

Waiver and Variance

Section 1 – General Details:

This waiver and variance is granted in accordance with the provisions of the Rules of the Texana Groundwater Conservation District (the District) and acceptance of this waiver and variance constitutes an acknowledgment and agreement that the applicant, well operator, and well owner will comply with the terms and conditions of this waiver and variance and the Rules of the District not affected by this waiver and variance.

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| Waiver and Variance ID: | WV-20191219-01 |
| Permitted Entity: | Bower and Saha Aquaculture, LLC |
| Applicant Name: | Reed Bowers |
| Applicant Address: | 1205 Frank Stubbs Dr., El Campo, Texas 77437 |
| Waiver Application ID: | AWV-20190307-01 |
| Amendment Application ID: | AAPC-20241017-01 |
| Associated Permit Applications: | AOWF-20190307-01 |
| Associated Permits: | Existing Production Permits:¹ VP-20121115-01, VP-20121203-01, VP-20121203-02, VP-20121203-03, VP-20121203-04, VP-20121203-05, VP-20121203-06, VP-20121203-07, AP-201203-14, VPW-20191219-01; and Production Permit: OPWF-20191219-01. |
| Associated District Rules: | Items 9 and 10 of Rule 4.3 (Required information for an application for a production permit); Item 13 of Rule 4.3 (Production Permit Conditions); Item 4 of Rule 4.11 (Attempts to obtain adjacent landowner waivers). Item 1 of Rule 5.2 (Well Separation Requirement for Well Fields); Item 3 of Rule 6.4 (1/2 AFYA Limitation). |

This waiver is conditioned upon the well operator and well owners otherwise complying with the Rules of the District and regulations of the State of Texas, as amended, applicable to operating water wells within the District. This waiver confers only the right to use the subject wells under the provisions of the Rules of the District and according to the terms of this waiver and variance. The wavier and variance term and conditions may be modified or amended pursuant to the Rules of the

¹ These existing production permits shall remain in effect independent of this waiver and variance, and those requiring renewal are deemed renewed without changes; but production of the wells is governed by this waiver and variance and any conflicting permit terms are suspended in favor of this waiver and variance once production begins under OPWF-20191219-01, unless Permitted Entity surrenders this waiver and variance to the District.

District. This waiver is conditioned upon the Permitted Entity and its successors maintaining ownership of the contiguous tract of land associated with the well field.

Section 2 - Finding of Good Cause by the Board of Directors of the District:

The Board of Directors finds good cause to waive item 12 of Rule 4.2, items 9 and 10 of Rule 4.3, item 13 of Rule 4.3, item 4 of Rule 4.11, item 1 of Rule 5.2, and item 3 of Rule 6.4 and to authorize production in accordance with the terms of this waiver and variance. The basis of the finding of good cause to grant this waiver is the authorization of production of groundwater of lower quality from wells drilled in close proximity to the Carancahua Bay and completed in surficial water strata generally known to produce poor-quality groundwater with total dissolved solids typically in excess of 5,000 mg/L will likely 1) reduce future demand for high-quality groundwater found in deeper water strata in vicinity of the well field site and 2) produce valuable empirical data regarding the development of shallow, brackish groundwater resources near the coast line within the District.

Section 3 - Waiver and Variance Granted:

The Board of Directors grants the following waivers and variances subject to the conditions established herein:

1. waive the requirements, established under item 12 of Rule 4.2 and items 9 and 10 of Rule 4.3, to submit technical data with drilling and production permit applications and allow the data within the reports titled *Associated Permitting Applications to the report Assessment of Proposed Groundwater Production at Ekstrom Aquaculture LLC Expansion Project* authored by Venkatesh Uddameri, Ph.D., P.E., and *Assessment of Proposed Groundwater Production at Ekstrom Aquaculture LLC Expansion Project - Additional Simulations and Water Quality Analysis* authored by Venkatesh Uddameri, Ph.D., P.E. to suffice for such purposes;
2. waive the requirement, established under item 4 under Rule 4.11 for the applicant to attempt to obtain the waivers and identifying any required waivers that were not obtained and reason the waiver was not obtained in instances in which the rules of the District allow for exceptions contingent on waiver by adjoining or adjacent landowners;
3. waive the requirement, established under item 1 of Rule 5.2, to prohibit the placement of wells of a non-grandfathered well field closer than one foot per every one gallon-per-minute to wells not owned by the Permitted Entity and authorize the drilling of the proposed wells at locations within the contiguous acreage owned or controlled by the Permitted Entity at the tract of land encompassing the well field;
4. waive the requirement, established under item 3 of Rule 6.4, to limit production of groundwater from the subject well field, comprised of existing grandfathered wells with historic-use production permits, existing non-grandfathered wells with non-historic-use production permits, and proposed non-grandfathered wells, to a rate that does not exceed one-half acre foot per year per contiguous surface acre owned or controlled by the Permitted Entity at the tract of land encompassing the well field;
5. waive the performance standards established under item 13 of Rule 4.3 on the condition that the performance standards established in this waiver and variance shall apply;
6. authorize the production of groundwater from the subject well field at a rate not to exceed 5,884 acre-feet per year; and

7. authorize the production of groundwater from the subject well field at a rate not to exceed 9,210 gallons per minute.

Section 4 - Definitions:

The Board of Directors establishes the following definitions as part of this waiver:

1. **Non-grandfathered Brackish Well (NBW)** means a non-grandfathered well operated to produce brackish groundwater.
2. **Aquifer Monitoring Site (AMS)** means an area located on the contiguous property on which the subject well field is located and is designated as an aquifer monitoring site at which monitoring wells shall be established and aquifer monitoring activities shall be conducted.
3. **Dedicated Aquifer Monitoring Well (DAMW)** means a water well located within an AMS dedicated to and used solely for aquifer monitoring purposes.
4. **Upper Brackish - Dedicated Aquifer Monitoring Well (UB-DAMW)** means a DAMW constructed with a well screen isolated by a positive displacement seal within the groundwater zone from which NBWs will produce brackish groundwater.
5. **Lower Fresh - Dedicated Aquifer Monitoring Well (LF-DAMW)** means a DAMW constructed with a well screen isolated by a positive displacement seal within the groundwater zone with fresh water located below the zone from which NBWs will produce brackish groundwater.
6. **Initial Condition Evaluation Period (ICEP)** means the 10-day period of suspended groundwater production by the Permitted Entity during which the initial aquifer conditions at the well site shall be established.
7. **Initial Condition Adjustment Period (ICAP)** means a multi-month continuous duration observation period following the initiation of groundwater production from any of the subject wells under permit OPWF-20191219-01 requested by the Permitted Entity and authorized by the Board of Directors of the District.
8. **Initial Water Level Condition (IWLC)** means:
 - a. the average water level depth, as the measurement of water level depth below the surface, observed in a DAMW during the final 3-day period of the ICEP; or
 - b. the average water level depth, as the measurement of water level depth below the surface, observed in a DAMW during the most recently established ICAP, if any.
9. **Reporting Period (RP)** means the period of time of each month of a calendar year.
10. **Rolling Evaluation Period (REP)** means the 12-month period prior to the conclusion of a reporting period.
11. **Drawdown Adjustment Factor (DAF)** means the amount of drawdown in feet, as approved by the Board of Directors of the District, based on the analysis of water level depths below the surface in wells outside a 5-mile radius of the subject well field.
12. **Adjusted Water Level Condition (AWLC)** means the increased water level depth below the surface for a particular calendar year calculated by increasing the value calculated for the IWLC by the DAF.
13. **Average Water Level (AVG-WL)** means the average value of the measurement of water level depth below the surface, observed in a DAMW during the REP.
14. **Acceptable Water Level Change Factor (AWLCF)** means the limit of the increase of the AVG-WL calculated for a DAMW for a report period that is considered acceptable.

15. **Lower Fresh - Acceptable Water Level Change Factor (LF-AWLCF)** is 50 feet for each LF-DAMW.
16. **Upper Brackish - Acceptable Water Level Change Factor (UB-AWLCF)** is 20 feet for each UB-DAMW.
17. **Initial Water Quality Condition (IWQC)** means:
 - a. the initial water quality conditions, as specific conductivity measurements in $\mu\text{S}/\text{cm}$ units, observed in a DAMW during the final 3-day period of the ICEP; or
 - b. the water quality conditions, as specific conductivity measurements in $\mu\text{S}/\text{cm}$ units, observed in a DAMW during the most recently established ICAP, if any.
18. **Average Conductivity (AVG-COND)** means the average value of all specific conductivity measurements, in $\mu\text{S}/\text{cm}$ units, collected, at regular intervals, from a DAMW during the REP.
19. **Acceptable Conductivity Change Factor (ACCF)** means the limit of increase of the AVG-COND calculated for a DAMW for a report period that is considered acceptable.
20. **Lower Fresh - Acceptable Conductivity Change Factor (LF-ACCF)** is 260 $\mu\text{S}/\text{cm}$ units.
21. **Upper Brackish - Acceptable Conductivity Change Factor (UB-ACCF)** is 2,800 $\mu\text{S}/\text{cm}$ units.
22. **Produced Groundwater (PGW)** means the volume, in gallons, of groundwater produced from a well or set of wells of the subject well field during a specific reporting period.
23. **Produced Groundwater in Acre-Feet (PGW-AF)** means the volume, in acre-feet, of groundwater produced from a well or set of wells of the subject well field during a specific reporting period, calculated by dividing the PGW by 325,851.
24. **Produced Groundwater Year-to-Date (PGW-YTD)** means the volume, in gallons, of groundwater produced from a well or set of wells of the subject well field from January 1 of the report year to the end of the reporting period.
25. **Produced Groundwater Year-to-Date in Acre-Feet (PGW-YTD-AF)** means the volume, in acre-feet, of groundwater produced from a well or set of wells of the subject well field from January 1 of the report year to the end of the reporting period, calculated by dividing the PGW-YTD by 325,851.
26. **Average Water Level Difference (AVG-WL-DIFF)** means the difference between the AVG-WL calculated for IWLCs and the AVG-WL calculated for a report period.
27. **Average Conductivity Difference (AVG-COND-DIFF)** means the difference between the AVG-COND calculated for the IWQCs and the AVG-COND calculated for a report period.
28. **Special Management Area (SMA)** means a clearly demarcated area within the jurisdiction of the District (using natural or arbitrarily defined boundaries), that is subject to addition and/or alternative policies and rules than what are adopted and implemented on a district-wide basis.

Section 5 – Conditions and Requirements

The Board of Directors establishes the following conditions and requirements, in addition to those requirements established by the Rules of the District not affected by this waiver and variance, in conjunction with granting this waiver.

Section 5.1 – New Brackish Well Construction Requirements

The following conditions and requirements related to drilling and construction are established for the new NBWs operated under permit OPWF-20191219-01:

1. NBWs shall not be drilled to a depth that exceeds 220 feet below the surface of the ground;
2. NBWs shall not be drilled closer than fifty feet to the nearest property line; and
3. NBWs shall be constructed in a manner to facilitate the collection of water level measurements using a steel tape and water samples directly from the well head.

Section 5.2 – Groundwater Production Limitations

The following conditions and requirements related to groundwater production are established for the water wells operated under production permit OPWF-20191219-01:

1. Groundwater produced from the wells of the subject well field shall be used solely for agricultural purposes;
2. Groundwater shall not be produced from the grandfathered wells of the subject well field at gallons per minute rates that exceed the gallons per minute production rate identified within the historic use production permits associated with a specific grandfathered well of the well field; and
3. Groundwater production from any NBW shall not exceed 350 gallons per minute.

Section 5.3 – Groundwater Production Monitoring and Reporting Requirements

The following conditions and requirements related to groundwater production monitoring and reporting are established for the water wells operated under production permit OPWF-20191219-01:

1. Groundwater production from each well of the subject well field shall be measured by the Permitted Entity by calibrated flow meters.
2. Flow meters used to measure flow of groundwater shall be re-calibrated, by the Permitted Entity, at least every 5 years.
3. Monthly groundwater production volumes from each well of the subject well field shall be recorded and reported to the District on a monthly basis by the Permitted Entity.
4. Groundwater production measurements from the wells of the subject well field shall be reported to the District, by the Permitted Entity, within 30 days following the end of each monthly monitoring period.
5. Groundwater production measurements shall be reported, by the Permitted Entity, in a machine-readable format approved by the District.
6. Failures to meter groundwater production shall be reported to the district as an addendum to the associated monthly report with a summary of remedial action taken to resolve the failure and a reasonable estimate of unmetered production based on operational experience by Permitted Entity.

Section 5.4 – Aquifer Monitoring and Reporting Requirements

The following conditions and requirements related to aquifer monitoring and reporting are established for the well field operated under production permit OPWF-20191219-01:

1. AMSs shall be established by the Permitted Entity on the well field site within 300 feet for the following locations:
 - a. West-AMS: 28°41'6.266" N, 96°23'23.006" W;
 - b. Center-AMS: 28°41'8.800" N, 96°22'24.500" W; and
 - c. East-AMS: 28°41'9.856" N, 96°21'25.286" W.
2. A UB-DAMW shall be constructed at each AMS.
3. A LF-DAMW shall be constructed at each AMS.
4. Each DAMW shall be maintained by the Permitted Entity for the term of this waiver.
5. The District shall install and maintain, at the expense of the District, monitoring equipment including water level measurement measuring instruments and water conductivity measuring instruments at each DAMW.
6. Each DAMW shall be accessible to the District for the purpose of measuring aquifer conditions and installation of aquifer monitoring measuring instruments with reasonable advance notice to the Permitted Entity.
7. Water level measurements and conductivity measurements made and recorded by the District shall be used and, if determined to be appropriate by the District, substituted for corresponding, i.e. the same location, date, and time, measurements to be made and recorded by the Permitted Entity.
8. Each UB-DAMW shall have hourly water level measured and recorded by the District. These measurements can be made using a manufacturer-calibrated transducer.
9. The aquifer measurements collected during each monthly monitoring period by the District from the DAMWs shall be reported to the Permitted Entity within 15 days of the end of each monthly monitoring period.
10. The aquifer measurements shall be reported by the District in a machine-readable format.
11. The District shall design and implement an off-site monitoring program for the purposes of collecting groundwater level and water quality measurements of the well field production zones within 2 miles of the fish farm to support the scientifically credible assessment of aquifer conditions.
12. The District shall assess the monitoring data collected through the implementation of the off-site monitoring program on an annual basis during the time period this waiver is in effect.
13. The District shall evaluate the assessment of monitoring data and determine if the creation of a special management area by the District in the vicinity of the fish farm is warranted.

Section 5.5 – Aquifer Monitoring Data Evaluation Requirements

The following conditions and requirements related to aquifer monitoring data evaluation are established for the well field to be operated under production permit OPWF-20191219-01:

1. IWLCs shall be calculated by the District for each DAMW prior to operation of any of the subject wells under permit OPWF-20191219-01; and
2. IWLCs may be revised by the District, if requested by the Permitted Entity and authorized by the board of directors of the district, following the initiation of groundwater production from any of the subject wells under permit OPWF-20191219-01;
3. IWLCs for each DAMW shall be calculated as:
 - a. the AVG-WL for the measurements collected by the District from the DAMW during a 3-day duration observation period occurring before commencement of operations under OPWF-20191219-01 during which groundwater production from

- other wells owned or controlled by Permitted Entity is suspended and was suspended for the preceding 7-day period; or
 - b. the AVG-WL for a set of measurements collected by the District from the DAMW during the most recently established ICAP, if any.
- 4. IWQCs shall be calculated by the District for each DAMW prior to operation of any of the subject wells under permit OPWF-20191219-01; and
- 5. IWQCs may be revised by the District, if requested by the Permitted Entity and authorized by the board of directors of the district, following the initiation of groundwater production from any of the subject wells under permit OPWF-20191219-01.
- 6. IWQCs for each DAMW shall be calculated as:
 - a. the AVG-COND for the measurements collected by the District from the DAMW during the same 3-day duration observation period occurring before commencement of operations under OPWF-20191219-01 as was observed for the IWLC calculation; or
 - b. the AVG-COND for a set of measurements collected by the District from the DAMW during the most recently established ICAP, if any.
- 7. The water quality measurements collected by the District to calculate the IWQCs shall be collected during the same time period during which the water level measurements were observed for IWLC calculation.
- 8. For each monthly reporting period, the following parameters shall be calculated and reported for each well of the well field by the Permitted Entity:
 - a. PGW;
 - b. PGW-AF;
 - c. PGW-YTD; and
 - d. PGW-YTD-AF.
- 9. For each monthly reporting period, the following parameters shall be calculated and reported for both the current and previous monthly reporting period for each DAMW of the well field by the Permitted Entity:
 - a. AVG-WL;
 - b. AVG-COND;
 - c. AVG-WL-DIFF; and
 - d. AVG-COND-DIFF.

Section 5.6 – Well Field Monitoring Performance Criteria

The following conditions and requirements are established as performance criteria to demonstrate compliance with production permit OPWF-20191219-01 regarding well field monitoring:

- 1. the monitoring data related to groundwater production collected by the Permitted Entity shall not have data gaps that constitute more than 5% of the total prescribed measurements per production well during a year.

Section 5.7 – Groundwater Production Performance Criteria

The following conditions and requirements are established as performance criteria to demonstrate the compliance with production permit OPWF-20191219-01 regarding groundwater production:

1. the PGW-YTD-AF for the well field shall not exceed the aggregate volume of groundwater production authorized by the District under production permits associated with water wells within the well field; and
2. the PGW-YTD-AF for the wells GW-00112 (IW-1), GW-00115 (IW-2), and R1GW-00452 (IW-3 Replacement Well) (i.e., wells producing groundwater from the fresh zone) shall not exceed the 90% of the aggregate volume of groundwater production authorized by the District under production permits associated with water wells within the well field.

Section 5.8 – Groundwater Level Performance Criteria

The following conditions and requirements are established as performance criteria to demonstrate compliance with production permit OPWF-20191219-01 regarding groundwater water levels:

1. the average of the AVG-WL for all of the LF-DAMWs, during a reporting period, shall not exceed the IWLC or the most recent AWLC, whichever is greater, by more than the LF-AWLCF; and
2. the average of the AVG-WL for all of the UB-DAMWs, during a reporting period, shall not exceed the IWLC or the most recent AWLC, whichever is greater, by more than the UB-AWLCF.

Section 5.9 – Groundwater Quality Performance Criteria

The following conditions and requirements are established as performance criteria to demonstrate compliance with production permit OPWF-20191219-01 regarding groundwater quality:

1. Limits of Acceptable Initial Conditions:
 - a. the AVG-COND calculated for the IWQCs for any LF-DAMW shall not be greater than 2,600 $\mu\text{S}/\text{cm}$;
 - b. the AVG-COND calculated for the IWQCs for any UB-DAMW shall not be less than 7,000 $\mu\text{S}/\text{cm}$; and
 - c. the AVG-COND calculated for the IWQCs for any UB-DAMW shall not be greater than 28,000 $\mu\text{S}/\text{cm}$.
2. Limits of Acceptable Impact Calculated during Reporting Period:
 - a. the AVG-COND calculated for any LF-DAMW during the reporting period shall not be greater than 3,000 $\mu\text{S}/\text{cm}$; and
 - b. the AVG-COND for any UB-DAMW during the reporting period shall not exceed 33,000 $\mu\text{S}/\text{cm}$.

Section 5.10 – Performance Responses

The following conditions and requirements as performance responses are established for the well field operated under production permit OPWF-20191219-01:

1. In the event that any performance criteria are not satisfied during two consecutive reporting periods, groundwater production from wells of the subject well field during the reporting period shall be curtailed to 50 percent of the average reporting period PGW of the current REP.
2. After the first reporting period with all performance criteria returned to satisfactory conditions after the most recent imposition of curtailment under this section, the curtailment

groundwater production from wells of the subject well field shall be reduced by 50% for the next reporting period.

3. After the first reporting period with all performance criteria returned to satisfactory conditions after the most recent imposition of curtailment under this section, the curtailment groundwater production from wells of the subject well field zone shall be eliminated for the next reporting period.
4. In the event that curtailment is imposed on the well field under this section and a cold period with sustained temperatures below 45 degrees Fahrenheit is predicted for a duration in excess of 5 days, the Permitted Entity shall be permitted to initiate production of up to 350 acre-feet of groundwater from the well field to provide thermal protection to ponds located on the fish farm 3 days in advance of and during the cold period.

Section 5.11 – Failure to Comply with Required Responses

The following conditions and requirements related to failure to comply with performance responses are established for the well field to be operated under production permit OPWF-20191219-01:

1. In the event that groundwater production from the wells of the subject well field is not curtailed as required under this waiver, groundwater production from the wells of the subject well field shall be terminated until all enforcement proceedings have concluded.

Authorization

On January 16, 2025, the Board of Directors approved a motion instructing the General Manager to issue the waiver and variance request as described above.



Tim Andruss, General Manager

February 20, 2025

Date

Waiver and Variance Acceptance

Reed Bowers, President of Bowers and Saha Aquaculture, LLC

Date