UW BRAZOS VALLEY FARM, LLC
WELL MITIGATION PROCEDURE

BRAZOS VALLEY GROUNDWATER CONSERVATION DISTRICT

Water Well Mitigation Procedure

Introduction

The Brazos Valley Groundwater Conservation District (BVGCD) enters into this Mitigation Agreement with UW Brazos Valley, LLC (UWBVF) to provide good stewardship of the groundwater resource and proactively take the necessary steps to minimize potential effects to the surrounding community of the drawdown of the water table, the reduction of artesian pressure, and interference between wells.

Well mitigation will be conducted in two phases. The first phase (pre-mitigation) will involve identification of wells that have a high probability of being significantly impacted by operation of the UWBVF-related project associated with Permits: _____. Wells that will be mitigated will be identified on the basis of hydrologic modeling and proximity to the project area. The second phase (mitigation) will involve data collection, diagnostics on individual wells, well mitigation, and response to well owner complaints.

The mitigation program will take into consideration wells that are identified as having pre-existing water quality and/or construction deficiencies. Program dollars will not be utilized to correct such deficiencies. In general, mitigation options will be limited to lowering a pump, replacing pumping equipment, drilling a new well, or connection to an existing municipal supply. It is anticipated that nearly all mitigation cases will be different depending on the condition of the well and pumping equipment, construction techniques, and the proximity of the well to the UWBVF project.

Objectives of the UW Brazos Valley, LLC (UWBVF) Mitigation Plan

The primary objective of the UWBVF well mitigation program is:

- to assist existing well owners/operators owning wells that have been adversely affected by UWBVF water production, from its land in Robertson County or operation of its project;
- to mitigate wells in a manner that will preclude the need for any subsequent mitigation of the same well in the future;
- to conduct well mitigation activities in a consistent manner that is fair to all area well owners and builds consensus and support in the community;
- to respond to complaints of well owners that may have been adversely impacted by the UWBVF Project and resolve problems that have been determined to be caused by the project operation in a timely manner; and
- to protect the Simsboro Aquifer as a resource, BVGCD will take the necessary steps to bring wells eligible for mitigation up to current state regulatory standards with regards to construction of well slab, raising casing, and installation of sanitary seal consistent with this Agreement.

Mitigation Procedures

The following set of procedures will outline the general work flow, support services, and the outside services required by the BVGCD to effectively address mitigation of domestic, irrigation, public supply, and industrial wells located in Brazos and Robertson counties in the impact area of the UWBVF project.

1.0 Mitigation Criteria

In order for BVGCD to mitigate a specific well that has been, or potentially will be significantly impacted by operation of the UWBVF project, the well must meet the following criteria. Assessment of significant impacts will be based on well water level monitoring data collected by the BVGCD and groundwater flow modeling of the estimated effects of UWBVF groundwater pumping.

- The well must screen sands of the Simsboro Aquifer.
- All mitigation efforts shall be conducted with the consent of the legal well and property owner.
- The well must be registered/permitted with the BVGCD. If the well is not currently registered/permitted with the District, a landowner could immediately file the necessary registration paperwork and then the well would be eligible for mitigation.
- The well must have been installed before December 31, 2024.
- The well must be active and have operational equipment capable of pumping Simsboro water to the land surface. The BVGCD staff will determine if the well has been active.
- The well must be located in Brazos or Robertson County.

2.0 Well Investigation

The BVGCD staff will investigate individual wells located within the mitigation area. Once it is determined that the well is located within the mitigation area, BVGCD staff will identify to the well owner the location of their well and explain how the operation of the UWBVF project may impact their well. The BVGCD staff will then explain to the well owner the possible courses of action that the BVGCD shall take to address the interference drawdown effects on their well. The BVGCD staff will also collect the following basic data during the initial investigation:

- Necessary information to obtain during initial site visit
    - Legal Well Owner's Name
    - Contact Information (Address, phone number, cell phone number)
    - Primary Well Use
    - Secondary Well Use (if any)
    - Well ID (State and/or Water District
    - Latitude and Longitude
    - Casing Diameter, Screen Diameter, Casing Depth Setting and Screen Depth Setting
    - Year Drilled
    - Storage Tank Volume
    - Number of facilities provided water by well
    - Well drilling contractor
    - Any known well deficiencies (producing sand, producing colored or turbid water, screen issues, casing issues, etc.)

- Determine that the well is within the proposed affected area.
- Digital Photos of the wellhead and associated appurtenances. If possible, these photos will also document any unusual conditions associated with the well or well site.
- Latitude and Longitude coordinates of the wellhead, via the use of Global Position System (GPS) equipment.
- Copies of any owner provided well information such as drilling reports, geophysical logs, invoices, etc.
- Review with the well owner the preferred route for the contractors to take in order to get to the well site so that any potential damage to underground pipes, septic systems, overhead electrical lines, and/or telephone lines can hopefully be avoided.
- The BVGCD staff should thoroughly document (digital photography) the condition of the well owner's property, the well site, and the route that service equipment will utilize to service the well prior to entering the property with the well service contractor or any equipment.
- Present the well owner with a copy of the "Right of Entry" form (located in Appendix A) for review and signature in order for BVGCD to initiate any diagnostic or mitigation efforts. BVGCD will not allow any contractors on-site without first having the legal owner sign the "Right of Entry" form.

The goal of the well investigation is to gather as much information regarding the well and the conditions of the system providing water to the residents of the property, water for irrigation, residents served by a public water supply system or industry to aid in future diagnostic or mitigation efforts. After the well investigation, BVGCD staff will enter the data collected during the investigation into the well mitigation database. BVGCD staff will create and enter the data into a hard-copy file and will try to correlate the well information with the state and district databases.

After the well investigation, BVGCD staff will work with the landowner to schedule an agreed upon time to have the authorized contractor perform diagnostics on the well(s).

3.0 Water Well Diagnostics

Well Diagnostics are an important step in the mitigation process. At times, well owners may not have sufficient information or records for their well or method of construction in order to perform well mitigation without the diagnostics phase. Even if the well owner provides information (driller's log, construction and equipping invoices) on their well it could still be necessary to perform diagnostics due to the fact that the water level and well condition will change over the life of a well. The information gathered during the diagnostics phase will be the basis for mitigation decisions and actions. It is very important that all of the necessary information listed in this section be obtained in order to make sound mitigation decisions.

Residential wells will be diagnosed and returned to service as quickly as possible due to the fact this well may be the only water source. Diagnostics for irrigation, public supply and industrial wells may potentially take longer and therefore the well may not have to be returned to operation as quickly as a domestic well.

Prior to the actual diagnostics being performed, the BVGCD staff member will ensure that the following steps are taken:

- Ensure that BVGCD has a signed copy of the "Right of Entry" form signed by the legal owner of the well and property on which the well is located.
- Process work estimate for diagnostics and provide to contractor.
- Schedule appropriate contractor based on work required by the well.
- Prior to entering the property, BVGCD staff and the well service contractor should meet with the well owner or designee to determine if there are any safety hazards along the access route between the entrance to the property and the well site prior to heavy equipment entering the property. In addition, the well owner and landowner should be asked to identify the location of any underground water, septic tank and lateral line drain field, telephone, cable, electrical lines (underground or overhead) or other utilities that could be inadvertently damaged while mitigating the well. All discussions should be documented completely. Depending on the location, underground electrical, water, or cable utilities may need to be marked if they will interfere with access to the well.

The actual diagnostics will involve the appropriate licensed drilling/well service contractor performing the following steps with a District staff member present:

- Contractor to perform inspection and testing of control box / pump electrical.
- Measure the static water level in the well from the land surface.
- Run the pump and measure the water level drawdown from the land surface.
- Measure the pumping rate in gallons per minute (GPM).
- Remove the pump column and pump, as needed, in order to determine where the pump is set and the condition of the pump and pump assembly equipment.
- Take digital photos of the equipment to document condition.
-
- Televise the well, if needed, in order to determine the location of the screened intervals and if there are any unusual conditions or deficiencies associated with the well.
- The drilling/well service contractor will determine if the well is within TCEQ and Texas Department of Licensing and Regulation (TDLR) well construction standards. If the well is not up to standards, then the District staff member will inform the landowner of what does not meet state requirements and what BVGCD is able to do regarding the noted deficiencies.
- In some cases, enough information may be obtained during the investigation/ diagnostics phase to make a sound mitigation decision at that time. If time allows the mitigation team member would then authorize the contractor to make the necessary adjustments in order to complete mitigation based on estimates of future pumping effects and return the well to service.
- If a mitigation determination cannot be made at this point, and the owner needs the use of the well, the contractor will re-install the equipment and ensure the well is functioning properly.
- After the completion of the diagnostics phase, the contractor will provide BVGCD with a detailed diagnostic report. Copies will be retained in the hard copy file, as well as entered into the mitigation database. Copies of the diagnostic report and any televising video will also be provided to the well owner.
- Necessary information to be obtained during the diagnostics phase
    - Static Water Level
    - Water Level Drawdown While Pumping at a Measured Rate
    - Gallons Per Minute Flow-rate – Pump Capacity
    - Pump Setting
    - Total Depth
    - Televised Inspection of Well
    - Overall System Evaluation, State Standard Deficiencies
    - Electrical Evaluation

After the diagnostics phase, BVGCD staff will evaluate well diagnostic information and determine the required mitigation actions.

4.0 Diagnostics Evaluation

Diagnostics evaluation will involve verifying that the well is eligible for mitigation, and if so, determining what form of mitigation, if any, will be required. Based on the characteristics of the well the evaluation may be performed by BVGCD staff.

BVGCD staff will review the diagnostics report and compare this information to the hydrologic monitoring program and groundwater flow modeling data to estimate artesian head changes for that specific well screening sands of the Simsboro Aquifer.

In cases where it may be necessary to drill a new well, or unusual well conditions exist, BVGCD staff will confer with District hydrogeologist, and will review all of the information regarding the specific well diagnostics and render a decision on necessary mitigation actions.

5.0 Well Mitigation

The BVGCD objective is to take the necessary steps to address potential effects as reduction in well pumping rate to water wells within the area surrounding the UWBVF project. In cases where the potential effects warrant corrective measures, well mitigation activities will be required to modify wells to address the ability of the well owner to continue to access groundwater through their existing well system.

Based on all of the information gathered during the initial investigation and the diagnostics phase BVGCD staff will determine the mitigation actions required for each well. The mitigation efforts will range from no action required, meaning the well will accommodate the drawdown in the water level in the aquifer for that specific site, to replacing the well. Mitigation options may include:

- No Mitigation Required - If the well and the pump are deep enough to accommodate the anticipated drawdown for that location, no mitigation is necessary.

- Lowering of Pump - If the well is deep enough, and the pump can be lowered to a level that will accommodate the anticipated drawdown for that location, then the pump will be lowered.
    - Prior to lowering of the pump if it is determined that the current pump and/or motor will not be sufficient to maintain the prior output at the proposed drawdown level, then BVGCD will replace the pump and/or motor.

- Drilling of New Well - If the well is not deep enough and will not accommodate the lowering of the pump to accommodate the anticipated drawdown for that location, then BVGCD will have a replacement well drilled. In most locations, BVGCD will plug the existing well(s) unless the District views it prudent to utilize the existing well as a water level monitoring station. The contractor performing the

work will be required to obtain necessary permits and/or approvals from the local governing entities.

In all cases, the proposed mitigation actions will be explained to the well owner prior to any work being performed and the well owner will be required to acknowledge this by signing the "Mitigation Acknowledgement" form located in Appendix B.

During the diagnostics phase, if the well has been determined to have any deficiencies as outlined by the state regulatory standards, then BVGCD will assess the deficiencies and correct them, if practical at the at District expense, if appropriate, in order to protect and preserve the Simsboro Aquifer. Bringing the well up to well construction standards may include the following actions:

- Constructing a sanitary well slab
- Raising the well casing to required height
- Replacement/Installation of sanitary seal

BVGCD may elect to repair/replace other well components that have the potential to fail or cause future problems that BVGCD could potentially be liable for. These might include the following components:

- Inferior electrical cable.
- Electrical system deficiencies.
- Deteriorated pump column/drop pipe.
- Associated appurtenances.
- Installation of a 1" sampling port.

All well mitigation activities shall be conducted in accordance with State and local requirements and regulations and adhere to the guidelines outlined in the well mitigation contracts. These contract guidelines have been developed to ensure that proper well construction methods are utilized. The BVGCD staff will coordinate all mitigation activities.

WARRANTY

Under the mitigation contracts, the individual contractors are responsible for the warranty of their work regarding defective workmanship or materials, or both, which in the judgement of the District shall become necessary during a 24 month period after the date of final acceptance of work. If within 3 days after the receipt of a notice in writing to the Contractor or his agent, the Contractor shall neglect to make or to undertake with due diligence the aforesaid repairs, BVGCD staff is hereby authorized to engage another contractor to make such repairs at the Contractor's expense.

6.0 Well Owner Complaint Response

This section will address the emergency complaint response process for water well outages that occur as a result of the operation of the UWBVF project. Every effort will be made to respond to well owner complaints in a timely manner. If necessary, water will be provided to well owners temporarily until their well can be restored to full operation if it has been determined that the well has been impacted by the production the UWBVF project.

7.0 Program Funding for Well Mitigation Related to the UWBF Project

Appendix A

[Date]

Brazos Valley Groundwater Conservation District
112 W. 3rd StreetHearne, Texas 77859

Re: _____[Owner's Name]_____ ("Owner") and the Brazos Valley Groundwater Conservation District ("BVGCD")

To Whom it May Concern:

Effective as of this date, Owner grants to the Brazos Valley Groundwater Conservation District (BVGCD) and its designees the right to enter upon the property depicted on the attached site plan (the "Property") to make inspections and tests for the limited purpose of determining whether or not the BVGCD will undertake remediation efforts in connection with Owner's water well or wells for alleged impact arising from the UW Brazos Valley Farms, LLC (UWBVF). Any tests conducted in connection with such inspection shall be conducted so as not to damage the Property. Within ten days after receipt, BVGCD shall deliver one copy of any test reports to Owner. BVGCD agrees to promptly repair or restore any damage to the Property caused by BVGCD, its agents and contractors, or resulting from the tests and inspections performed by BVGCD. Upon completion of BVGCD investigations and tests, or upon the termination of the rights set forth in this letter, BVGCD shall immediately restore the Property to substantially the same condition as it existed before BVGCD entry upon the Property. Owner may terminate the rights of BVGCD set forth in this letter at any time by written notice to BVGCD.

This letter may be executed by facsimile in any number of counterparts and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one Letter Agreement.

OWNER:

_____

By:_____
Name:_____
Title:_____

AGREED TO AND ACCEPTED this _____ day of _____, 2003.

Brazos Valley Groundwater Conservation District

By:_____
Name:_____
Title:_____

Appendix B

UW Brazos Valley Farm, LLC

Mitigation Acknowledgement

The following box(es) indicate the work to be performed by the Brazos Valley Groundwater Conservation District (or its contractors) to mitigate water level declines for affected wells directly attributable to the UW Brazos Valley Farm, LLC project.

- ❑ Extend pump column and electrical wire, and lower pump with all appropriate appurtenances to level below the maximum projected water level decline for the UW Brazos Valley Farm, LLC project.

- ❑ New water well drilled - existing well had insufficient depth to provide access to water below the maximum projected water level decline for the UW Brazos Valley Farm, LLC project.

- ❑ Previously existing water well has been plugged to applicable TCEQ and Brazos Valley Groundwater Conservation District water well plugging standards.

Mitigation activities indicated above for the existing well _____(name or number) at _____(GPS location) were completed by the Brazos Valley Groundwater Conservation District (or contractors) on _____(date).

_____
Brazos Valley Groundwater Conservation District Staff Member

_____
Date

I hereby acknowledge that the Brazos Valley Groundwater Conservation District has completed the activities indicated above to provide access to water.

_____
Landowner

_____
Date

Appendix C

Table 1: Repair or Replacement Items

Will Replace	May Replace	Will Not Replace
Deteriorated Pump Column Assembly	Pump (dependent on pump curve)	Storage Tanks
Inferior or spliced Electrical Wiring to pump	Motors (dependent on pump curve)	Electrical from the service to the well slab
Well Slab to bring up to TCEQ standards	Foot Valve	Filter
Sanitary Well Seal	Inline Valve	Water softener
Add Pump Bowls when necessary	Control Box	Reverse Osmosis Filtration Unit
	Pressure Switch	Electrical upstream of Junction Box
	Pressure Gage	Electrical Conduit to well site
	Above grade (well slab) plumbing	Well house (weather proofing) over well
	Tank Pressure Relief Valve	Insulation in well house
	Pressure Tank if near well slab	Trees
	Well Casing Extension	Contractor Damages
	Check Valve	Sod replacement
	Sample Tap	Landscaping
	Breather with Screen	Fees & Permit
	Electrical Tap at well pad	Driveways
	Conduit & electrical wire in case of a well replacement. considered on a “case by case” basis.	Booster Pumps
		Future Electrical Costs
		Electrical Inspection of Service