

**MEMORANDUM OF UNDERSTANDING BETWEEN THE CENTRAL  
VALLEY REGIONAL WATER QUALITY CONTROL BOARD AND THE  
PERMIT HOLDERS GOVERNING THE SOLICITATION, MANAGEMENT  
AND REVIEW OF ACADEMIC, TECHNICAL AND/OR SCIENTIFIC  
STUDIES RELATED TO THE IRRIGATION OF FOOD CROPS WITH OIL  
FIELD PRODUCED WATER**

This Memorandum of Understanding (MOU) is entered into among the Central Valley Regional Water Quality Control Board (Central Valley Water Board or Board) and North Kern Water Storage District, California Resources Production Corporation, Valley Water Management Company, Kern Tulare Water District, Cawelo Water District, Chevron U.S.A. Inc., Hathaway, LLC, and Jasmin Ranchos Mutual Water Company (collectively Permit Holders and, individually, Permit Holder). The Permit Holders and Central Valley Water Board are collectively referred to herein as the "Parties."

This MOU specifies the process by which the Permit Holders will fund and the Central Valley Water Board will oversee, manage and review academic, technical and/or scientific studies conducted by a third-party consultant or consultants related to the irrigation of food crops with oil field produced water. Such studies will be used to inform the work of the Food Safety Expert Panel (Panel) and the Central Valley Water Board.

**ARTICLE I. IDENTIFICATION OF PARTIES TO THE MOU AND STUDIES  
COVERED BY THE MOU**

- 1.1. Central Valley Water Board. The Central Valley Water Board is an agency of the State of California with the mission of preserving, protecting, enhancing, and restoring water quality within the Central Valley of California. In support of this mission, and pursuant to applicable laws and regulations, the Central Valley Water Board regulates discharges of oil field produced water to protect the beneficial uses of surface and ground water within the Central Valley Region.
- 1.2. Permit Holder. A Permit Holder in the context of this MOU is one of the following: (1) an entity engaged in oil and gas resource extraction in the Central Valley Region that provides or proposes to provide treated produced water from its operations for beneficial reuse for agricultural irrigation, or (2) a water district (including those identified in Paragraph 1.3), water company or entity that accepts such treated produced water for beneficial reuse for agricultural irrigation.
- 1.3. Water Districts. Water Districts in the context of this MOU are only the North Kern Water Storage District, Kern Tulare Water District, and Cawelo Water District.
- 1.4. Studies. The initial Study governed by this MOU will be an academic, technical and/or scientific literature review and risk assessment related to the effects of utilizing treated produced water to irrigate food crops as further defined by a Scope(s) of Work developed by the Central Valley Water Board and finalized pursuant to this MOU. The final Scope(s) of Work for the initial Study will be included in this MOU as Attachment 1. Any future studies and associated Scopes of Work that are proposed by the Central Valley Water Board, and for which the Permit Holders agree to fund, will follow the review and approval

procedures of this MOU. If and/or to the extent approved, any additional Scopes of Work will be incorporated into this MOU and subject to its terms through the Additional Scope of Work template included as Exhibit 1 as subsequently numbered Attachments.

## ARTICLE II. STATEMENT OF FACTS

- 2.1. California has been suffering through a severe multi-year drought that has affected agricultural production in many areas of the state. This multi-year drought has prompted California water users to move beyond temporary emergency drought measures and to develop permanent changes to prepare for more frequent and persistent periods of limited water supply.
- 2.2. Produced water is water extracted from the ground during the production of oil. In 2013, 1.9 billion barrels of produced water were extracted during the production of approximately 150 million barrels of oil in the Central Valley.
- 2.3. Treated produced water has been blended with surface and groundwater and used to irrigate crops in the areas east and north of Bakersfield for over thirty years.
- 2.4. The Central Valley Water Board, consistent with the policies of the State of California, desires and intends to assist agricultural producers in enhancing drought resilience, which may include expanding the utilization of treated produced water for irrigating food crops, provided that such practices do not have adverse impacts on human health and the environment.
- 2.5. The Central Valley Water Board convened a panel to assist the Board in its consideration of issues pertaining to the regulation of produced water for beneficial reuse for agricultural irrigation. The Panel consists of experts in areas of food safety, epidemiology, toxicology, environmental health, risk assessment, and agricultural production. The Panel's recommendations may be incorporated into the proposed Scope of Work.
- 2.6. Over the past two years, several Permit Holders have submitted studies and reports to the Central Valley Water Board.
- 2.7. The Central Valley Water Board desires to investigate and develop additional knowledge to address public concerns regarding the safety of irrigating food crops with treated produced water through academic, technical, and/or scientific studies regarding irrigating food crops with treated produced water. Pursuant to a letter dated January 6, 2017, the Central Valley Water Board is requiring the Permit Holders to fund the initial Study or face further formal information requests under Section 13267 of the California Water Code. The Permit Holders will comply with this directive to fund the initial Study, as described in and subject to the provisions of this MOU. Additional Scope(s) of Work may be suggested by the Central Valley Water Board, subject to the review, approval, and incorporation process described in this MOU.
- 2.8. The Central Valley Water Board has an interest in ensuring that any academic, technical, and/or scientific studies conducted to inform the Board's decision-making are conducted independently and remain free from any actual or perceived bias that could affect the objectivity of such studies. In particular, the Board has an interest in ensuring that funding of the studies does not create any actual or perceived bias.

- 2.9. In order to ensure that the funding of any Study covered by this MOU does not create any actual or perceived bias, this MOU specifies a process by which the Central Valley Water Board staff alone will oversee and manage the work of any consultants funded by the Permit Holders. Except as provided in Paragraph 3.3, the Permit Holders will have no role in the direction or the outcome of any such Study.
- 2.10. Members of the Panel and organizations with which they are affiliated are precluded from conducting any Study covered by this MOU. This provision does not apply to former Panel member Dr. William Stringfellow's retention by the Central Valley Water Board as a scientific advisor to the Board, nor does this provision in any way preclude the Central Valley Water Board from directly retaining and funding any entity or organization to provide advice or perform work not subject to this MOU.

### **ARTICLE III. DEVELOPMENT OF SCOPE OF WORK**

- 3.1. Development of the Scope of Work. The Board shall develop one or more Scopes of Work comprising the initial Study necessary for the Board to evaluate the safety of irrigating crops with treated produced water. Each Scope of Work shall be developed in the manner described in this MOU.
- 3.2. Proposed Scope of Work. The proposed Scope of Work shall include a description of the academic, technical and/or scientific research to be conducted and the anticipated schedule or timelines for completing the proposed Scope of Work. The Board shall provide the proposed Scope of Work to the Permit Holders.
- 3.3. Evaluation of the Scope of Work. The Water Districts shall review each proposed Scope of Work and, within 10 business days of receipt, provide notice to the Board that the Water Districts have no objection to the proposed Scope of Work, or alternatively, provide any comments or concerns to the Central Valley Regional Board. The Board will notify the Permit Holders of any changes based on the Water Districts' comments within 10 business days of receiving the comments. Once the Board provides a final version with any changes to the Scope of Work, the Permit Holders or Permit Holders' Administrator will notify the Board within 10 business days of receipt whether they agree to fund the performance of the Scope of Work. If the Parties cannot resolve the Water Districts' concerns, the Permit Holders may terminate this MOU pursuant to Paragraph 6.3 of this MOU.
- 3.4. Incorporation of the final Scope of Work into this MOU. If the Water Districts have no objection to the proposed Scope of Work, or any objections to the proposed Scope of Work are resolved, and the Permit Holders agree to fund the Scope of Work, the final Scope of Work shall be signed by the Central Valley Water Board and Permit Holders, and incorporated into this MOU as Attachment 1. Each subsequent Scope of Work, if any, shall be documented using the Additional Scope of Work template contained in Exhibit 1, executed by the Central Valley Water Board and the Permit Holders, and appended to this MOU as a subsequently numbered Attachment.

## ARTICLE IV. ROLES AND RESPONSIBILITIES OF THE PARTIES TO THE MOU

### 4.1. Responsibilities of the Permit Holders, including Water Districts.

- 4.1.1. The Water Districts agree to select a consultant or consultants (hereinafter, Consultants) acceptable to the Central Valley Water Board's Consultant Oversight Manager (Manager). Consultants that possess the experience, expertise and impartiality necessary to ensure the quality of the Study and to perform the Scope of Work shall be identified by the Water Districts. The Water Districts shall submit to the Manager a list of proposed Consultants that will receive a Request for Proposal to perform the Scope of Work. The Manager shall indicate whether proposed Consultants are acceptable by written concurrence to the Water Districts. After receiving the responses to the Requests for Proposal, the Water Districts shall select Consultants and inform the Manager. The Manager shall indicate whether the Consultants are acceptable by written concurrence to the Water Districts.
- 4.1.2. The Permit Holders' Administrator shall enter into consulting or professional services contracts with the Consultants, which may be subject to a not-to-exceed budget. The contracts shall be consistent with the terms of this MOU, and shall indicate that the work is being performed at the direction of the Central Valley Water Board. Multiple contracts may be executed with multiple Consultants to perform one or more Scopes of Work. The contracts with the Consultants shall provide for the following:
  - 4.1.2.1. Consultants, including their employees, agents, subcontractors, analytical laboratories, or any other representatives, shall take direction solely from the Manager in all matters pertaining to the Study, other than invoicing and payment.
  - 4.1.2.2. The Permit Holders or Permit Holders' Administrator may take appropriate measures to determine whether the costs being charged for the work performed by Consultants are reasonable and consistent with the relevant Scope of Work, Consultants' proposals, and approved not-to-exceed budgets.
  - 4.1.2.3. Consultants shall ensure the Study is performed by individuals that possess the experience, expertise and impartiality necessary to ensure the quality of the Study. Consultants shall not assign any person to work on the Study who holds a financial interest in any real property, business entity, investment, or source of income that may be materially affected by the Board's issuance or denial of any permit related to the irrigation of food crops with treated produced water. Consultants shall also not assign any work to any person or entity affiliated with any Permit Holder, the Board, or member of the Panel. Consultants shall execute the Disclosure Statement attached hereto as Exhibit 2.
  - 4.1.2.4. Consultants shall provide the Manager with written progress reports monthly unless a lesser frequency is approved in writing by the Manager. Within 10 business days of receipt of each progress report, the Manager shall provide a copy to the Permit Holders' Administrator, and notify the

Permit Holders' Administrator and Consultants if progress is found to be unsatisfactory. The Manager shall identify corrective measures consistent with the relevant Scope of Work that should be implemented by Consultants to achieve satisfactory progress by the time the next progress report is due.

- 4.1.3. The Permit Holders shall ensure that all costs associated with Consultants' performance of the Study are paid to Consultants directly by the Permit Holders' Administrator in accordance with the terms of the applicable contracts.
- 4.1.4. After the Consultants have been retained, the Permit Holders and the Permit Holders' Administrator shall not direct or participate in the preparation of the Study except to the extent that the Permit Holders provide data and information requested by Consultants and/or the Manager. All requests for information from or communications directed to the Permit Holders shall be made by or through the Manager to the Permit Holders' Administrator. Consultants shall not directly communicate with Permit Holders or Permit Holders' Administrator except as provided in Paragraph 4.2.5. At least thirty (30) business days prior to the public release of any documents, the Permit Holders shall have the right to review and to provide comment on the documents, and comments shall be limited only to issues of factual or technical accuracy and consistency with the Study's Scope of Work and purpose.
- 4.1.5. Subject to the limitations on communications provided in this MOU, the Permit Holders' Administrator and the Consultants shall maintain records of any and all communications between the Permit Holders' Administrator, its agents, employees, contractors, consultants, professional services provider and representatives, and with the Consultants, during the bidding, scoping and performance of the Study. The Permit Holders' Administrator shall provide records of such communications to the Manager at the time of such communication or within a reasonable period thereafter. The Manager shall maintain similar communications and provide records of such communications to the Permit Holders at the time of such communication or within a reasonable period thereafter. The Permit Holders shall have the right to request any communications relating to the Study between the Consultants and the Central Valley Water Board or any other parties in the event any dispute arises under Paragraph 6.2 of this MOU.

#### 4.2. Responsibilities of the Central Valley Water Board.

- 4.2.1. The Central Valley Water Board shall appoint a Manager who is a full-time employee of the Board. The Manager shall be the day-to-day representative for administration of this MOU, and, except as otherwise specifically provided, shall have full authority to act on behalf of the Central Valley Water Board with respect to this MOU. Except as otherwise expressly provided, all communications relative to this MOU shall be with the Manager.
- 4.2.2. In considering whether the selected Consultants are acceptable as described in Paragraph 4.1.1 and 4.1.2, the Manager shall review the Consultants' qualifications to ensure that the Consultants possess the experience, expertise and impartiality necessary to ensure the quality of the academic, technical and/or scientific research outlined in the Scope of Work. The Manager also shall review the

Consultants' Disclosure Statement contained in Exhibit 2, and any other available information including public positions taken, to ensure that the Consultants are not affiliated with any of the Parties or any members of the Panel or their employers, have no conflicts of interest, and can perform the Scope of Work objectively and independently.

- 4.2.3. The Manager shall determine the time frame for preparation and completion of each proposal and Scope of Work submitted by the relevant Consultants.
- 4.2.4. The Manager, who shall periodically solicit input from the Panel, alone shall direct Consultants' work conducting the Study, which direction shall be consistent with the terms of this MOU and the Scope(s) of Work. The Manager shall have the responsibility for determining the adequacy of any written material submitted by Consultants under this MOU. The Manager may not direct Consultants to exceed any not-to-exceed budgets without following the approval process set forth in Article V below.
- 4.2.5. The Manager shall communicate directly with Consultants. Consultants shall not communicate directly with the Permit Holders, Permit Holders' Administrator, or members of the Panel except as set forth below. All requests for information or communications directed to the Permit Holders from the Consultants shall be made by or through the Manager to the Permit Holders' Administrator. Notwithstanding the foregoing, Consultants shall be permitted to communicate directly with the Permit Holders' Administrator regarding issues of invoicing, payment, and termination of this MOU described in Paragraph 6.3.
- 4.2.6. The Central Valley Water Board shall not be obligated in any manner to pay for the services rendered by Consultants.

#### **ARTICLE V. SCHEDULE AND PERFORMANCE OF WORK**

- 5.1. Upon the Manager's written concurrence that the selected Consultants are acceptable, the Permit Holders' Administrator shall promptly retain Consultants to conduct the Study in accordance with the relevant Scope of Work.
- 5.2. Upon retention of the Consultants, the Manager shall request that the Consultants prepare a final work plan and schedule for completion of tasks contained in the relevant Scope of Work. The Permit Holders shall have the right to review and provide comments to the final work plan only for technical accuracy and consistency with the relevant Scope of Work.
- 5.3. The Manager may, if necessary, propose alterations to a final Scope of Work after it is approved and included as an Attachment to this MOU. All changes to the Scope of Work must be documented and approved in writing using the Additional Scope of Work template contained in Exhibit 1 before such work is performed. Upon receipt of any Manager-recommended changes to the Scope of Work, the Water Districts collectively shall promptly determine whether to accept the proposed changes, whether to propose revised changes, or whether to decline the changes. Once the Manager and Water Districts agree to any changes to the Scope of Work, the Permit Holders' Administrator will notify the Board within 10 business days of receipt whether they agree to fund the changes to the Scope of Work. To the extent additional Consultants or changes to the Consultants' retention are necessary, the Water Districts shall promptly select, with the Board's written concurrence

as required by Paragraphs 4.1.1 and 4.1.2, any additional Consultants, and the Permit Holders' Administrator, shall promptly retain the Consultants or revise the retention agreements, at which point the Permit Holders' and Permit Holders' Administrator's involvement shall be limited in accordance with Paragraph 4.1.4.

- 5.4. The provision of funding by Permit Holders shall not be construed as an endorsement or agreement of Permit Holders with the results or conclusions of any Study conducted pursuant to this MOU, and Permit Holders reserve all rights with regard to any Study, or any action of the Central Valley Water Board that may result from any Study.

## ARTICLE VI. GENERAL TERMS OF THE MOU

- 6.1. Term and Effective Date: This MOU shall be effective from the last date of execution by a Party, and shall continue in full force and effect through the completion of all Scopes of Work included as an Attachment to this MOU, or otherwise terminated pursuant to the terms of this MOU.
- 6.2. Dispute Resolution: In the event a dispute between the Central Valley Water Board and the Permit Holders arises from this MOU, the Parties shall make best efforts to resolve the dispute informally through their designated representatives. If such efforts fail, the Party claiming the dispute shall promptly provide the other Party with written notice of the issues in dispute and allow that Party 30 days to cure. If there is no resolution within 30 days of the date of written notification, either Party may terminate the MOU.
- 6.3. Termination: Either the Central Valley Water Board or the Permit Holders may terminate this MOU and be relieved of the responsibilities under this MOU upon ten (10) business days written notice to the other Party's designated representative. However, a notice of termination may not occur during the cure period described in Paragraph 6.2. Upon termination of this MOU, the Permit Holders shall continue to be liable for Consultants' costs as set forth in the relevant consulting contracts.
- 6.4. Failure to Comply: Failure of the Permit Holders to comply with any or all provisions of this MOU, or the failure of the Consultants to provide complete work products to the satisfaction of the Manager on a timely basis, may result in the unilateral termination of this MOU by the Central Valley Water Board. Upon termination of this MOU, Central Valley Water Board may provide the Permit Holders the opportunity to hire new Consultants and enter into a subsequent MOU.
- 6.5. Notices and Designation of Representatives:

- 6.5.1. The Permit Holders' Administrator shall be:

David Ansolabehere  
General Manager  
Cawelo Water District  
17207 Industrial Farm Road  
Bakersfield, CA 93308  
(661) 393-6072

All communication given by the Manager to the Permit Holders' Administrator shall be as binding as if given to the Permit Holders.

6.5.2. The Central Valley Water Board's Manager shall be:


Clay L. Rodgers  
Assistant Executive Officer  
California Regional Water Quality Control Board, Central Valley Region  
1685 E Street  
Fresno, CA 93706  
(559) 445-5102

6.6. Any Party may change its designated representative or may change its address by written notice to the other Parties.

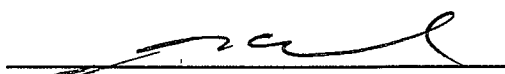
6.7. This Agreement may be executed in any number of counterparts, each of which will be deemed an original of this Agreement, and which together will constitute one and the same instrument; provided that none of the Parties will be bound to this Agreement unless and until all Parties have executed a counterpart.

The Parties have executed this Agreement in DUPLICATE as evidenced by the following signatures of authorized representatives of the Parties:

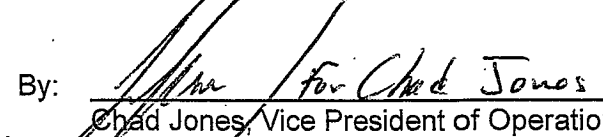
**FOR THE CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD:**

Date: 6/5/17 By:   
Pamela C. Creedon, Executive Officer

**FOR NORTH KERN WATER STORAGE DISTRICT:**

Date: 6/23/17 By:   
Richard A. Diamond, General Manager

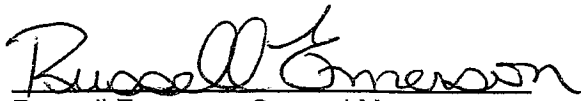
**FOR CALIFORNIA RESOURCES PRODUCTION CORPORATION:**

Date: 6/26/17 By:   
Chad Jones, Vice President of Operations



**FOR VALLEY WATER MANAGEMENT COMPANY:**

Date: 6-27-17

By:   
Russell Emerson, General Manager

**FOR KERN TULARE WATER DISTRICT:**

Date: 6/13/17

By:   
Steven C. Dalke, General Manager


**FOR CAWELO WATER DISTRICT:**

Date: 27 June 2017

By:   
David Ansolabehere, General Manager

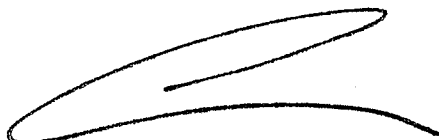
**FOR CHEVRON U.S.A. INC.:**

Date: 6/26/17

By:   
Carla Musser, Attorney-in-Fact

**FOR HATHAWAY, LLC:**

Date: 6/13/17

By:   
Chad Hathaway, President/Chief Executive Officer

**FOR JASMIN RANCHOS MUTUAL WATER COMPANY:**

Date: 6/19/17

By:   
Shae Lehr, Secretary/Treasurer

**EXHIBIT 1**

**ADDITIONAL SCOPE OF WORK**

On [date MOU executed], the Central Valley Water Board and Permit Holders agreed to a Memorandum of Understanding (MOU) regarding the performance of certain scientific studies to related to the irrigation of food crops with treated oil field produced water. The purpose of this Additional Scope of Work is to amend the MOU to incorporate additional scientific and/or technical studies that are proposed by the Central Valley Water Board, and for which the Permit Holders have agreed to fund.

This Additional Scope of Work amends the MOU to incorporate the following additional work:

[Scope of Work]

The Central Valley Water Board and Permit Holders agree that the Additional Scope of Work is hereby incorporated into the MOU, and shall be conducted in accordance with all terms of the MOU [except as follows].

[Permit Holders Signature Block and Date] [Regional Board's Signature Block and Date]

## EXHIBIT 2

### DISCLOSURE STATEMENT OF ENVIRONMENTAL CONSULTANT

[Consultant] hereby attests that [Consultant] is not owned directly or indirectly by, or controlled by or under common control with, any of the Parties to this MOU, and is not affiliated with, owned by, directed by, and does not employ directly or indirectly, any member of the Food Safety Expert Panel, and also attests that [Consultant] has not and will not assign any person to work on the Study who holds a financial interest in any real property, business entity, investment, or source of income that may be materially affected by the Central Valley Water Board's issuance or denial of any permit related to the irrigation of food crops with oil field produced water.

ATTACHMENT 1

SCOPE OF WORK

To be included upon final approval by the Parties.