment Status ^a	Thresholds for Federal Conformity Determinations ^b	Local Significance Thresholds ^b	Estimated Project Emissions ^c
VOC ¹ (as an ozone precursor)	Nonattainment/Extreme (8-hour ozone)	10	10	0.71
NO _x ² (as an ozone precursor)	Attainment	50	10	0.61
PM ₁₀ ³	Nonattainment	100	15	0.37
PM _{2.5} ⁴	Nonattainment	100	15	0.08
CO ₂	-	-	---	49.31

1 = volatile organic compounds

2 = nitrogen oxides

3 = particulate matter less than 10 micrometers in diameter

4 = particulate matter less than 2.5 micrometers in diameter

^aSJVAPCD (2012a)

^b40 CFR 93.153

^cConstruction emissions estimated with CalEEMOD Windows Version 2013.2.1

3.4 Cumulative Effects

According to CEQ regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Greenhouse gas (GHG) impacts are considered to be cumulative impacts since any increase in GHG emissions would add to the existing inventory of gases that could contribute to climate change. The estimated GHG emission due to temporary Proposed Action construction activities is 49.31 metric tons of carbon dioxide equivalents, using CalEEMOD. There are no on-going operational emissions from the Project.

There are no other known past, present, and reasonably foreseeable future actions that would cumulatively result in significant impacts to the human environment when taking into consideration the actions analyzed within this EA

Section 4 Consultation & Coordination

Several Federal laws, permits, licenses and policy requirements have directed or guided the NEPA analysis and decision making process of this EA.

4.1 Public Review Period

Reclamation will make the EA available for a 15 day period. Additional analysis will be prepared if substantive comments identify impacts that were not previously analyzed or considered.

4.2 State Historic Preservation Officer

Reclamation consulted with SHPO August 1, 2013 regarding a finding of no effects to historic properties pursuant to 36 CFR Part 800.4(d)(1). SHPO concurred with Reclamations' findings and determination on August 13, 2013. (See Appendix C).

4.3 Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies to ensure that discretionary federal actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation sent a memo to the Service dated January 8, 2014 requesting concurrence with the determination that the Proposed Action may affect but is not likely to adversely affect the San Joaquin kit fox, based on implementation of the avoidance measures presented previously in Section 3.2.2. (Appendix C)

Section 5 References

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- U.S. Fish and Wildlife Service. 1998. Recovery Plan for the Upland Species of the San Joaquin Valley, California. Portland, OR.
- U.S. Fish and Wildlife Service. 2011. Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance. Sacramento, CA.
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- SJVAPCD (San Joaquin Valley Air Pollution Control District). 2012a. Air Quality Information. Resources. Ambient Air Quality Standards & Valley Attainment Status. Website: <http://www.valleyair.org/index.htm>. Accessed: September 5, 2012.
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Appendix A

Cultural Resources Compliance Memo



IN REPLY
REFER TO:
MP-153
ENV-3.00

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

August 19, 2013
MEMORANDUM

To: Doug Kleinsmith
Natural Resources Specialist – Division of Environmental Affairs

From: BranDee Bruce
Architectural Historian – Division of Environmental Affairs

Subject: 13-MPRO-170 – Section 106 Conclusion Memo for a CALFED Grant to the Cawelo Water District (CWD) for the Installation of Concrete Lining on the Calloway Canal, Kern County, California

The proposed undertaking to fund the installation of 9,000 linear feet of concrete lining on the Calloway Canal through a CALFED grant has resulted in no historic properties affected pursuant to 36 CFR §800.4(d)(1) of the National Historic Preservation Act of 1966 (16 USC 470) Section 106 implementing regulations, as amended.

The proposed action includes Reclamation issuing a CALFED grant to CWD for the installation of 9,000 linear feet of concrete lining on the Calloway Canal, in Kern County, California. Reclamation conducted historic property identification efforts and identified that the Calloway Canal was previously determined to be ineligible for inclusion in the National Register of Historic Places (National Register) under consensus with the State Historic Preservation Officer (SHPO). With no historic properties within the area of potential effect, Reclamation determined that a finding of no historic properties affected, pursuant to 36 CFR §800.4(d)(1), was appropriate for this undertaking.

Reclamation initiated consultation with the SHPO on August 1, 2013 via a mailed consultation package for this undertaking. On August 13, 2013, Reclamation received concurrence on our finding of effect (see attached SHPO concurrence to email).

This memorandum is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including additional consultation with the SHPO, may be necessary. Thank you for providing the opportunity to comment.

CC: MP-153 Cultural Resources Branch, MP 150 Anastasia Leigh Regional Environmental Officer

Appendix B

Indian Trust Assets Compliance Memo



KLEINSMITH, DOUGLAS <dkleinsmith@usbr.gov>

Re: Cawelo Canal Lining ITA request

RIVERA, PATRICIA <privera@usbr.gov>
To: DOUGLAS KLEINSMITH <dkleinsmith@usbr.gov>

Mon, Aug 5, 2013 at 2:09 PM

Doug,

I reviewed the proposed action to award Calloway Water District with a CALFED Water Use Efficiency Grant to assist in funding the lining of the Calloway Canal between the Cross Valley Canal Intertie and Coffee Road to reduce surface water seepage into a contaminated groundwater basin and increase water supply reliability. The existing canal would be trimmed to provide a canal prism with a 50-foot wide bottom width, 8.5-foot nominal depth and approximately 29-foot sides with 3:1 side slopes. Approximately 108 square feet of the Canal would be lined with unreinforced concrete for each linear foot of canal; the total length to be concrete lined is approximately 8,990 feet.

The proposed action does not have a potential to impact Indian Trust Assets. The nearest ITA is a Public domain Allotment approximately 39 miles East of the project location.

Patricia Rivera
Native American Affairs Program Manager
US Bureau of Reclamation
Mid-Pacific Region
2800 Sacramento, California 95825
(916) 978-5194

Appendix C

Endangered Species Correspondence



IN REPLY REFER TO:

MP-152
ENV-7.00

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

JAN 08 2014

MEMORANDUM

To: Field Supervisor, Sacramento Fish and Wildlife Office
Attn: Thomas Leeman

From: Anastasia T. Leigh
Regional Environmental Officer

Subject: Request for Concurrence on Potential Effects to San Joaquin Kit Fox for the Cawelo Water District (CWD) Calloway Canal Lining Project – Reach B (Proposed Action)

Pursuant to Section 7 of the Endangered Species Act (16 U.S.C. § 1536), the Bureau of Reclamation requests written concurrence from the U.S. Fish and Wildlife Service that the Proposed Action may affect, but is not likely to adversely affect, the San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica*). Reclamation's determination is based on implementation of the avoidance and minimization measures provided in the attached Environmental Assessment (EA) for the project.

The action area is located near Bakersfield in Kern County, California. Reclamation would award CWD a CALFED Water Use Efficiency Grant to assist in funding the lining of Reach B of the Calloway Canal, which is the section of the canal beyond the already lined section north west of Coffee Road up to 500 feet past Hageman Road (Figure 1). The Proposed Action would decrease seepage to a groundwater basin by lining 4,124 linear feet of the Calloway Canal with concrete. Currently, Reach B loses approximately 1,442 acre-feet per year.

This action is similar to the Calloway Canal Lining Project for lining the canal south of Reach B, between the Cross Valley Canal Intertie and just north of Coffee Road (the portion of the canal in red in Figure1); the Service concurred with Reclamation's not likely to adversely affect determination for that project on March 7, 2013 (File number 08ESMF00-2013-1-0135).

The Proposed Action would be constructed within the existing disturbed canal rights-of-way in a developed urban area. Potential SJKF dens occur within Reach B and SJKF could potentially use the project area as a migratory corridor during the construction window. Known dens are greater than 200 feet from Reach B. The Service's Standardized Recommendations for the Protection of the Endangered SJKF outlined in the EA would be implemented prior to and

during all stages of the Proposed Action to avoid adverse impacts to the species. Reclamation would reinitiate consultation if any known kit fox dens are planned to be destroyed.

When taking into consideration the avoidance and minimization measures which have been incorporated into the Proposed Action, adverse impacts to the SJKF from the project are discountable and insignificant. Reclamation has determined that the SJKF is not likely to be adversely affected by the Proposed Action.

If you have any questions, please contact Mr. Douglas Kleinsmith, Natural Resources Specialist, at 916-978-5034 or dkleinsmith@usbr.gov.

Attachments - 2

cc: SCC-424 (SMcDonald)
(w/attachment)

Appendix D

Calculations for Amount of Water Conserved by Lining

The groundwater basin in Kern County is estimated to be about 40,000,000 acre-feet in volume . Implementation of the Proposed Action would reduce groundwater recharge to an area where recovery of the groundwater would be problematic due to constituents of concern; if groundwater is recovered in the unlined canal area, an added cost to treat would be necessary prior to beneficial use of the groundwater supply. Once the canal is lined, the surface supply will be delivered within the irrigation district, thus offsetting an equal amount of groundwater pumping in the groundwater basin in an area with groundwater of quality suitable for irrigation, since the irrigation demand remains the same, with or without the Proposed Action. Historical data is collected at various locations along the Calloway Canal and reported in the North Kern Water Storage District Calloway Canal Diversion Summary available from the annual Kern River Report prepared by the City of Bakersfield. (City of Bakersfield 1990-2010). The reports used in this analysis are from 1990 to 2010. The Calloway Canal is used by NKWSD mainly in “wet” years and therefore the flow in the canal is highly variable with the canal being unused during dry periods. To determine the average annual seepage losses, two different flow measurement locations along the canal were compared, specifically the Buck Owens Weir and the Olive Drive Weir, which includes Reach B. Taking into account all deliveries and inflows, the difference between the two points is the amount of water lost due to seepage . The seepage loss at Buck Owens Weir for the approximate six mile reach of canal lost on average 6,975 acre-feet per year. Therefore the amount of water lost in this reach per year is 1,125 acre-feet per mile. However, during some of the months, the canal was only operated for part of the month; therefore, averages are not truly reflective of daily losses. When the canal was typically operated for the entire month, the average loss was 1,994 acre-feet per month or 322 acre-feet per month per mile. The implied average loss is 11 acre-feet per day per mile and the operations averaged 3.14 months per year (96 days per year). The length of the reach proposed to be lined under the Proposed Action is roughly 4,124 feet (0.78 miles). Therefore, the amount water saved would be about 824 acre-feet of water conserved per year (11 acre-feet per day/mile x 0.78 miles x 96 days per year) based on historical use of the NKWSD facilities.

A new canal linking the Cross Valley Canal (which delivers SWP water to CWD) and the Calloway Canal will be completed before implementation of the Proposed Action. With the new canal connection and associated operation scheme, the Calloway Canal could see an increased operation of 2.4 months per year (72 days). This would allow the Proposed Action to save an additional 618 acre-feet per year (11 acre-feet per day/mile x 0.78 miles x 72 days.) The total potential conserved water with the Proposed Action is 1,442 acre-feet per year, based on the historic use plus use associated with the new canal connection.