

**AMENDMENT TO THE
AGREEMENT BETWEEN the INDIAN WELLS VALLEY
GROUNDWATER AUTHORITY
and the BOARD OF REGENTS of the NEVADA SYSTEM OF HIGHER
EDUCATION on behalf of the DESERT RESEARCH INSTITUTE**

Whereas, the **INDIAN WELLS VALLEY GROUNDWATER AUTHORITY** (hereinafter “Authority”) and the **BOARD OF REGENTS of the NEVADA SYSTEM OF HIGHER EDUCATION on behalf of the DESERT RESEARCH INSTITUTE** (hereinafter “DRI”) entered into an agreement on May 23, 2018 (“Agreement”) whereby DRI would assist the Authority in using DRI’s groundwater model to support the Authority’s work on its Groundwater Sustainability Plan (“GSP”). The Authority and DRI are sometimes hereinafter collectively called the “Parties.”

Whereas, the Brackish Water Group (“Group”) is working on a Brackish Water Resource Feasibility Study (“Study”) to identify and quantify brackish groundwater resources that may be used as an alternative water supply source within the Indian Wells Valley basin.

Whereas, one component of the Study is to evaluate the impacts of extracting brackish water on the overall groundwater system with the Indian Wells Valley basin.

Whereas, the Group wishes to have DRI develop and simulate a suite of brackish water extractions using the groundwater model presently being used by DRI to assist the Authority in implementing its GSP.

Whereas, Section 3 of the Agreement specifies the consideration under the Agreement.

Whereas, Section 3(b) of the Agreement states that “If the scope of work described under this Agreement expands, [Authority] shall initiate an amendment to include added scope and funding that is mutually agreed upon by DRI and [Authority]. All work will be authorized on a Task and associated Budget basis.”

Whereas, the Parties now desire to amend the Agreement to include added scope and funding.


The Parties, based upon mutual consideration, hereby agree as follows:

1. DRI shall develop and simulate a suite of brackish water extractions using the groundwater model presently being used by DRI to assist the Authority in implementing its GSP. DRI shall perform the duties/tasks in accordance with the DRI Scope of Work and Budget, a copy of which is attached hereto as “Exhibit A” and by reference made part of the Agreement.


2. The Authority's Water Resources Manager ("WRM") has the sole authority to coordinate DRI's tasks related to its work for the Authority and the Group. The WRM shall have the authority to determine if DRI's work on behalf of the Group related to its development and simulation of the suite of brackish water extractions described in Exhibit "A" is impacting DRI's work/progress for the Authority and to make any necessary time/schedule adjustments deemed necessary by the WRM. The WRM shall consult with the Group prior to making any recommendations with respect to any time/schedule adjustments.
3. All other provisions of the Agreement shall remain in full force and effect.
4. This modification shall be effective immediately upon execution by the Parties.

Dated this 15th day of November, 2018.

**THE BOARD OF REGENTS OF THE
NEVADA SYSTEM OF HIGHER
EDUCATION ON BEHALF OF THE
DESERT RESEARCH INSTITUTE**

By: 
Title: Diane Samuel
Director of Sponsored Projects

**INDIAN WELLS VALLEY
GROUNDWATER AUTHORITY**

By: 
Peggy Breeden, Chairperson
Board of Directors

REIMBURSEMENT AGREEMENT

This Reimbursement Agreement (the "Agreement") is entered into as of November 15, 2018 ("Effective Date"), between the Indian Wells Valley Groundwater Authority, a Joint Powers Authority created pursuant to the provisions of California Government Code sections 6500 et seq., ("Authority") and the Indian Wells Valley Water District, a County Water District ("District"). The Authority and Group are sometimes hereinafter individually or collectively called a "Party" or the "Parties".

RECITALS

WHEREAS, the Authority was formed after enactment of the "Sustainable Groundwater Management Act" ("SGMA") for the purpose of becoming the exclusive Groundwater Sustainability Agency and achieving groundwater sustainability through the adoption and implementation of a Groundwater Sustainability Plan ("GSP") for the Indian Wells Valley basin.

WHEREAS, the Authority entered into an Agreement with the Desert Research Institute ("DRI") whereby DRI would assist the Authority in using DRI's groundwater model to support the Authority's work on its GSP.

WHEREAS, the Indian Wells Valley Water District is a member of the Brackish Water Group comprised of the District, Searles Valley Minerals Inc., CGP Holdings LLC, and Mojave Pistachios LLC, (collectively referred to herein as the "Group").

WHEREAS, the Group is working on a Brackish Water Resource Feasibility Study ("Study") to identify and quantify brackish water resources that may be used as an alternative water supply source within the Indian Wells Valley basin.

WHEREAS, one component of the Study is to evaluate the impacts of extracting brackish water on the overall groundwater system with the IWV basin.

WHEREAS, the Group wishes to have DRI develop and simulate a suite of brackish water extractions described in Exhibit "A" using the groundwater model presently being used by DRI to assist the Authority in implementing its GSP.

WHEREAS, the Authority is agreeable to DRI developing and simulating the suite of brackish water extractions described in Exhibit "A" subject to the terms and provisions of this Agreement.

NOW THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, and of the covenants and agreements herein contained, the Parties hereto agree as follows:

1. Purpose. The purpose of this Agreement is to ensure the Authority is reimbursed for any monies paid to DRI for services undertaken on behalf of the Group with respect to the activities described in Exhibit "A".

2. Reimbursement. The Group agrees to reimburse the Authority up to Fifty-Three Thousand Dollars (\$53,000.00) for DRI to develop and simulate a suite of brackish water extractions described in Exhibit "A" using the groundwater model presently being used by DRI to assist the Authority in implementing its GSP. The Authority shall submit a monthly invoice to the Group for any expenses incurred for DRI's providing the services described in Exhibit "A". The invoice shall include copies of all invoices/charges paid by the Authority to DRI for the services described in Exhibit "A". The Group shall remit payment within thirty (30) days receipt of said invoice.

3. Priority. The Group understands and acknowledges that DRI's work for the Authority is the highest priority, and if time adjustments need to be made, DRI's work for the Authority shall take precedent over any activities undertaken on behalf of the Group as described in Exhibit "A" and the timeline described in Exhibit "A" shall be adjusted accordingly.

4. Coordination. The Parties agree that the Authority's Water Resources Manager ("WRM") has the sole authority to coordinate DRI's tasks related to its work for the Authority and the Group. The WRM shall have the authority to determine if DRI's work on behalf of the Group related to its development and simulation of the suite of brackish water extractions described in Exhibit "A" is impacting DRI's work/progress for the Authority and to make any necessary time/schedule adjustments deemed necessary by the WRM. The WRM shall consult with the Group prior to making any recommendations with respect to any time/schedule adjustments.

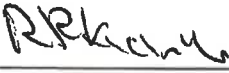
5. Dispute Resolution. In the event there are disputes and/or controversies relating to the interpretation, construction, performance, termination or breach of this Agreement, the Parties shall in good faith meet and confer in an attempt to informally resolve such matter(s). If the Parties are unsuccessful in resolving such matter(s) through an informal meeting process, they may attempt to resolve such matter(s) through mediation, through arbitration under the rules and regulations of the American Arbitration Association or they may exercise whatever other legal rights and remedies they may have.

6. Termination. Either Party retains the right to terminate this Agreement, at its sole discretion, upon thirty (30) days written notice. In the event of termination of this Agreement, the payment of monies due to Authority for DRI's work performed prior to the effective date of such termination shall be paid within thirty (30) days after receipt of an invoice as provided in this Agreement. Upon payment for such services, the Authority agrees to promptly provide to the Group all documents, reports and the like which are in the possession or control of the Authority and/or DRI and pertain to the Group or this Agreement, except that Authority may retain one complete copy to be maintained in Authority's files.

[SIGNATURES ON NEXT PAGE]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first above written.

**INDIAN WELLS VALLEY
WATER DISTRICT**

By: 
Ronald R. Kicinski, President
Board of Directors

**INDIAN WELLS VALLEY
GROUNDWATER AUTHORITY**

By: 
Peggy Breeden, Chairperson
Board of Directors

Indian Wells Valley Groundwater Association

DRI Proposal for Simulation of Water Extraction Scenarios for the Brackish Water Group

October 17, 2018

Background

The Brackish Water Group (BWG) received funding from the State of California to identify and quantify brackish groundwater resources, and to evaluate the feasibility of extracting brackish groundwater as an alternate water supply source within Indian Wells Valley (IWV). One component of this study is to evaluate the impacts of extracting brackish water on the overall groundwater system within IWV. This proposal describes a scope and budget for Desert Research Institute (DRI) to develop a solute transport model (for Total Dissolved Solids – TDS) to simulate a suite of brackish water extractions.

The brackish water extraction scenarios have several required characteristics:

- Completed in a sand layer that will yield a desirable volume of water over the long term.
- Completed where the long-term TDS concentrations of the brackish groundwater are approximately 3,000 mg/L.
- Located away from existing fresh water production wells.
- Located in an area where the potential for impacts to freshwater resources are minimized (lateral transport, vertical transport).
- Located in an area where impacts from subsidence are minimized.

Task 1 – TDS Simulations

The current version of the Indian Wells Valley calibrated groundwater flow model will be used as the framework for the solute transport simulations. The flow model will be setup for a 30-year predictive simulation to quantify the effects of brackish water extraction on regional drawdown and TDS migration.

Nine model scenarios will be developed for the initial suite of simulations. The scenarios will have the following characteristics:

- Brackish water extractions will occur at three (3) distinct geographic locations in the Basin (Figure 1):
 - Zone 1 - Northwest corner of the basin near the county line and Highway 395.
 - Zone 2 - The eastern portion of the basin in between W. Inyokern Road and W. Ridgecrest Boulevard.
 - Zone 3 - The southern portion of the basin west of Highway 395.
- Extraction will occur at one depth horizon per geographic location as stipulated by the Brackish Water Group.
- Three (3) pumping rates per geographic location will be simulated

Up to three additional simulations will be developed, if needed, after review by the BWG.

Results will be presented as maps of drawdown, maps of TDS concentrations at various times and depths, and as TDS breakthrough curves (TDS vs. time) at a limited number of specified locations.

The required output will be provided in GIS files, with an accompanying Technical Memo describing model assumptions and parameters.

The personnel cost for this task is \$44,000.

Task 2 - Meetings

DRI will attend and present the results of the first set of model simulations as an in-person meeting in Ridgecrest, CA. DRI will present model assumptions and results including maps of drawdown, maps of TDS concentrations at various times and depths, and as TDS breakthrough curves (TDS vs. time) at select specified locations (e.g. water supply wells). The second round of model results will be presented via a conference call (WEBEX).

Based on the above assumptions, the personnel cost for this task is \$8,000 and travel costs for this task are \$1,000. Total task cost is \$9,000 as scoped. If additional meetings and discussions are required, these costs will be higher.

Budget

Total project cost is \$53,000.

Assumptions

- The Groundwater Authority (GA) contract will fund the development of initial conditions for the TDS simulations (those costs are not included in this budget)
- Subsidence will not be included in the modeling effort and may require further evaluation following GSP model runs. Existing analysis (DRI, 2016) suggests subsidence in the basin is tectonically driven, this will be investigated further but not within the initial timeframe and budget of this brackish water modeling analysis.
- The brackish water study modeling work will use the existing calibrated GA model. No recalibration will be performed.
- The brackish water study modeling work will use the geologic representation in the GA model. No modifications to the geologic model will be done at this time in GSP development.
- As more data becomes available, the Brackish Water Group would request that DRI incorporate it as soon as practicable so the model more accurately reflects basin-wide conditions with the new data.

Period of Performance

It is the intent of DRI and the WRM to complete the brackish water study model runs coincident with the transport modeling for the GSP. This will provide continuity for determining management strategies for

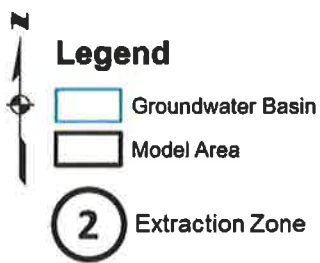
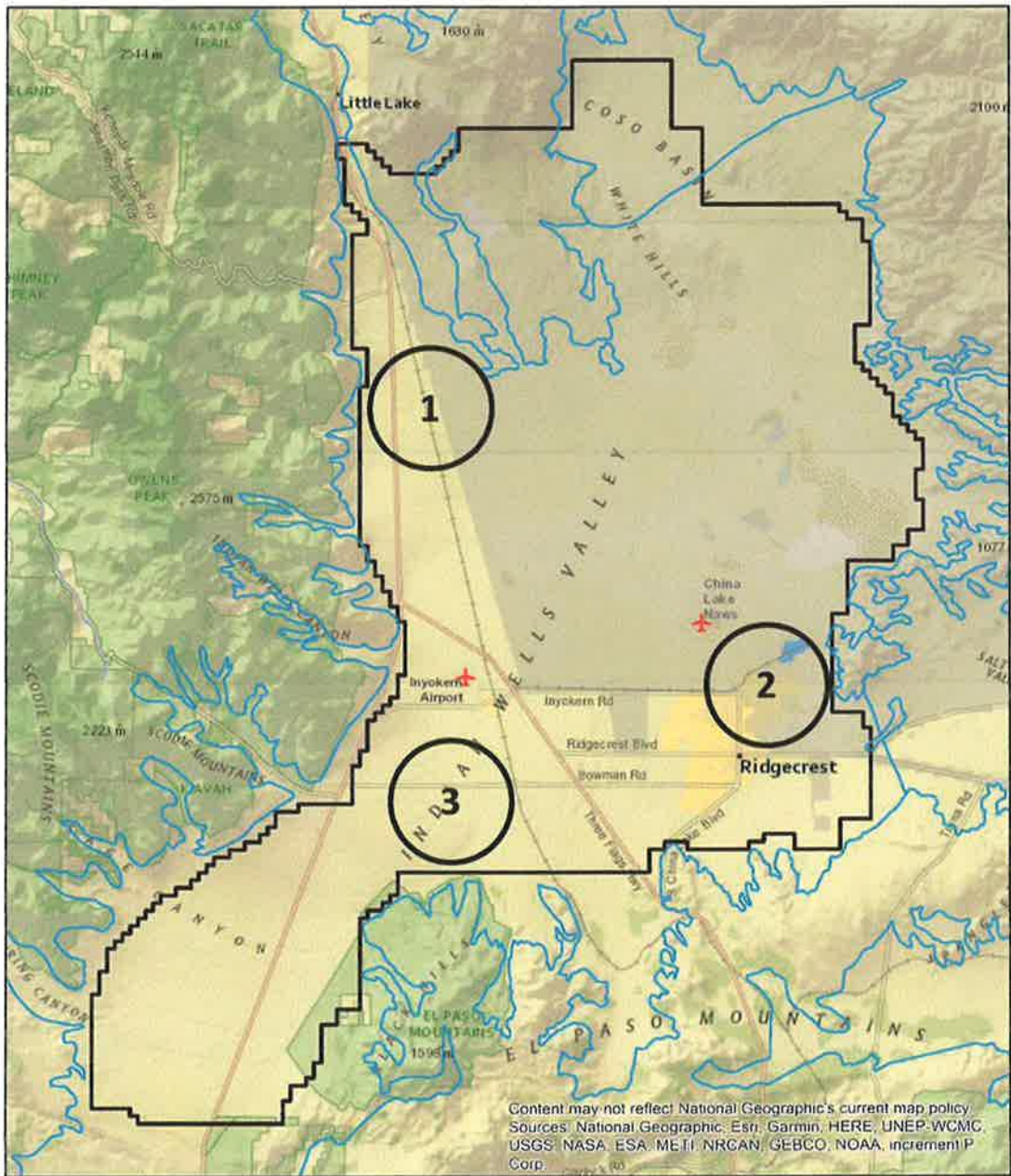


Figure 1. Locations of proposed brackish water extraction zones.