RECLAMATION
Managing Water in the West

Environmental Assessment

Supplement to the Program Allowing Five-Year Warren Act Contracts for Conveyance of Groundwater in the Tehama-Colusa and Corning Canals – Contract Years 2013 through 2017 (March 1, 2013, through February 28, 2018)

EA 14-02- NCAO

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
Northern California Area Office

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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 commitment 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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Section 1 Introduction

1.1 Background

In 2013, the Bureau of Reclamation (Reclamation) prepared an environmental assessment (EA) for *Five-Year Warren Act Contracts for Conveyance of Groundwater in the Tehama-Colusa and Corning Canals – Contract Years 2013 through 2017* (EA 13-03). The Finding of No Significant Impact (FONSI) was signed on May 15, 2013. Since that time, a formal declaration for a "Drought State of Emergency" by California has agricultural interests served by the Tehama-Colusa Canal (TCC) and Corning Canal (CC) (collectively, Canals) concerned that Central Valley Project Water (Project Water) allocations may be severely reduced and the previously approved quantities of groundwater that may be conveyed in Reclamation facilities may be inadequate to meet their needs. As a consequence, Reclamation proposes to modify its proposed action to: 1) accommodate requests by water and irrigation districts (Districts) to discharge greater quantities of groundwater for conveyance in the Canals; and 2) change the water quality criteria to determine eligibility of groundwater discharges to the Canals during years that are classified as being in a "Drought State of Emergency" by California.

This Environmental Assessment (EA) has been prepared to evaluate and disclose any potential environmental impacts associated with these changes to the Proposed Action as originally described in EA 13-03, which is hereby incorporated by reference. Detailed changes in the effects are only described if they are significant.

1.2 Need for the Proposal

The need for the Proposed Action remains unchanged from EA 13-03.

Section 2 Proposed Action and Alternatives

2.1 No Action Alternative

Reclamation would not approve water district requests to convey additional water within the Canals beyond those approved in EA-13-03. Similarly, the water quality criteria used to determine which groundwater wells could participate in WACs would remain the same as the EA 13-03.

2.2 Proposed Action

The Proposed Action now includes a 35.3 TAF increase in the quantity of water that could be conveyed in the Canals raising the total to 79.8 TAF. This increase is in response to requests by six water districts served by the Canals that included Colusa County WD, Davis WD, Glenn Valley WD, Westside WD, Dunnigan WD and Glenn

Colusa ID (Table 1). New District-specific quantities would apply for the entire time period considered in EA 13-03, or March 1, 2013, through February 28, 2018.

In addition to the environmental commitments identified in Section 2.2.1 of EA 13-03, this supplement incorporates new water quality criteria for determining the eligibility of groundwater to be discharged to and conveyed in the Canals in "Drought Years" (Appendix A). "Drought Year" criteria would only apply in years declared as a "Drought State of Emergency" (DSOE) by California, such as 2014. The "Drought Year" criteria are based on agricultural standards with aquatic life standards added for a few constituents where agricultural standards were not available. In contrast, the water quality criteria for years other than Drought Years (Non-Drought Years) are more stringent, comprised mainly of criteria for aquatic life with a few agricultural standards (See EA 13-03). The "Drought Year" criteria are intended to protect the beneficial use for agricultural water supply. To meet this goal, review of current and projected operations in the Canals would be conducted by each District that may have concerns. If a review identifies a water quality concern and it cannot be resolved, the Tehama-Colusa Canal Authority or Reclamation would have the jurisdiction to stop any discharge to the Canals at any time.

Any construction activities that may be directly related to this Project would be subject to separate environmental review. This could include construction of any discharge facilities to the Canals in support of conveying water for WACs.

Table 1. Non-Project Water quantities previously approved (EA 13-03) for Warren Act Contracts and proposed quantities of the Proposed Action

Water District	Service Canal	Water Quantity (Acre-feet)		
		Previously Approved	Proposed Increase	Total
4-M WD	TCC	0	0	0
Colusa County WD	TCC	22,000	10,000	32,000
Corning WD	CC	500	0	500
Cortina WD	TCC	1,000	0	1,000
Davis WD	TCC	3,500	500	4,000
Dunnigan WD	TCC	0	10,000	10,000
Glenn Colusa ID	TCC	0	5,000	5,000
Glenn Valley WD	TCC	300	300	600
Glide WD	TCC	0	0	0
Holthouse WD	TCC	0	0	0
Kirkwood WD	TCC	0	0	0
Kanawha WD	TCC	0	0	0
La Grande WD	TCC	0	0	0
Myers-Marsh Mutual Water Company	TCC	0	0	0
Orland-Artois WD	TCC	10,800	0	10,800
Proberta WD	CC	0	0	0
Thomes Creek WD	CC	0	0	0
Westside WD	TCC	5,000	10,000	15,000
Other WDs (combined)[a]	TCC/CC	900	0	900
Total	**--**	**44,000**	**35,300**	**79,800**

a – refers to water districts that did not formally identify a need for WACs.

Section 3 Affected Environment & Environmental Consequences

This EA analyzes the affected environment of the Proposed Action and the No Action Alternatives in order to determine the potential direct, indirect, and cumulative effects to water resources, land use, air quality, biological resources, and socioeconomic resources. As in EA 13-03, the effects to other resource areas were determined to be minor and unchanged.

3.1 No Action Alternative

Under the No Action Alternative, there would be no change to existing conditions and current trends of the affected environment. Use of WACs would continue and water discharged to the Canals would be limited to volumes and water quality specified by EA 13-03.

3.2 Proposed Action

3.2.1 Water Resources

Water Quantity

Use of WACs in the past six years has shown that while a substantial quantity of water may be approved for conveyance by Districts served by the Canals, the quantity of groundwater that is actually conveyed is typically small, even during drought-like years when presumably a greater need would be present (i.e., 2009 and 2013) (Table 2). In these years, the total quantity of water conveyed was 3.2 and 2.1 TAF, representing 22% and 9% of the approved quantities, respectively. In contrast, in years of greater Project Water availability, the Non-Project water quantity is usually much smaller. For example, in 2010, the quantity on Non-Project water conveyed was 14 af. In most years, only a few water districts generally participate in this program. Colusa County WD has been the only one that participates on an annual basis.

Under the Proposed Action, conveyance of Non-Project water is likely to increase in 2014 because the allocation of Project Water to the north of the Delta agricultural water service contractors is an unprecedented zero (0) percent of their agricultural contract water supply and 40% for Sacramento River Settlement Contractors (Settlement Contractors) (Reclamation New Release, Feb 21, 2014). Without the Project Water supply, the participating Districts would be forced to use mainly groundwater resources. Other sources such as transfers of Project Water from Settlement Contractors are likely to be limited, if available at all. In turn, the increased use of groundwater is anticipated to increase the reliance upon WACs, to move this water to areas of greatest need.

Under the Proposed Action, the quantity of water that would be allowed in the Canals would be greater than the No Action Alternative, but it would not exceed capacity. Water conveyed as part of the Proposed Action would occur over several months (February thru

Table 2. Historic use of Warren Act Contracts to move water in the Tehama-Colusa Canal, 2008 – 2013 (Note: No Warren Act contracts were established for the Corning Canal during this time period)

Contract Water Year	North of Delta CVP Allocation[a]	Water District	Water Quantity (Acre-feet)		
			Approved	Used	% Used
2008	40% (6/3/2008)	Colusa County WD	4,500	2,277	50.6
2009	40% (5/22/2009)	Colusa County WD Glenn Valley WD Orland-Artois WD **Total**	4,500 500 10,000 15,000	3,043 45 169 3,257	67.6 9.0 1.7 21.7
2010	100% (6/14/2010)	Colusa County WD	4,500	14	0.3
2011	100% (4/25/2011)	Colusa County WD	4,500	508	11.3
2012	100% (4/27/2012)	Colusa County WD	4,500	163	3.6
2013	75% (5/14/2013)	Colusa County WD Glenn Valley WD **Total**	22,000 600 22,600	1,768 335 2,103	8.0 55.8 9.3

a – Final CVP allocations to Agricultural Contractors.

September). As a consequence, the spatial and temporal distribution of the quantities contemplated would be small relative to the overall capacity of the Canals. For example, it is anticipated that the total flow in any section of the TCC would certainly be less than 100 cfs and the capacity of the TCC is ~ 2500 cfs at the entrance at Red Bluff to about 1,700 cfs at the terminus near the town of Dunnigan. As a consequence, ample space would be available for movement of all approved discharges to the TCC in 2014 and no competition between Districts for use of canal space would be anticipated. A similar effect would be anticipated in the Corning Canal. Even if the Project Water allocation improves allowing Project Water to flow in the Canals, ample capacity would be available; however, there could be a commensurate decrease in groundwater discharge and conveyance in the Canals if either of these conditions occurs.

Water Quality

Under the Proposed Action, changing the threshold water criteria to mainly agricultural standards would also increase the number of wells that could participate in the program under a "Drought Year." In turn, this would likely increase the quantity of water that would be conveyed in the Canals in 2014. This increase in quantity would further increase the flexibility of each participating District to move more water where and when it is most needed.

Water quality concerns are not anticipated despite the greater participation that would likely occur in 2014. This is because nearly all of approved well discharges already meet the more stringent of the water quality criteria for Non-Drought years or the threshold

values for protection of agricultural crops (Appendix A). The few wells that exceed the threshold criteria for agricultural use would still be well below the "Limit" criteria and allowed to participate. The expectation is that these discharges would mix with a larger volume of better quality water within the Canals that would dilute constituent concentrations that could be a concern. Monitoring of in-canal water quality at some of these locations may be warranted, if a District has concerns over the quality of their diverted water. If needed, remedial actions would be resolved through the Tehama-Colusa Canal Authority.

Another reason that water quality is not likely to be a concern for any user is that most discharges to the Canals are typically diverted within a few miles of the point of discharge and each District is well aware of the quality of water that they are pumping and diverting. The same would be true for a diversion of a discharge that occurs over a longer distance (tens of miles); however, determining the resulting water quality in the canal under such conditions can be complicated. This is because over such long distances there could be varying proportions of several different wells blended to make up this water, and to a lesser extent evaporation could affect the constituent concentrations. To assist in this understanding and to help understand these dynamic, in-canal water quality monitoring would be used, if warranted, along with a review of present and future intended operations (i.e. discharges and diversions along the Canals). Implementing monitoring would provide assurance to each diverter that the water quality is suitable to meet their needs. Questions each District might consider in their review include: where are discharges and diversions occurring? Is there any CVP water mixing with the well water in the Canals? What is the water quality (e.g. constituent concentrations of concern) of each discharge and diversion? And, is there any concern?

If Project Water allocations improve in 2014 and Project Water is available for conveyance in the Canals, the overall effect would be improved availability of water to meet irrigation needs, but also improvements to the in-canal water quality. Water quality of the Project Water is generally low in most constituents of concern (S. Angerer Pers. Comm.). Because of this, the addition of surface water to the Canals would dilute the groundwater discharges to the Canals. In this scenario, Districts at the head of each Canal (e.g., Red Bluff) would experience the greatest improvement to water quality while those at the end of the Canals (e.g. Dunnigan WD) would likely see the least amount of improvement. Depending on the allocation and timing of these deliveries, there could be a reduction in groundwater pumping because of reduced canal capacity or lower demand.

Groundwater Resources

The Proposed Action would allow for greater groundwater pumping than the No Action Alternative. Groundwater pumping from the Sacramento groundwater basin could increase by 35.3 TAF over the No Action Alternative. While it is unlikely this amount would be pumped (based on historic use of WACs; Table 2), implementation of the Proposed Action would mean that existing and new well pumps could be operated for an extended duration to meet the demand. Increased groundwater pumping could cause localized and temporary declines of groundwater levels or cones of depression near pumping wells. Because 2013 and 2014 represents a near worst case scenario for

precipitation and thus groundwater recharge, the groundwater table in many areas served by the Canals would likely decrease further; however the effect would be expected to be temporary as the Sacramento basin aquifer does show resiliency and rapid recharge in years of higher precipitation (Faunt 2009). Regardless, each participating District would be limited to pumping a quantity below "safe yield" as established in any groundwater management plan or any county-specific requirement as applicable, in order to prevent groundwater overdraft and avoid adverse impacts.

3.2.2 Land Use

Under the Proposed Action, the additional water that would be provided to Districts would be used to meet irrigation needs for existing crops in 2014. Permanent crops would be the primary crops targeted for irrigation with this water. As a result, under the Proposed Action, existing land use practices would continue to occur in 2014.

3.2.3 Air Quality

The Proposed Action would allow additional pumping of groundwater with a combination of electric and diesel well pumps depending on the specific District, although the majority of pumps are electric. All diesel-fueled engines are subject to the California Air Resources Board's (CARB's) Airborne Toxic Control Measure (ATCM) for Stationary Ignition Engines (17 California Code of Regulations [CCR] 93115). The ATCM does not expressly prohibit the use of diesel engines for agricultural purposes; therefore, diesel engines may be used for groundwater pumping. Furthermore, all pumps proposed to be used by the water agencies would operate in compliance with all rules and regulations at the federal, state, and local levels; therefore, there would be no adverse impacts.

3.2.4 Biological Resources

Review of the listed species that may be affected by the Proposed Action was conducted and found to be similar to EA 13-03. This is because the additional water that would be conveyed water would be used primarily for the protection of permanent crops from drought related stress. As a consequence, the Proposed Action would not affect any listed species because these crops do not constitute critical habitat for any listed species.

As in the No Action, the Proposed Action would not allow surface flow of groundwater that would be used to irrigate crops to reach any natural stream system that could affect listed fish or their habitat.

Water quality impacts to biota are not anticipated because all water discharged to the Canals is within closed pipelines or no species of concern exist in the areas for which the water would be applied.

3.2.5 Socioeconomic Resources

The Proposed Action would allow groundwater resources of suitable quality to be distributed to sustain permanent crops that may otherwise not receive adequate supply in the No Action alternative. The Proposed Action would maintain agribusiness that supports local and regional economies.

3.3 Cumulative Effects

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

Section 4 Consultation and Coordination

Due to the nature of the Proposed Action and consideration of potential impact as a result of the Proposed Action, no consultation or coordination with other agencies were performed.

Section 5 References Cited

Faunt, C.C., ed., 2009, Groundwater Availability of the Central Valley Aquifer, California: U.S. Geological Survey Professional Paper 1766, 225 p

Section 6 Personal Communications

Stuart Angerer, U. S. Bureau of Reclamation, Sacramento, CA

Appendix A: Quality Assurance Project Plan for Discharge of Non-Project Water into the Tehama Colusa Canal – Supplemental Drought Conditoins