MEMORANDUM OF UNDERSTANDING

by and between

DEER CREEK IRRIGATION DISTRICT

and

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between Deer Creek Irrigation District (hereinafter called DCID)-and the California Department of Fish and Wildlife (hereinafter called the "CDFW").

The purpose of this CESA MOU is to provide a framework for cooperative activities and monitoring that involve or address issues of importance to spring-run Chinook salmon (*Oncorhynchus tshawytscha)* in Deer Creek, eastern Tehama County. This CESA MOU provides for take associated with actions taken by the CDFW to rescue and relocate Chinook salmon; the installation of a temporary fish ladder; and/or DCID assisting with increasing flows in the creek for the benefit of spring–run Chinook salmon as management activities under authority of Section 2081(a) of the California Fish and Game Code.

RECITALS

WHEREAS, CDFW has jurisdiction over the conservation and protection of fish, wildlife, and native plants and their habitats necessary for biologically sustainable populations of those species and holds those resources in trust for the people of California (California Fish and Game Code Section 1802).

WHEREAS, spring-run Chinook salmon are classified as a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act (CESA, Code section 2050 et seq.).

WHEREAS, Code section 2080 prohibits the import, export, take[1], possession, purchase or sale of any species, in whole or in part, that has been listed as threatened or endangered by the California Fish and Game Commission. However, Code section 2081(a) allows CDFW to authorize take and other acts prohibited by Fish and Game Code section 2080 for scientific, educational, or management purposes. This CESA MOU authorizes a limited level of take of spring-run Chinook salmon for management purposes.

WHEREAS, DCID owns the DCID Diversion Dam on Deer Creek, in the County of Tehama, State of California , as depicted in Exhibit A.

[1] Take is defined in Code section 86 as 'hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

WHEREAS, on January 17, 2014, Governor Brown issued a proclamation declaring the State to be in an emergency, due to the drought conditions.

WHEREAS, on April 25, 2014, Governor Brown issued an Executive Order directing state agencies to, in part, work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocate members of those species or take other measures.

WHEREAS Deer Creek provides many important surface water beneficial uses, including agriculture, recreation, wildlife habitat, freshwater habitat, and anadromous fish habitat, particularly for spring-run Chinook salmon (*Oncorhynchus tshawytscha*) listed as threatened under the Federal and State Endangered Species Acts and Central Valley steelhead trout (*Oncorhynchus mykiss*) listed as threatened under the Federal Endangered Species Act. Due in part to naturally occurring low flows, agricultural diversions, channel morphology and excessive temperatures, the upstream migration of adults or downstream migration of juvenile spring-run Chinook salmon and steelhead may be impeded or blocked in some years. In 2014, conditions in Deer Creek are poorer than is typical for this time of year. Conditions may further deteriorate such that listed juvenile and adult spring-run Chinook salmon will need the restoration of suitable instream flow conditions to provide passage and/or be rescued and relocated.

WHEREAS, DCID is a political subdivision of the State of California, duly organized and existing under Division 11 of the California Water Code and providing water service for the irrigation of lands and crops within the county of Tehama.

WHEREAS, DCID has adjudicated rights to divert Deer Creek surface water for irrigation. DCID has an adjudicated right to approximately 33 percent of the flow of Deer Creek and Stanford Vina Ranch Irrigation Company ("SVRIC"), located downstream of DCID, has an adjudicated right to 66 percent of the flow from Deer Creek. DCID's maximum diversion rate is 35 cfs.

WHEREAS, DCID owns or has access to certain real property associated with the DCID Diversion Dam on Deer Creek, Tehama County (Real Property). DCID is willing to to allow access to CDFW to the Real Property for the purposes of monitoring, and/or capturing and removing, and/or relocating spring-run Chinook salmon on or to Deer Creek adjacent to the Real Property or to the Sacramento River.

NOW, THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. **Purpose:**

The general elements of this MOU include eligibility, fish rescue efforts, designated fish passage flows, installation and operation of a temporary fish ladder, changes in the timing of diversions to provide improved instream flow and water temperature conditions during the 2014 Drought which would minimize the need to rescue fish, monitoring, and evaluations of management actions. The specific elements of the program are tailored by stream and by an eligible diverting entity and as described in this MOU.

2. **Methods:**

A. Monitoring: CDFW or its agent will carry out all monitoring activities in accordance with standard fishery practices. Monitoring and evaluations plans for the period of the CESA MOU shall be in place to inform the effectiveness of the flow events and/or rescue efforts. Monitoring and evaluations will be conducted by CDFW staff. CDFW, or its agent, will notify DCID at least 24 hours in advance, to the telephone number listed in Section 12 of this MOU, of all planned monitoring activities it will carry out on the Real Property. Those activities may include:

i. Use of video stations to determine if fish are moving through lower Deer Creek in response to minimum base flows and pulse flow events, and to determine population abundance.

ii. Snorkel surveys will be conducted upstream and downstream of diversion structures and critical riffle areas to determine if minimum base flows are passing fish through these areas. It is the intent of the CDFW to detect any fish stranding issues before mortalities are observed, so that sufficient time is provided to inform diverters and take proactive flow restoration or other fish rescue actions.

iii. For pulse flow evaluations, CDFW field staff will identify fish passage issues by conducting snorkeling surveys downstream of the potential barrier to determine if listed salmonids are in the vicinity of the potential passage issue. Assessment of critical riffles will also be conducted (e.g. cross section profile, longitudinal surveys). Then, once a fish passage issue is identified, the CDFW will determine, and make pulse flow recommendations to DCID on the magnitude of pulse flows that may help to move fish upstream past the area. See Section 4.C (i)(a) for a definition of "pulse flow magnitude".

iv. Monitoring of habitat conditions in Deer Creek or the Sacramento River prior to relocation of salmonids at risk, including spring-run Chinook salmon.

v. Monitoring of water quality parameters such as temperature or flow, either by handheld devices or existing gages, such as the DCID Parshall flume, and the existing infrastructure of flow and temperature gaging devices on Deer Creek. Data collection of the Parshall flume during flow bypasses will be required to determine the correct quantity of water being bypassed.

B. Fish Capture and Relocation: CDFW or its agent will carry out all fish capture and relocation activities in accordance with standard fishery practices. CDFW, or its agent, will notify DCID, at least 24 hours in advance, to the telephone number listed in Section 12, of all planned fish rescue/relocation activities it will carry out on the Real Property.

i. Upon determination that stream flow and temperature conditions for salmonids, including spring-run Chinook salmon, are deteriorating in the lower Deer Creek watershed, or upon reasonable projections of same, CDFW will capture and remove salmonids, as needed, including spring-run Chinook, from Deer Creek adjacent to DCID's Real Property and relocate those salmonids to suitable habitat elsewhere in the watershed OR into the Sacramento River;

ii. Relocating juvenile salmonids, including spring-run Chinook salmon, captured from elsewhere in the lower Deer Creek watershed, to Deer Creek adjacent to Real Property if suitable instream conditions exist, or to a suitable location on the Sacramento River; or

iii. Monitoring stream depth and temperature at relocation site(s) post-relocation to determine if conditions remain adequate to keep salmonids alive and provide for salmonid passage.

3. **Notice to Other Water Diverters:**

Prior to notifying DCID as described in Section 2.0, the CDFW will request all water diverters on Deer Creek below DCID's diversion dam not to divert any Bypassed Water, as defined below in Section 4.C (i). If the CDFW determines that any water diverter below DCID's diversion dam will not cooperate, the CDFW may: (a) elect not to request DCID to bypass water, in which case the CDFW will notify DCID of its decision as soon as possible; (b) withdraw from the MOU in accordance with Section 9.0; (c) suspend the bypass flow events; or (d) take some other action consistent with the MOU. If this were to occur (i.e. other diverters not cooperating), DCID will still have met its commitment to provide flows for listed fish and thereby avoid a violation of CESA, during the timeframe of the CESA MOU.

4. **DCID Commitments:**

A. DCID agrees to provide reasonable access to CDFW and its agents, including equipment access, to the Real Property to carry out any of the management activities listed in Section 1 of this CESA MOU for the purposes of:

i. Monitoring habitat conditions and spring-run Chinook salmon abundance, size, and condition prior to any management activities;

ii. Capturing and removing spring-run Chinook salmon from and/or relocating fish to suitable habitat, and for monitoring conditions post-relocation; or

iii. Monitoring stream flow conditions during flow events and/or during post-rescue/relocation to determine if conditions remain adequate to keep fish alive and provide for passage.

B. All water diversion facilities that DCID owns, operates, or controls associated with the property where fish may need to be removed and relocated to more suitable habitats shall be operated and maintained by DCID in accordance with current laws and regulations.

C. DCID agrees to perform Required Management Elements (RME's) as outlined below as a condition of this MOU, according to the type of diversion activities conducted at a particular site:

i. Bypass Flows: Upon notice from the CDFW, DCID agrees to bypass a portion of the surface water it would otherwise divert from Deer Creek for agricultural use to augment fish transportation flows in Deer Creek, sometimes referred to herein as

"Bypassed Water." The amount to be bypassed will be proportional to the streamflow adjudicated to DCID (33.3%) and applies to the minimum Base Flow and Pulse Flows identified below. Bypassed Water will be limited to flow releases during the spring and fall of 2014, as set forth below.

ii. Minimum Base Flow: These flows are required to support fish that may already be in Deer Creek but may not have passed to upper elevations OR moved out to the Sacramento River. It is also designed to address the unusual instream conditions created by the drought.

1. Adult Spring Run Chinook:

a) Starting on the Effective Date of this MOU until June 14, 2014: 50 cubic feet per second (cfs), as measured at the Department of Water Resources (DWR) Gage below SVRIC Diversion Dam, as long as 100 cfs is coming out of the canyon. There will be a proportional reduction in baseflow obligation of 1 cfs for each 1 cfs reduction in natural flow below 100 cfs. As baseflow is reduced below 50 cfs, due to a reduction in natural flow, DCID and SVRIC will contribute to the required baseflow at a 1:2 ratio (1/3 DCID: 2/3 SVRIC) to meet baseflow requirements, respectively, based on their proportional water rights. For example, if the natural flow drops to 92 cfs, the baseflow requirement would be 42 cfs, of which DCID would be required to provide 14 cfs, and SVRIC would provide 28 cfs.

b) June 15 to June 30, 2014: 25 cfs, as measured at the DWR Gage below the SVRIC Diversion Dam. The portion of this flow to be provided by DCID is 8.3 cfs during the 25 cfs period, as determined by measurements taken at the Parshall flume on the DCID Ditch and the U.S. Geological Survey (USGS) Stream Gage at the mouth of the canyon above DCID Dam.

2. Juvenile spring-run Chinook:

a) Starting on the Effective Date of this MOU until June 14, 2014, 50 cubic feet per second (cfs), as measured at the DWR Gage below SVRIC Diversion Dam, as long as 100 cfs is coming out of the canyon. There will be a proportional reduction in baseflow obligation of 1 cfs for each 1 cfs reduction in natural flow below 100 cfs. As baseflow is reduced below 50 cfs, due to a reduction in natural flow, DCID and SVRIC will contribute to the required baseflow at a 1:2 ratio (1/3 DCID:2/3 SVRIC) to meet baseflow requirements, respectively, based on their proportional water rights. For example, if the natural flow drops to 92 cfs, the baseflow requirement would be 42 cfs, of which DCID would be required to provide 14 cfs, and SVRIC would provide 28 cfs. This will be measured at the Department of Water Resources

(DWR) flow gage below SVRIC Dam.

b) June 15 to June 30: 25 cfs, as measured at the DWR Gage below SVRIC Diversion Dam. The portion of this flow to be provided by DCID is 8.3 cfs during the 25 cfs period, as determined by measurements taken at the Parshall flume on the DCID Ditch and the U.S. Geological Survey (USGS) Stream Gage at the mouth of the canyon above DCID Dam. Juvenile spring-run Chinook could be present in the system for a large portion of the year. However, as it pertains to this CESA MOU, the critical passage periods are April 1 through June 30 for young-of-the-year juvenile spring-run Chinook, and October 15 through December 31 for yearling juvenile spring-run Chinook.

c) October 15 to December 31: 50 cfs, as measured at the DWR Gage below the SVRIC Diversion Dam, is required for out-migrating yearling juvenile spring-run Chinook and coincidentally Central Valley juvenile and adult steelhead (*Oncorhynchus mykiss*), which are federally listed as Threatened. In the event of a rain freshet, base flows could start on October 1, 2014 if mutually agreed to by NMFS, CDFW and DCID. DCID and SVRIC will contribute to the required baseflow at a 1:2 ratio (1/3 DCID: 2/3 SVRIC, respectively, based on their proportional water rights. The same amount of water bypassed by DCID applies as identified in Section 4.C.i. A freshet is defined as a sudden rise in the level of a stream, or a flood, caused by heavy rains or the rapid melting of snow and ice.

iii. Pulse Flows: Pulse flows mimic the sudden increases in stream discharge following rain or snowmelt events which are absent in drought years. Adult salmonids have evolved to take advantage of such conditions when returning to natal tributaries. Previous pulse flows on Deer Creek lasting 24 hours or more have helped to create an attraction flow at the confluence with the Sacramento River, encouraging fish to enter the stream, and providing the greatest instantaneous improvement to fish passage conditions through critical riffles and diversion structures. Pulse flows also encourage juvenile salmonids to migrate downstream before summer water temperatures become too warm.

1. Magnitude of pulse flows: A minimum of 50 cfs over base flow (see Section 4.C (i)(a) **or** full natural flows as recorded at the U.S. Geological Survey (USGS) Stream Gage at the mouth of the canyon above DCID Dam. The duration of the pulse flow in terms of time at which peak flow is maintained will be a minimum of 24 hours but not more than 72 hours.

2. Time period of pulse flows: CDFW and DCID acknowledge that a pulseflow event occurred on May 18-20, 2014 and DCID shall create one more pulse flow event before June 15, 2014, as requested by CDFW and with 48 hours' notice. Another pulse flow event may be necessary if

monitoring detects fish holding below the SVRIC Diversion Dam. If another pulse flow event is necessary in June, 2014, CDFW will give DCID 48 hours' notice of such requirement.

D. DCID will operate the diversion dam and headgate such that flows through the fish ladder and over the dam will facilitate the upstream passage of adult salmonids with minimum delay and injury. DCID will notify CDFW's fisheries program at the telephone number listed in Section 12, prior to any and all changes which are made to the diversion dam configuration or to the headgate operation which could change the amount of flow through the fish ladder, over the diversion dam or through the headgate structure. This notice will be provided at least three (3) days prior to any planned changes, or as soon as practicable, in the diversion and will allow for CDFW and DCID staff to meet on-site to make necessary adjustments to both the ladder and diversion works. CDFW will not manipulate dam flashboards or headgate settings but will provide DCID recommendations on those adjustments which will facilitate proper fish ladder operation.

5. CDFW Commitments Regarding Fish Management Activities on the Real Property:

CDFW agrees that CDFW and its agents will conduct all rescue/relocation activities only after CDFW has provided the advance notice to DCID as provided in Section 2 above.

6. Authorized Take Level:

Chinook salmon: The number of spring-run Chinook salmon which may die in the course of fish capture and relocation activities conducted by CDFW is typically small (less than 10%) and is much-reduced from levels of mortality that will potentially occur in absence of carrying out this activity. As such, fish mortalities related to, or occurring in the course of, fish rescue activities or other activities directly related to this MOU, are authorized under CESA.

7. Federal Endangered Species Act:

Central Valley spring -run Chinook salmon are listed as a threatened species under the federal Endangered Species Act (ESA) of 1973. In its regulations, NMFS has limited the general prohibition of taking threatened spring-run Chinook salmon under the federal ESA to allow, CDFW, it employees, and its designees to perform the rescue activities listed in Section 1 above.

DCID is not expected or authorized to assist in the handling of Central Valley spring-run Chinook salmon as a part of the fish rescue effort. Nothing in this CESA MOU authorizes any action pursuant to the federal ESA.

8. Effective Date and Termination:

Unless terminated sooner by either party of the CESA MOU by giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall commence on the date of execution and will terminate on **December 31, 2014,** both days inclusive.

9. Dispute Resolution:

The Parties shall make reasonable efforts to resolve any disputes that may arise from this MOU in a prompt and timely manner. In the event of a dispute, the Party claiming a dispute shall give verbal and written notice of the dispute to the other Parties within 5 business days. If resolution of the dispute cannot be resolved within 5 business days of the notice either party may terminate the MOU through written notice. Termination of the MOU will result in a loss of take coverage for future actions.

10. Amendments:

Amendments to this CESA MOU may be proposed by either party and shall become effective when both parties sign a written modification to this document.

11. Applicable Law:

This CESA MOU shall be construed under and governed by the laws of the State of California and of the United States, without giving effect to any principles of conflicts of law if such principles would operate to construe the CESA MOU, as amended herein, under the laws of any other jurisdiction.

12. Notice and Contact Persons:

Any written notice , and the telephone notice specified in Section 4 required to be given by the CESA MOU, shall be deemed to have been given by the notifying party when mailed, postage prepaid or delivered to the following representatives, who will also serve as main contact people for their respective Party:

For DEER CREEK IRRIGATION DISTRICT:

JOHN EDSON
PO. Box 154
Vina, California 96092
john@edsonappraisals.com
(530) 519-2366

For CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE:

David Leitaker
Northern Region
California Department of Fish and Wildlife
1760 Bidwell Street
Red Bluff, CA 96080
David.Leitaker@wildlife.ca.gov
(530) 528-9406

Matt Johnson
Northern Region, Fishery Program
California Department of Fish and Wildlife
1530 Schwab
Redding, CA 96080
matt.johnson@wildlife.ca.gov
(530) 527-9490

13. **Signatories' Authority and Counterparts:**

The signatories to the CESA MOU on behalf of all the Parties hereto warrant and represent that they have authority to execute the CESA MOU and to bind the Parties on whose behalf they execute the CESA MOU. This CESA MOU may be executed in counterparts.

14. **Disclaimer:**

The CDFW shall incur no fiscal obligation under this CESA MOU.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS CESA MOU TO BE IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.

DATED: 5/30, 2014

DEER CREEK IRRIGATION DISTRICT

By: _____

JOHN W. EDSON, President
PO Box 156
Vina, California 96092

DATED: 5/30, 2014

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE, REGION 1

By: _____

NEIL MANJI, Regional Manager
Fish and Wildlife, Region 1
Redding CA 96001
(530) 225-2300