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August 8, 2017

Ms. Jan Roe
President, Brazos Valley Groundwater Conservation District
1112 West 3rd St.
Hearne, TX 77859

Re: Proposed District Rule Amendments

Dear Ms. Roe:

These comments are submitted to the Brazos Valley Groundwater Conservation District (BVGCD) on behalf of the City of Bryan in response to the District's July 17, 2017 legal notice inviting comments on proposed District rule amendments. The City's comments are set forth below in their order of importance. For your convenience suggested changes to the proposed rules in a track changes format are attached:

1. Propose rule 8.4(b)(7)(B)(3) identifies the requirements that must be addressed in an evaluation report for wells capable of producing more than 800 acre feet per year. The proposed rule specifies that the estimate of the pumping effect of a proposed well "shall be developed using the TWDB Queen City-Sparta GAM or the Yegua-Jackson GAM as applicable". This estimate of pumping effect will be used to evaluate the "estimate of drawdown [*more likely artesian head decline*] at the locations of existing registered and permitted wells contained in the BVGCD database that screen the same aquifer and are located within one mile of the well(s)". There are two problems with this proposal:
 - a. Use of the GAM to determine artesian head decline at existing wells within one mile of the proposed well would not satisfy the requirement that the District use best available science in the

conservation and development of groundwater. As expressly stated by the Texas Water Development Board (TWDB) “GAMs are regional models and use grids that are generally too large to help with analyzing individual wells on a local scale.” TWDB has developed a web-based tool that estimates potential drawdown of water levels in a well due to various pumping scenarios. See <http://www.twdb.texas.gov/groundwater/models/analytical/index.asp>. The rule should require that the pumping effect of the proposed new well on registered and permitted wells within one mile be evaluated with an analytical tool provided or approved by the TWDB Executive Administrator and the best available science concerning localized aquifer properties such as transmissivity and storativity.

- b. The Queen City-Sparta GAM is currently being updated. If the District elects to retain a requirement that the evaluation report includes an analysis of the pumping effect of the proposed well within a five mile radius using the GAM, it should specify that the GAM to be used is the most recently TWDB approved version of the GAM.
2. Proposed Rule 8.4(b)(7)(B)(4) specifies the permit application requirements for a pump test on wells capable of producing more than 800 acre feet per year. There are two problems with this proposal:
 - a. Bill Mullican, the City’s hydrologist, advises that these requirements do not appear to be based on a published protocol and would result in only five log cycles of drawdown data, a very small amount for meaningful analysis. The City of Bryan recommends that the pump tests requirements include a drawdown period of not less than 36 hours and a recovery period sufficient to record at least 95% recovery from the maximum drawdown.
 - b. This proposed addition to Rule 8.4(b)(7)(4) specifies an application requirement that cannot be supplied before the well is drilled and completed. Requiring this information through an application requirement conflicts with the requirement of Rule 8.3(a) which prohibits drilling a well without first obtaining a permit. It would seem more appropriate to include the requirement concerning conducting a pump test on wells producing more than 800 acre feet per year in Rule 8.7 Operating Permit Provisions.

3. Proposed rule 8.4(b)(7)(A) requires an evaluation report for wells producing more than 400 acre feet per year, but less than 800 acre feet per year. This report must provide an estimate of drawdown using the Theis equation and aquifer transmissivity and storage coefficients from the applicable groundwater availability model or other appropriate sources. However the proposed rule does not specify that the report be sealed by a professional engineer or geologist with expertise in groundwater hydrology. Having the report sealed by the registered professional should be required.

The City of Bryan appreciates the opportunity to provide these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Mathews". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Jim Mathews

CC: Jayson Barfknecht
Janis Hampton

requirements of the District's Rules. These permits will have a one-year term. The General Manager may grant such administratively complete permit applications without notice, hearing, or further action by the Board; but shall provide a report of the granted permits to the Board.

RULE 8.4. APPLICATIONS

- (a) Each original application for a certificate of registration, water well drilling permit, operating permit, transport permit, and permit renewal or amendment requires an application by the applicant. Applications for multiple wells may be combined if submitted by the same applicant. Application forms will be provided by the District and furnished to the applicant by request. The District will hold hearing(s) on a permit application(s) in accordance with Section 14 of the District's Rules.
- (b) An application shall be in writing and sworn and shall contain:
 - (1) the name and mailing address of the applicant and the name and address of the owner of the land, if different from the applicant, on which the well is to be located;
 - (2) if the applicant is not the owner of the property, documentation establishing the applicable authority to construct and operate a well on the owner's property for the proposed use;
 - (3) the applicant must provide evidence that they have the legal authority to produce the groundwater associated with the land surface and the permit application, as required by Rule 7.1(c). The applicant must also provide any documents that transfers that right to own, control, or produce the groundwater rights to another person/entity that are associated with the land surface and the permit application, as required by Rule 7.1(c). A permit may be amended or revoked if the groundwater rights or right to produce, related to a permit under Rule 7.1(c), are legally transferred to another person/entity;
 - (3)(4) _____ for exempt wells, a statement regarding the basis for asserting that the well will be exempt under Rule 8.1.;
 - (4)(5) _____ a statement of the nature and purpose of the proposed use and the amount of _____ water to be used for each purpose and any evidence supporting the authenticity of the intended beneficial use;
 - (5)(6) _____ except for exempt wells and operating permits for Existing wells based on historic use, availability of feasible and practicable alternative supplies to the applicant;

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(6)(7) _____ except for exempt wells, wells in the Brazos River Alluvium, and wells not capable of producing more than 400 acre-feet/year:

(A) in the case of wells capable of producing over 400 acre-feet/year but less than 800 acre-feet/year: an evaluation of the projected effect of the proposed withdrawal on the aquifer or any other aquifer conditions, ~~depletion, subsidence,~~ or effects on existing permit holders or other groundwater users in the District sealed by a registered professional engineer or geologist that has expertise in groundwater hydrology;

The evaluation report shall include the following:

(1) The depth interval and water bearing zone proposed to be screened, the anticipated thickness of the water bearing zone, and whether the water bearing zone is anticipated to be in an unconfined or confined condition.

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(2) A table giving data on each registered or permitted well located within one mile of the well(s) and screening the same aquifer. The well table shall include the name of the well owner, well registration or permit number, casing and screen diameters and depth settings, total well depth, and aquifer screened. A map shall be provided showing the location of the well(s) at a scale no greater than one-inch equals 1,000 feet.

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(3) An estimate of the drawdown that can be caused by pumping the well(s) at the permitted rate for one year and ten years at a distance of up to five miles from the well(s). Water-level drawdown contours shall be shown at ten-foot contour intervals. The estimate can be developed using the Theis equation and aquifer transmissivity and storage coefficients in the TWDB Queen City Sparta GAM or TWDB Yegua-Jackson GAM, as applicable. Aquifer hydraulic data available from other sources and in proximity to the well(s) also can be considered in estimating the water-level drawdown effects of pumping.

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(4) A table giving the drawdown at the location of existing registered and permitted wells contained in the BVGCD database that screen the same aquifer as the well(s) and are located within one mile of the well(s).

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(B) in the case of wells capable of producing 800 or more acre-feet/year: study shall be conducted by a registered professional engineer or geologist that has expertise in groundwater hydrology evaluating the projected effect of the proposed withdrawal on the aquifer or any other aquifer conditions,

depletion, subsidence, or effects on existing permit holders or other groundwater users in the District. Five copies of the report shall be submitted with the permit application.

The evaluation report shall include the following:

- (1) A description of the hydrogeologic conditions in proximity to the well(s) that includes:
 - a. the surface geology
 - b. the depth interval of the proposed water bearing zone
 - c. the anticipated thickness of the water bearing zone
 - d. a statement of whether the water bearing zone is anticipated to be in unconfined or confined condition
 - e. a description of any hydrologic features or geologic features located within one mile of the proposed well(s) site(s).
- (2) A well table giving data on each registered or permitted well located within one mile of the well(s) and screening the same aquifer. The well table shall include the name of the well owner, well registration or permit number, casing and screen diameter and depth settings, total well depth, and aquifer screened. A map shall be provided showing the location of the well(s) at a scale no greater than one-inch equals 1,000 feet.
- (3) An estimate of the water-level drawdown (or artesian head decline) that can be caused by pumping the well(s) at the permitted rate for one year and ten years at a distance of five miles from the well(s). Water-level drawdown contours shall be shown at ten-foot contour intervals. The estimate of pumping effects shall be developed using the most recently TWDB approved version of the TWDB Queen City Sparta GAM or TWDB Yegua-Jackson GAM, as applicable. Aquifer hydraulic data available from other sources for wells located in proximity to the well(s) may be considered in estimating the water-level drawdown effects of pumping. Include in the evaluation an estimate of the drawdown at the locations of existing registered and permitted wells contained in the BVGCD database that screen the same aquifer as the well(s) and are located within one mile of the well(s). This estimate shall be developed using an analytical tool provided or approved by the TWDB Executive Administrator and the best available science concerning localized aquifer properties such as transmissivity and storativity
- (4) After construction and testing of the well(s), provide well pumping

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Comment [JM1]: Pursuant to Rule 8.3(a) a new well cannot be constructed until it first obtains a permit. Requiring this pump test of a constructed well as an application requirement conflicts with Rule 8.3(a). This provision should be added to Rule 8.7 Operating Permit Provisions.

test results within 60 days of the date construction is completed to include the aquifer testing data and evaluation. In general, the well pumping test shall include a drawdown period of not less than 36 hours and a recovery period sufficient to record at least 95% recovery from the maximum drawdown consist of a phase where the static water level of the well(s) is measured on a regular basis for at least 6 hours prior to a test, a constant pumping phase of not less than 16 hours, and a recovery phase of at least 6 hours during which the static water level is measured on a regular basis in the well(s), unless an alternative pumping test schedule is proposed by the applicant and found acceptable by the BVGCD. The well(s) shall be equipped for the pumping test to produce water at a rate similar to its ultimate planned use, and the evaluation shall address the impacts of that use including the water-level drawdown effects of pumping after one year and ten years of pumping over the area that extends five miles from the well(s). The Board shall have the option of adjusting the permit conditions based on best available science including the results of the pumping test that provides data regarding the aquifer hydraulic properties in the vicinity of the well(s).

- (C) the District may adopt a guidance document to specify the required contents of the hydrogeological evaluation or report.
- (D) for a single well application, an applicant may request that the District engage its hydrologist to complete the required report specified in this subsection. The District has complete discretion to accept or deny the applicant's request. If the District does agree to have its hydrologist perform the report, then the applicant is required to pay for the District's actual costs of conducting the hydrogeological study. The District's hydrologist will not perform a report for a multiple well application or for multiple single-well applications that are submitted less than 24 months apart.
- (E) A permittee that applies for an amendment to an existing permit seeking to increase the allowable production to 800 ac-ft/yr or more, must submit a hydrogeological study under (B), above, with their amendment application.

A permittee that applies for an amendment to increase an existing permit that currently has allowable production of 800 ac-ft/yr or more shall submit a new hydrogeological study under (B), above, if the requested amendment increases the annual production by 20% or more.

- (78) the applicant's water conservation plan and, if any subsequent user of the water is a municipality or entity providing retail water services, the water conservation plan of that municipality or entity shall also be provided along with a copy of the contract between the applicant and any subsequent user of the