

# RECLAMATION

*Managing Water in the West*

## **Finding of No Significant Impact – Temporary Warren Act Contracts for Conveyance of Non-Central Valley Project Water in the Tehama-Colusa and Corning Canals in 2012 FONSI No. NC-12-01**

**Central Valley Project, CA  
Mid-Pacific Region**



**U.S. Department of the Interior  
Bureau of Reclamation**

**April 2012**

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## Background

The Proposed Action is for the Bureau of Reclamation, on behalf of the United States, to enter into contracts with 3 or more of the 17 water districts served by the Tehama-Colusa and Corning Canals (Canals). Currently, Colusa County, Orland-Artois, and Westside Water Districts, pursuant to the Warren Act, have requested the use of the Canals to convey up to a total of 37,000 acre-feet of non-Central Valley Project (CVP) groundwater in the Canals from March 1 of the current calendar year through the last day of February 2013. Additionally, 1 or more of the remaining 14 water districts served by the Canals may request Warren Act contracts for use of the Canals. In this latter case, however, the total amount of water likely to be requested by these 14 districts combined would be less than 1,000 acre-feet. District-specific quantities are provided in Table 1. This action would allow groundwater to be delivered to other areas to supplement diminished CVP water supplies, as needed.

The source of the non-CVP groundwater would be groundwater pumped from existing wells and discharged to and removed from the Canals through existing facilities or through facilities reviewed and permitted on an individual basis. Each water district would be responsible for accurate water measurement and associated costs as well as assuring the non-CVP groundwater meets all federal and California water quality standards and the Reclamation Standards for acceptance of non-CVP groundwater prior to entering the Canals.

Table 1. Warren Act contract agreement quantities for pumping into the Canals.

Water District	Quantity (Acre-feet)
Colusa County Water District (CCWD)	20,000 <sup>a</sup>
Orland-Artois Water District	2,000
Westside Water District	15,000
All other water districts served by the Tehama-Colusa and Corning Canals	1,000

<sup>a</sup> A Warren Act contract for conveying up to 4,500 acre-feet of non-CVP groundwater in the Canals in support of the CCWD remains valid through contract water year 2014 (Reclamation 2005). The volume identified here does not include the existing Warren Act contract amount.

## Findings

In accordance with the National Environmental Policy Act of 1969, as amended, Reclamation’s Mid-Pacific Regional Office has determined that an Environmental Impact Statement is not required for issuance of 1-year temporary Warren Act contracts for conveyance of non-CVP groundwater, totaling up to 38,000 acre-feet annually, in CVP facilities, with one or more CVP water district contractors

FONSI No. NC-12-01

served by the Canals. This Finding of No Significant Impact (FONSI) is supported by Reclamation's Final Environmental Assessment, *Temporary Warren Act Contracts for Conveyance of Non-Central Valley Project Water in the Tehama-Colusa and Corning Canals in 2012*.

This FONSI is based on the following:

1. The proposed conveyance would not adversely affect the quality of human environment, involve unresolved conflicts concerning alternative uses of available resources, or have adverse effects on public health or safety.
2. The proposed conveyance of non-CVP groundwater will not adversely affect physical resources because it will only involve groundwater from existing wells through existing facilities to existing agricultural lands. There will be no changes in land uses and no new construction.
3. The proposed conveyance of non-CVP groundwater will not affect cultural resources because it will use only existing facilities and provide water to existing agricultural uses. There will be no changes in cultivation practices or any new construction that might affect otherwise undisturbed cultural resources.
4. The proposed conveyance of non-CVP groundwater will not affect listed species or designated critical habitats or birds protected by the Migratory Bird Treaty Act given the lack of changes in land use, including irrigation of any currently unirrigated land and stringent water quality standards.
5. No Indian Trust Assets will be affected.
6. The Proposed Action would neither interfere with the normal operations of Canals nor would it impede any State Water Project or CVP obligations to deliver water to other water district contractors or to local fish and wildlife habitat.
7. The proposed conveyance of non-CVP groundwater is consistent with federal policies on environmental justice.
8. The Proposed Action is not expected to have highly controversial or environmental effects or involve unique or unknown environmental risks nor would the Proposed Action be related to other actions with individually insignificant, but cumulatively significant, environmental effects.

FONSI No. NC-12-01

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4/05/2012  
Date

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April 6, 2012  
Date

# RECLAMATION

*Managing Water in the West*

## **Final Environmental Assessment – Temporary Warren Act Contracts for Conveyance of Non-Central Valley Project Water in the Tehama-Colusa and Corning Canals in 2012**

**Central Valley Project, CA  
Mid-Pacific Region**



**U.S. Department of the Interior  
Bureau of Reclamation**

**April 2012**

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# Introduction

The Bureau of Reclamation proposes to issue Warren Act contracts to requesting Central Valley Project (CVP) contractors within the Sacramento Canals Unit to convey groundwater in federal facilities.

## Background

Three contractors have requested a 1-year Warren Act (Act as of February 21, 1911, CH. 141, (36 Stat. 925)) (Warren Act) contract to pump groundwater into the Tehama-Colusa and/or Corning Canal (Canals) for conveyance and delivery during the period March 1, 2012, to February 28, 2013. In addition, the 14 other water districts served by the Canals may also request use of the Canals if dry hydrological conditions persist. The Warren Act authorizes Reclamation to negotiate agreements to store or convey non-CVP groundwater when excess capacity is available in federal facilities.

## Purpose and Need

California has experienced severe droughts in recent years that have reduced water supplies to many water districts. The hydrologic conditions for 2012 have been dry and water district contractors north of the Delta may get only 30 percent of their contract water supply. As a result, water districts served by the Canals may need additional water to supplement their 2012 CVP water supply for maintaining perennial crops.

## Reclamation's Legal and Statutory Authorities and Jurisdiction Relevant to the Proposed Federal Action

Several federal laws, permits, licenses, and policy requirements have directed, limited, or guided the National Environmental Policy Act (NEPA) analysis and decision making process of this environmental assessment (EA) and include the following:

- Contracts for Additional Storage and Delivery of Water—Central Valley Project Improvement Act (CVPIA) of 1992, Title 34 (of Public Law 102-575), Section 3408. Additional Authorities (c) authorizes the Secretary of the Interior to enter into contracts pursuant to Reclamation law and this title with any federal agency, California water user or water agency, state agency, or private non-profit organization for the exchange, impoundment, storage, carriage, and delivery of CVP and non-CVP groundwater for domestic, municipal, industrial, fish and wildlife, and any other beneficial purpose, except that nothing in this subsection shall be deemed to supersede the provisions of Section 103 of Public Law 99-546 (100 Stat. 3051). The CVPIA is incorporated by reference.

- Water Quality Standards – Reclamation requires that the operation and maintenance of CVP facilities shall be performed in such manner as is practical to maintain the quality of raw water at the highest level that is reasonably attainable. Water quality standards and monitoring requirements are established by Reclamation to ensure that imported non-CVP groundwater does not negatively impact existing water quality conditions (Appendix A).
- Title XXXIV CVPIA, October 30, 1992, Section 3405(a).
- Reclamation Reform Act, October 12, 1982.
- The Warren Act authorizes Reclamation to negotiate agreements to store or convey non-CVP groundwater when excess capacity is available in federal facilities.

## Scope

This EA has been prepared to examine the potential impacts on environmental resources as a result of the No Action alternative of not conveying non-CVP groundwater in federal facilities and the Proposed Action of conveying non-CVP groundwater in federal facilities.

Water districts considered in this EA in the effects analysis, and are likely to participate in this Proposed Action, are provided in Table 1. See Figure 1 for the general locations and service areas of these water districts relative to the Canals.

Table 1. Water districts that have formally requested or that may request Warren Act contracts for conveyance of groundwater in the Canals.

Water Districts and Canal Use	
Corning Canal	Tehama-Colusa Canal
Corning Water District Proberta Water District Thomes Creek Water District	4-M Water District <b>Colusa County Water District<sup>a</sup></b> Cortina Water District Davis Water District Dunnigan Water District Glenn Valley Water District Glide Water District Holthouse Water District Kirkwood Water District Kanawha Water District La Grande Water District Myers-Marsh Mutual Water Company <b>Orland-Artois Water District</b> <b>Westside Water District</b>

<sup>a</sup>Bolded names represent water districts that have formally requested Warren Act contracts for the 2012 water contract year.

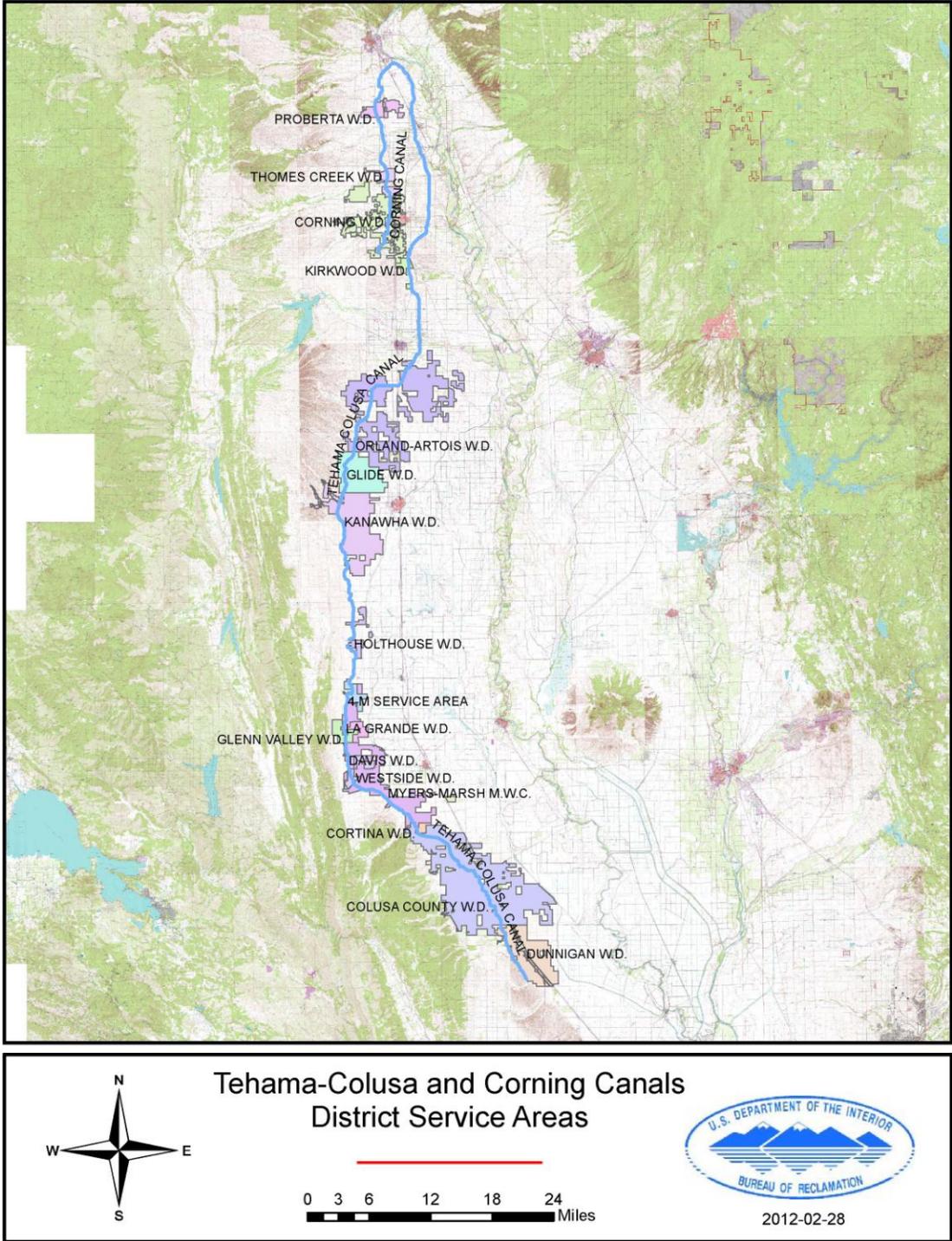


Figure 1. Water district service areas considered in the Proposed Action.

## **Resources Eliminated from Further Analysis**

Reclamation analyzed the affected environment of the Proposed Action and No Action alternative and has determined that there is no potential for direct, indirect, or cumulative effects to the following resources.

### **Cultural Resources**

There would be no impacts to cultural resources as a result of implementing the Proposed Action or No Action alternative. The Proposed Action would facilitate the flow of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action. The pumping, conveyance, and storage of water would be confined to existing wells, pumps, and CVP facilities. These activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).

### **Global Climate**

Neither the Proposed Action nor the No Action alternative would involve physical changes to the environment or construction activities and, therefore, would not impact global climate change. In addition, the Proposed Action is of short enough duration that this would not be an issue. However, global climate change is expected to have some effect on the snow pack of the Cascade Range and the runoff regime. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility, and, therefore, water resource changes due to climate change would be the same with or without the Proposed Action.

As there would be no impact to the resources listed above as a result of the Proposed Action or the No Action alternative, they will not be considered further.

## **Resources Requiring Further Analysis**

This EA analyzes the affected environment of the Proposed Action and the No Action alternative in order to determine the potential direct, indirect, and cumulative effects to the following resources:

- Physical Resources
- Biological Resources
- Socioeconomic Resources
- Indian Trust Assets
- Central Valley Project Operations
- Environmental Justice
- Air Quality
- Cumulative Impact

# **Alternatives Including the Proposed Action**

This EA considers two possible actions: the No Action 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.

## **No Action Alternative**

Under the No Action alternative, Reclamation would not enter into temporary Warren Act contracts in 2012 for conveyance of non-CVP groundwater in the Canals. Reliant water districts would be required to operate within the confines of the water supplies provided under their CVP water service contracts or obtain water by means other than transport through federal facilities. The existing Warren Act contract for the Colusa County Water District (CCWD) would remain in effect and only allow for up to 4,500 acre-feet of non-CVP groundwater to be conveyed in federal facilities in 2012 (Reclamation 2005).

This alternative was eliminated from further consideration because Reclamation law provides for conveyance of non-CVP water supplies in CVP facilities when capacity is available.

## **Proposed Action**

The Proposed Action is for Reclamation, on behalf of the United States, to enter into contracts with 3 or more of the 17 water districts served by the Canals. Currently, Colusa County, Orland-Artois, and Westside Water Districts, pursuant to the Warren Act, have requested use of the Canals to convey up to a total of 37,000 acre-feet of non-CVP groundwater in the Canals from March 1 of the current calendar year through the last day of February 2013. Additionally, 1 or more of the remaining 14 water districts served by the Canals may request Warren Act contracts for use of the Canals. In this latter case, however, the total amount of water likely to be requested by these 14 districts would be less than 1,000 acre-feet. District-specific quantities are provided in Table 2. This action would allow groundwater to be delivered to other areas to supplement diminished CVP water supplies as needed.

Table 2. Warren Act contract agreement quantities for pumping into the Canals.

Water District	Quantity (Acre-feet)
Colusa County Water District	20,000 <sup>a</sup>
Orland-Artois Water District	2,000
Westside Water District	15,000
All other water districts served by the Tehama-Colusa and Corning Canal	1,000

<sup>a</sup> A Warren Act contract for conveying up to 4,500 acre-feet of non-CVP groundwater in the Canals in support of the CCWD remains valid through contract water year 2014 (Reclamation 2005). The volume identified here does not include the existing Warren Act contract amount.

**Source of Non-CVP Groundwater**

The source of the non-CVP groundwater would be groundwater pumped from existing wells and discharged to and removed from the Canals through existing facilities or through facilities reviewed and permitted on an individual basis. Each water district would be responsible for accurate water measurement and associated costs as well as assuring the non-CVP groundwater meets all federal and California water quality standards and the Reclamation Standards for acceptance of non-CVP groundwater prior to entering the Canals (see Section 2.2.2 below).

**Environmental Commitment/Requirements for the Proposed Action**

Each participating district would be required to confirm that the proposed pumping of groundwater would be compatible with local groundwater management plans. Each district would be limited to pumping a quantity below the “safe yield” as established in their groundwater management plan, as applicable, in order to prevent groundwater overdraft and avoid adverse impacts.

Water quality and monitoring requirements are established by Reclamation. Details of Reclamation’s monitoring activities and water quality analyses used in support of this determination are provided in the Quality Assurance Project Plan (QAPP) for the Discharge of Non-Project Water into the Tehama-Colusa Canal (Appendix A). These standards were established to protect water quality in federal facilities by ensuring that imported water does not impair existing uses or negatively impact existing water quality conditions. The QAPP has been prepared by Reclamation in cooperation with the requesting water districts.

The water would be used for irrigation and/ or municipal and industrial purposes on established lands. There would be no new construction or excavation occurring as part of the Proposed Action. Pumping and conveyance would occur within existing wells, meters, pipes, water diversion, and field delivery facilities. No native or untilled land (fallow for 3 years or more) may be cultivated with the water involved with these actions. Most of the water would be used to sustain perennial crops, e.g., orchards.

In addition, each participating district will comply with applicable federal, state or local air pollution laws and regulations.

## **Affected Environment and Environmental Consequences**

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action.

### **Physical Resources**

The CVP area addressed under this EA consists of lands within or adjacent to the service areas of the water districts served by the Canals, which can be characterized as almost wholly cultivated land on flat to gently rolling terrain, with few streams. The streams in the area serviced by the Tehama-Colusa Canal are seasonal and terminate in the Colusa Drain.

No adverse impacts associated with the conveyance of non-CVP groundwater are anticipated as a result of the Proposed Action. The use of existing facilities means there would be no new surface disturbance. The water would merely use part of the excess capacity of the Canals.

New facilities would not be needed to distribute the water. The water would be conveyed and applied to existing agricultural land, almost all of which is expected to be land committed to perennial crops. No new lands would be cultivated under the Proposed Action. This would avoid any adverse effects on unique geological features such as wetlands, wild or scenic rivers, refuges, floodplains, rivers placed on the Nationwide River Inventory, or prime or unique farmlands.

Additionally, water in each well must meet water quality standards prior to approval for conveyance, and the monitoring of groundwater quality would continue throughout the contract year. If a well to be used for pumping water into the Canals does not meet the water quality standards, the district could not pump water from that well into the Canals. Appendix A provides details of routine testing of each well by Reclamation to confirm that the groundwater still meets standards. The contract also allows the Contracting Officer to stop a well from being used that fails to meet standards.

These findings indicate that there would be no adverse impact to water resources resulting from the Proposed Action.

## **Biological Resources**

The biological resources of the service areas involved in these possible water movements wholly consist of the biota of orchards and herbaceous crops and isolated remnants of native vegetation, mainly the riparian strips along the seasonal streams and oak savannahs in the as yet undeveloped portions of the service areas of the Canals.

No threatened or endangered terrestrial or aquatic species would be affected, as the groundwater would be taken from existing wells to avoid impacts to riparian resources and moved through existing lined or carefully maintained unlined canals and would be used on existing irrigated croplands. Stringent water quality standards for groundwater pumped into the Canals would alleviate concerns over poor water quality impacting other biological resources such as migratory birds covered under the Migratory Bird Treaty Act (MBTA). Conveyed groundwater would not reach streams containing listed fish species, so there would be no effect to these species.

## **Socioeconomic Resources**

The agricultural industry significantly contributes to the overall economic stability of the northern Central Valley. The CVP allocations each year allow farmers to plan for the types of crops to grow and to secure loans to purchase supplies. The economic variances may include fluctuating agricultural prices, insect infestation, changing hydrologic conditions, and increased fuel and power costs.

Under the terms of the Proposed Action, the Proposed Action would not adversely affect the quality of human environment, involve unresolved conflicts concerning alternative uses of available resources, or have adverse effects on public health or safety. On the contrary, the Proposed Action would help to mitigate the effects of the dry conditions on the local agricultural economies.

## **Indian Trust Assets**

There are no Tribes possessing legal property interests held in trust by the United States in the water involved with this action nor is there such a property interest in the lands designated to receive the water proposed in this action. Additionally, the existing wells are believed to be sufficiently far from any Rancheria or Tribe so that no Indian Trust Assets (ITA) would be affected. This action would have no adverse effect on ITAs (see Appendix B).

## **Central Valley Project Operations**

There would be no impacts to CVP operations as a result of the Proposed Action because only excess capacity of the Canals would be used for groundwater transport. The Proposed Action would neither interfere with the normal operations of the Canals nor would it impede any State Water Project or CVP obligations to deliver water to other water district contractors or to local fish and wildlife habitat. Furthermore, the Proposed Action would not interfere in the quantity or timing of diversions from the Sacramento-San Joaquin Bay Delta.

## **Environmental Justice**

Executive Order 12898 (February 11, 1994) mandates federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

The Proposed Action would be consistent with Department of the Interior environmental justice guidelines. Warren Act contracts would allow the water districts to use non-CVP groundwater for irrigation that would help maintain agricultural production and farm worker employment in drier years. Therefore, implementing the Proposed Action would not cause any harm to minority or disadvantaged populations within the Proposed Action area.

## **Air Quality**

The water to be pumped down the Canals would be via gravity, electric, and/or diesel pumps. There are no emissions from electrical engines and diesel pumps would not be expected to exceed applicable state or local air pollution control/air quality management districts. Therefore, there would be no adverse impact on air quality.

## **Cumulative Impacts**

The Proposed Action would not result in any adverse cumulative impacts and would not establish a new precedent for future actions. The Proposed Action would provide for the contract terms for 1 year and are not expected to have highly controversial or uncertain environmental effects or involve unique or unknown environmental risks nor would the Proposed Action be related to other actions with individually insignificant, but cumulatively significant, environmental effects.

# **Consultation and Coordination**

## **Fish and Wildlife Coordination Act (16 U.S.C. § 661 et seq.)**

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The Proposed Action does not involve any new impoundment or diversion of waters, channel deepening, or other control or modification of a stream or body of water as described in the statute, but only the movement of non-CVP groundwater through existing CVP facilities. Therefore, the FWCA does not apply.

## **Endangered Species Act (16 U.S.C. § 1531 et seq.)**

Section 7 of the Endangered Species Act requires federal agencies, in consultation with the Secretary of the Interior and/or Commerce, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of these species. The Proposed Action would have no effect to threatened or endangered species or designated critical habitats based on the lack of construction and the implementation of stringent water quality standards.

## **National Historic Preservation Act (16 U.S.C. § 470 et seq.)**

The National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.), requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations that implement Section 106 of the NHPA describe how federal agencies address these effects. Because no construction, new land use, or new ground disturbing activities would occur as a result of the Proposed Action, there would be no adverse impacts from the Proposed Action.

## **Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.)**

The MBTA implements various treaties and conventions between the United States and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the MBTA provides that it is

unlawful to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the MBTA, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits, and migratory flight patterns.

The Proposed Action would have no effect on birds protected by the MBTA based on the lack of construction and the implementation of stringent water quality standards.

### **Clean Water Act (33 U.S.C. § 1251 et seq.)**

Section 401 of the Clean Water Act (CWA) (33 U.S.C. § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the CWA (33 U.S.C. § 1342 and 1344). If new structures, e.g., treatment plants, are proposed that would discharge effluent into navigable waters, relevant permits under the CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual U. S. Army Corps of Engineers dredge and fill discharge permit (section 404) to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

No activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action; therefore, permits obtained in compliance with CWA are not required.

## **List of Preparers and Reviewers**

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Patricia Rivera, Indian Trust Assets, Mid-Pacific Region (MP-400)

## References

Reclamation. 2005. Approved Water Contract for Conveyance of Non-Project Water Between the United States and Colusa County Water District, United States Department of the Interior, U.S. Bureau of Reclamation, Mid-Pacific Region, Northern California Area Office, Shasta Lake, California.

# Appendices

# RECLAMATION

*Managing Water in the West*

## **Discharge of Non-Project Water into the Tehama Colusa Canal**

### **Quality Assurance Project Plan**

**U.S. Bureau of Reclamation, Mid-Pacific Region  
Environmental Monitoring Branch, MP-157**

**February 2012  
Final**



U.S. Department of the Interior  
Bureau of Reclamation  
Mid-Pacific Region

# Discharge of Non-Project Water into the Tehama Colusa Canal

## Quality Assurance Project Plan

\_\_\_\_\_  
Environmental Monitoring Team Project Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Quality Assurance Team Project Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Data Management Team Project Manager

\_\_\_\_\_  
Date

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# Project Management

## *I. Project/Task Organization*

Personnel from the Environmental Monitoring Branch (EMB) in the Mid-Pacific Region of the U.S. Bureau of Reclamation will maintain and review this quality assurance project plan (QAPP). Additionally, personnel from the EMB will collect the samples, incorporate external quality assurance samples, validate the analytical data, write a quality assurance summary report, enter data into the EMB database, and generate a data assessment. Individuals from the EMB responsible for these tasks are:

Stuart Angerer, 916-978-5046	Environmental Monitoring Chief
Christopher Garduno, 916-978-5038	Quality Assurance Specialist
Rosa Heredia, 916-978-5284	Database Entry
Nathan Hawley, 530-243-7234	Basic Laboratory
Regina Wixon, 605-692-7325	South Dakota Ag Labs

## *II. Problem Definition/Background*

The Tehama-Colusa Canal Authority (TCCA) is a Joint Powers Authority comprised of 17 Central Valley Project water contractors. The service area spans four counties (Tehama, Glenn, Colusa, and Yolo) along the west side of the Sacramento Valley, providing irrigation water to farmers growing a variety of permanent and annual crops. TCCA operates and maintains the 140 mile Tehama-Colusa and Corning canals irrigation water supply system. The service area is approximately 150,000 acres, producing over \$250 million in crops per year, and contributing \$1 billion to the regional economy annually.

The Bureau of Reclamation, in accordance with the Warren Act of 1911, has allowed the introduction of Non-Project water into the Tehama Colusa Canal (TCC) to supplement the drought-diminished CVP supply.

New Warren Act Contracts are being negotiated that would allow the introduction of groundwater from wells (Non-Project water) into the canal. Wells sampled under this project plan will be assessed to meet the criteria outlined in this plan. The project described in this Quality Assurance Project Plan (QAPP) will ensure that water quality monitoring data is reliable, accurate, and timely, all of which are necessary to confirm whether or not the conveyance of Non-Project water will affect the quality of CVP water in the canal.

Criteria selected for assessing water quality was generated based on the designation of beneficial uses of the water in the canal for agricultural purposes and freshwater aquatic life. The more conservative standards used were established in A Compilation of Water Quality Goals.

### III. Project/Task Description

The overall goal of this program is to monitor the quality of Non-Project well water entering the TCC. General tasks for this program are listed below:

1. Collect water samples from the wells.
2. Measure and record the EC, pH, of well water at times of sample collection
3. Analyze chemical characteristics of field and quality assurance samples via contract laboratories
4. Reviews verified analytical results and compare them to the water quality standards.

### IV. Quality Objectives and Criteria

**Table 1 - Water Quality Standards**

Table 1 references see appendix 1

<b>WATER QUALITY STANDARDS FOR ACCEPTANCE OF GROUNDWATER INTO TEHAMA-COLUSA CANAL TO CONVEY WATER BY THE WARREN ACT, 2011</b>		
<b>Constituent</b>	<b>Water Quality Standard µg/L unless otherwise noted</b>	<b>Source</b>
<b>Aluminum</b>	87	USEPA
<b>Arsenic</b>	100	Ag
<b>Beryllium</b>	100	Ag
<b>Boron</b>	700	Ag
<b>Cadmium</b>	1.1*	CTR
<b>Chloride</b>	106,000	Ag
<b>Chromium III</b>	84.0*	NTR
<b>Cobalt</b>	50	Ag
<b>Copper</b>	4.1*	CTR and USEPA
<b>Fluoride</b>	1000	Ag
<b>Iron</b>	1000	USEPA
<b>Lead</b>	0.92*	CTR and USEPA
<b>Manganese</b>	200	Ag

Constituent	Water Quality Standard	Source
Mercury	0.77**	USEPA
Molybdenum	10	Ag
Nickel	24*	CTR and USEPA
pH	6.5 – 8.4 units	Ag
Selenium	5	CTR
Silver	0.71*	CTR
Sodium	69000	Ag
Specific Conductance	700 $\mu$ S/cm	Ag
TDS	450000	Ag
Zinc	54*	CTR and USEPA

See Appendix 1 for a description of acronyms and symbols

**Table 2. – Data Quality Objectives (Analytical Laboratory)**  
Required Reporting Limits

Parameters	Reporting Limit (ug/L)*	Laboratory
Aluminum	5	Basic
Arsenic	0.5	Basic
Beryllium	0.5	Basic
Boron	25	Basic
Cadmium	0.25	Basic
Calcium	1000	Basic
Chloride	1000	Basic
Chromium	0.5	Basic
Cobalt	0.5	Basic
Copper	0.5	Basic
Fluoride	200	Basic
Iron	50	Basic

Parameters	Reporting Limit (ug/L)*	Laboratory
Lead	0.5	Basic
Magnesium	1000	Basic
Manganese	0.5	Basic
Mercury	0.2	Basic
Molybdenum	0.5	Basic
Nickel	1	Basic
Selenium	0.4	SD Ag Lab
Silver	0.5	Basic
Sodium	1000	Basic
TDS	6,000	Basic
Zinc	2	Basic

**Table 3. Quality Assurance Acceptance Criteria for DMCSL Program**

Result or Spike Value	Precision	Accuracy	Contamination
$\geq 5 \times \text{RL}$	$\leq 20\% \text{ RPD}$	80%-120% Recovery	$\leq 2 \times \text{RL}$ , or $\leq 10\%$ of the lowest production sample result
$< 5 \times \text{RL}$	$\pm 1 \times \text{RL}$	$\pm 1 \times \text{RL}$	

**Table 4. – Data Quality Objectives (Field Instruments)**

Parameter	Method/range	Units	Detection Limit	Sensitivity	Precision	Accuracy	Completeness
<b>pH</b>	pH meter	pH units	2.0	0.1 unit	$\pm 0.2$ units	$\pm 0.2$ units	80%
<b>Conductivity</b>	conductivity meter	$\mu\text{S/cm}$	10	10 $\mu\text{S/cm}$	$\pm 10\%$	$\pm 10\%$	80%

### **V. Special Training/Certifications**

No special training or certifications are required for this investigation.

### **VI. Documentation and Records**

#### **Field Logbook**

Field logbooks are carried in the field and entries are made by field personnel at the time of sample collection. Logbook entries document the following information:

- Project name
- Site name
- Sample collection date
- Start and end times for sample collection
- Weather/sampling conditions
- QA samples collected
- Sample IDs
- Sampling methods
- Decontamination
- Parameters and matrices collected
- Field measurements
- Water clarity
- Unusual conditions that might affect the samples

After entering the required information, logbook entries are signed by all field personnel. The logbook is then securely stored in the EMB office.

### **Field Sheet**

Field sheets provide duplicate documentation of essential sampling information. Field sheets document the following information:

- Project name
- Sampler name
- Sample IDs
- Sample collection date
- Site name
- Field measurements
- QA type
- Parameters and matrices collected

Field sheets are filed in the EMB office and are used by database personnel to make entries into the Environmental Monitoring database. When older than two years, field sheets are stored at the EMB's El Camino Plaza facility.

### **Instrument Calibration Sheet**

The instrument calibration sheet documents the information from an initial calibration, performed prior to instrument use, and information from a verification check, performed after all sampling for that day is completed. Information documented on the instrument calibration sheet should include:

- Project name(s)
- Date
- Time(s)
- Field sampler's name
- Instrument type
- Instrument number
- Standard value
- Initial value
- Adjusted value
- Post value

The instrument calibration sheets are filed in the EMB office.

### **Chain of Custody**

Chain of Custody forms (COCs) document the custody of samples from the time samples are collected to the time they are delivered to the laboratory. EMB personnel initiate COC documentation while in the field. Information recorded on the COC include:

- Project name
- Project manager
- Title and signature of sample collector
- Name of the designated analytical laboratory
- List of sample IDs
- Date and time samples were collected
- Sample matrix type
- Number of containers per sample ID
- Analyses requested
- Point of contact phone number
- Date, time, and signatures of all parties responsible for receiving and relinquishing the samples from the time of collection to the time of delivery to the laboratory

Signed COCs accompany all samples to the laboratory. A copy of the COC is returned to the EMB by the laboratory, and then filed with the field sheets in the EMB office. After two years, COCs are transferred to the EMB's El Camino Plaza facility for long term storage.

### **Spike Book**

The QA Specialist is responsible for documenting the necessary information pertaining to the QA samples in the spike book. A spike book is a bound notebook that contains spike worksheets. Information documented on the spike worksheet can include:

- Project and site names
- Sample collection date(s)
- Batch identification number
- Range of sample ID numbers assigned to the batch of samples
- Range of laboratory ID numbers assigned to the batch of samples
- Types of QA samples incorporated and spike/reference concentrations
- Field IDs that correspond to the QA samples
- Lot numbers of reference materials used
- Historical background levels for parameters
- Dated initials of QA personnel incorporating the QA samples

Spike books are stored in the EMB office when not in use.

### **Analytical Report**

The laboratory generates the analytical report. The analytical report documents the analytical results for each parameter analyzed on each sample submitted. The analytical report generally includes the case narrative, analytical results, reporting limits for parameters, methods used to analyze the sample, dates samples were collected, prepared, and analyzed, and the laboratory's quality control (QC) results.

Following QA review and entry of the analytical results into the database, reports are stored with the field sheets and COCs at the EMB office. After two years, storage is transferred to the EMB's El Camino Plaza facility.

### **Data Assessment / Data Tables**

Database personnel will generate tables from the EMB database. The Project Manager will use the tables to produce an assessment report for the well sites.

### **Quality Assurance Summary Report**

The QA Officer will generate a QA summary report that discusses the results of the external QA samples, the results of the laboratory's QC samples, completeness, sample holding times, and circumstances that may affect data quality. The QA summary report will accompany the data tables and assessment report.

## **Data Generation and Acquisition**

### ***VII. Sampling Process Design***

The experimental design for this project is intended to obtain a representative sample of groundwater at each pump / well . Analysis of these samples will determine whether or not the ground water is of sufficient quality to support the following beneficial uses:

1. agricultural
2. protection of fresh water aquatic life

Sampling under this project plan is expected to occur on an "as needed basis".

### ***VIII. Sampling Methods***

At each pump / well, samples are collected from the discharge point. The well is to be turned on and allowed to run until three well casing volumes are discharged; the sample is then collected directly into the sample bottles or into a precleaned churn splitter. For QA sites, the sample is initially collected into a churn splitter, mixed thoroughly (churn moved up and down 10 times), and then split up to three ways into the sample bottles. The churn splitter and all sample bottles without chemical preservation must be rinsed three times with the site water prior to being filled. In addition, the churn splitter must be rinsed three times with DI water after use at a site. After collection, the samples are placed on (blue) ice in a cooler and transported to the EMB's El Camino Plaza facility or shipped directly from the field to the contract laboratory (short hold time constituents). At the EMB's El Camino Plaza facility, the samples are stored at 4°C in refrigerators.

Physical measurements will be collected in the field per EMB's SOPs. Physical measurements will include pH and E.C.

**IX. Sample Handling and Custody**

EMB personnel collect samples into appropriate, pre-preserved containers (Table 5). Samples are placed on blue ice and stored in coolers during collection and while in transit. Upon arrival to the EMB's El Camino Plaza facility, the samples are refrigerated and custody is relinquished to the QA Specialist via COC(s).

As detailed in section XI, the QA Specialist will incorporate blind QA samples. Following QA sample incorporation, the QA Specialist will relinquish the samples to the laboratories using COC, pack the samples on blue ice in cooler(s), and then ship the samples and COC in the cooler(s) to the project laboratories (Table 1). The laboratories then document receiving the samples on the COC with the date of receipt and a signature.

Samples are collected using appropriate parameter bottles, processed, and shipped to the laboratories in a timely manner to ensure all holding times are met (Table 5). The laboratories must have adequate time to prepare and analyze the samples within the parameter's holding time.

**Table 5 - Required Bottle Sizes, Sample Preservation, and Sample Hold Times**

Constituent	Bottle / Preservative	Hold Time
<b>Metals</b> Al, As, Be, B, Ca, Cd, Cr, Co, Cu, Fe, Hg, Pb, Mg, Mn, Mo, Ni, Ag, Na, Zn	HDPE 500 ml / HNO3	6 months for all metals except Hg; Hg 28 days
<b>Chloride, Fluoride, TDS</b>	HDPE 1000 ml / none	7 days TDS; 28 days for chloride and fluoride
<b>Selenium</b>	HDPE 125 ml / HNO3	180 days

Calcium and Magnesium added for hardness calculation

## ***X. Analytical Methods***

***Table 6 – Analytical Methods***

<b>Parameter</b>	<b>Method</b>
Aluminum	EPA 200.8
Arsenic	EPA 200.8
Beryllium	EPA 200.8
Boron	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chloride	EPA 300.0
Chromium	EPA 200.8
Cobalt	EPA 200.8
Copper	EPA 200.8
Fluoride	EPA 300.0
Iron	EPA 200.7

Lead	EPA 200.8
Magnesium	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.8
Nickel	EPA 200.8
Selenium	Fluorometric/SM 3500C
Silver	EPA 200.8
Sodium	EPA 200.7
TDS	SM 2540 C,E
Zinc	EPA 200.8

## ***XI. Quality Control***

Quality Control procedures and protocols are fully outlined in the Environmental Monitoring Branch's Standard Operating Procedures for Quality Assurance, May 2009 document. Following is a brief summary of the QA activities that pertain to this project.

### **External Quality Assurance Samples**

Blind, external QA samples are incorporated into sample batches that are submitted to the laboratory for inorganic, gross alpha and microbiological parameters. The QA samples assess the laboratory's ability to prepare and analyze samples with an acceptable level of precision and accuracy without introducing contamination to the sample. If any of the inorganic or radiochemical external QA samples do not meet the criteria stated in Table 3, the samples are reanalyzed. If the laboratory is unable to confirm the original result upon reanalysis, a bracket of samples or the entire batch of samples are submitted for reanalysis. Due to the nature of the samples, microbiological samples cannot be reanalyzed. External QA samples are described below.

#### **Accuracy**

Matrix spike/reference samples are incorporated to assess accuracy. They are incorporated at a rate of 10% of the production samples. If less than 10 production samples are collected, at least one spike or reference

sample is incorporated. Spike accuracy is assessed using percent recovery:

$$PR = \frac{(S - R)}{A} (100)$$

PR = Percent Recovery  
 S = Spiked Sample Result  
 R = Background Sample Result  
 A = Amount of Spike Added

The PR for a reference sample is calculated as follows:

$$PR = \left( \frac{F}{MPV \text{ or } MPN} \right) (100)$$

PR = Percent Recovery  
 F = Reference Sample Result  
 MPV = Most Probable Value  
 MPN = Most Probable Number

### Precision

Duplicate samples are incorporated to assess precision. They are incorporated at a rate of 10% of the production samples. If less than 10 production samples are collected, at least one duplicate sample is incorporated. Precision is assessed using relative percent difference (RPD):

$$RPD = \frac{|R - D|}{\left( \frac{R + D}{2} \right)} (100)$$

RPD = Relative Percent Difference  
 R = Regular Sample Result  
 D = Duplicate Sample Result

### Contamination

DI water blank samples are incorporated to assess laboratory contamination. They are incorporated at a rate of 5% of the production

samples. If less than 20 production samples are collected, at least one blank sample is incorporated.

### **Laboratory Quality Control Samples**

The laboratory incorporates QC samples at the frequencies specified in the analytical method and their laboratory SOP for the method. The results of the QC samples are assessed based on the acceptance criteria in the analytical method and the laboratory SOP for the method. If any laboratory QC samples do not meet the established acceptance criteria, the laboratory follows the corrective action protocols detailed in the analytical method or the laboratory SOP for the method.

### **Holding Times**

The date of the sample preparation/analysis is compared to the date the sample was collected to ensure the sample was prepared and analyzed within the holding time. If the holding times are exceeded, the Program Manager determines if re-sampling is required. If re-sampling is not required, the QA Officer qualifies the data as necessary. Applicable hold times are listed in Table 5.

### **Completeness**

If the completeness criterion is not met, then appropriate re-sampling will occur. Completeness is determined by calculating the following:

$$\%completeness = \left( \frac{V}{n} \right) \left( 100 \right)$$

V = Number of Valid Results  
n = Total Number of Results

## ***XII. Instrument/Equipment Testing, Calibration, Inspection, and Maintenance***

### **Field**

Portable (hand held) instruments are calibrated according to manufacturer's protocol. For each sampling episode (whether taking place in one day, or over a number of days), instruments are calibrated every day and within four hours of taking the first measurement. Calibrations are verified with calibration standards within four hours of recording the last measurement of the day. All calibration information is recorded on a calibration sheet.

### **Laboratory**

Maintenance procedures for instruments used by the contract laboratories for this project are detailed in the contract laboratory's QA manual. All instrument

maintenance is documented in logbooks. Instrument calibration procedures are specified in the analytical methods for each parameter.

### ***XIII. Inspection/Acceptance for Supplies and Consumables***

Pre-preserved, certified clean bottles (sample collection), certified calibration standards (preparation of project-specific spike solutions), and certified reference materials are ordered from outside vendors. All bottles and reagents are inspected prior to use. If any damage or contamination is suspected, packages are not accepted.

Spike solutions used to prepare the matrix spikes have been certified by the EMB to be within 90%-110% of the expected parameter value prior to use.

Field calibration references are certified.

### ***XIV. Data Management***

The alpha-numeric field sample identification (ID) assigned for this project is TCCNP\_W [number]. Numbers are assigned sequentially, beginning with 001.

Database personnel enter field measurements and laboratory data into the Environmental Monitoring Database. By entering QA specific data from the Environmental Monitoring Database into Microsoft Excel tables, the QA Officer will generate the QA summary report. Prior to releasing data or reports from the Environmental Monitoring Database, data entries are secondarily reviewed.

All data are entered into the Environmental Monitoring Database in accordance with EMB's Data Management Team (DMT) SOP. As a QC check, all data entered is secondarily reviewed by an additional DMT member and initialed. After all data has been entered into the database, the data is signed and filed in project binders. Project binders are locked in a file cabinet in the EMB office and must be signed out when removed.

## **Assessment and Oversight**

### ***XV. Assessments and Response Actions***

EMB's Quality Assurance Team (QAT) performs laboratory, field, and documentation audits.

#### **Laboratory**

The three-tier audit consists of reviewing the laboratory's QA Manual, reviewing the laboratory's performance evaluation (PE) sample results, and conducting an intensive, on-site, system audit of the laboratory. The laboratory's expertise in conducting analyses, their capability of generating valid data, their ability to effectively support the data, and the integrity of their QA/QC practices are assessed during the on-site audit. Laboratory

audits are conducted every three years. The audit reports are issued to the laboratory. The laboratory then issues a response with corrective actions to the EMB. At that time, the QAT determines whether or not to approve the laboratory for use and contacts the laboratory with their decision.

### **Field**

The field audit consists of reviewing the SOP, submitting PE samples and reviewing the results, and accompanying the field sampler during the sample collection process. The QAT assesses the field sampler's expertise in collecting representative samples. Field audits are conducted every two years. The field audit reports are sent to the field sampler and to the field sampler's Supervisor. The Supervisor is responsible for issuing corrective actions.

### **Documentation**

The yearly documentation audits are performed on a percentage of field logbook entries along with the corresponding field sheets and field instrument calibration sheets. The QAT assesses if documentation is adequate, if all entries have been recorded, and whether or not the work was performed in accordance with the EMB's documentation protocol.

## ***XVI. Reports to Management***

Following secondary review by DMT members, data and QA summary reports are submitted to the EMT for assessment.

## **Data Validation and Usability**

### ***XVII. Data Review, Verification, and Validation***

If all external QA samples and laboratory QC samples meet the acceptance criteria and all samples are analyzed within the holding time, all data is accepted as valid.

If a result is confirmed after reanalysis, the result is accepted as valid.

Data may be qualified if results demonstrate unacceptable QA, if the laboratory QC sample results are unacceptable, or if the holding times were exceeded.

Based on the qualification, the data assessor (Project Manager) determines the usability of the data.

## ***XVIII. Verification and Validation Methods***

The QA Officer validates the data by following the guidelines in the EMB's *SOPs for Quality Assurance* document, dated May 2009. Validation consists of reviewing the results of external quality assurance samples and laboratory quality control results. Holding times and completeness will also be assessed.

If any of the external QA sample results for inorganic parameters do not meet the acceptance criteria stated in Table 3, the samples are submitted for reanalysis. If the laboratory confirms the original result, the original data is accepted based on the laboratory demonstrating that sample preparation and instrumentation was run properly on the initial analysis. If the original result cannot be confirmed, the laboratory must then analyze a bracket of samples or the entire batch of samples an additional time for the parameter. The bracket of samples or the entire batch of samples that has been analyzed an additional time is then evaluated for the parameter to see if the results meet the acceptance criteria in Table 3.

Professional judgment is used to decide which set of data to accept and whether or not the data should be qualified if both sets of data demonstrate unacceptable external QA sample results.

## ***XIX. Reconciliation with User Requirements***

Any qualified results will be identified to the data entry staff (DMT) by completing the Qualified Results form per EMB protocol. Additionally, if results are qualified, the result will be marked with a footnote on the data table submitted to the data assessor (Project Manager); the footnote will detail the qualification.

## ***XX. References***

Marshack, J.B., 2008, A compilation of water quality goals: Sacramento, Calif., California Regional Water Quality Control Board  
<http://www.waterboards.ca.gov:8080/WaterQualityGoals>

## **Appendix 1. Table 1 references**

\* - Values are based on a hardness of 40mg/L (4-day average) dissolved concentrations

\*\* - Used the USEPA National Recommended Ambient Water Quality Criteria for Freshwater Aquatic Life Protection since no established agriculture standard and no Freshwater Aquatic Life Protection standard under the California Toxic Rule.

Ag = Ayers, R. S. and D.W Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations- Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985)

CTR = California Toxics Rule, Criteria to Protect Freshwater Aquatic Life

NTR = Life in California Waters

USEPA = U.S. Environmental Protection Agency, National Recommended Water Quality Criteria to Protect Freshwater Aquatic Life

Updated 12/2011 SA

Appendix B.

**Zedonis, Paul A**

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**From:** Rivera, Patricia L  
**Sent:** Saturday, March 31, 2012 10:34 AM  
**To:** Zedonis, Paul A  
**Subject:** RE: ITA Concurrence -Warren Act Contract TCC&CC 2012

Paul,

I reviewed the proposed action to issue to Colusa County Water District (CCWD), the Orlan-Artois Water District (OAWD), and the Westside Water District (WWD) to convey up to 37,000 acre-feet of pumped groundwater into the Tehama-Colusa and Corning canal in 2012. In addition, the remaining 14 water districts served by the Canals may seek up to a combined total of 1,000 acre-feet of groundwater. The water would be used for irrigation and M&I purposes on established lands. There would be no new construction or excavation occurring as part of the Proposed Action. Pumping and conveyance would occur within existing wells, meters, and pipes, water diversion, and field delivery facilities.

The proposed action does not have a potential to affect Indian Trust Assets.

Patricia

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**From:** Zedonis, Paul A  
**Sent:** Friday, March 30, 2012 10:55 AM  
**To:** Rivera, Patricia L; Robbins, Eleanor J (Ellie)  
**Cc:** Wolder, Natalie L; Reck, Donald R; Robertson, Richard P.  
**Subject:** ITA Concurrence -Warren Act Contract TCC&CC 2012

Hi Patricia and Eleanor,

I am in need of an ITA concurrence for the Action of Issuing Temporary Warren Act Contracts to water districts served by the Tehama-Colusa and Corning Canals in the 2012 water contract year. Attached you will find a completed ITA request form and supportive documentation (the Draft EA) to assist in your determination.

And, I would also like to request a relatively quick turnaround on this determination if at all possible. Being new to Reclamation, I am just beginning to learn the ropes of this new position and I am what I would call slightly tardy on this assignment. Of course my future goal is to avoid such crises to provide more breathing room for all parties involved.

Thanks for your assistance on this important matter.

Best Regards,  
Paul

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