

LONE STAR GCD'S HYDROGEOLOGICAL REPORT GUIDELINES

Adopted pursuant to Rules 2.6(b)(16), 2.12 and 3.4

I. Introduction

- A. The purpose of the Hydrogeological Report is to provide the District with hydrogeological information addressing the impacts of the proposed well on existing wells. The Hydrogeological Report Requirement will assist with the District's mission to collect data and use the best available data and science in managing aquifers of the District.
- B. The Hydrogeological Report must be included with an administratively complete application for any of the following:
 - (i) a request to modify or increase an existing well or well system that would result in the existing well(s) being equipped to produce 700 gallons per minute or greater;
 - (ii) a request to drill and operate a proposed new well or well system with a proposed aggregate production capacity of 700 gallons per minute or greater; and/or
 - (iii) a request for an exception to the spacing requirements in Rule 3.2 or Rule 3.3.
- C. Reports submitted pursuant to Rules 2.6(b)(16), 2.12, and 3.4, and these guidelines are required to be stamped by a Professional Geoscientist or Professional Engineer licensed in the State of Texas
- D. Hydrogeological Reports submitted to the District should follow the chronological order of the criteria set forth in Section II.

II. Requirements of Hydrogeological Reports (prior to Drilling)

- A. Anticipated specific details of well construction must include the following:
 - 1. Schematic well construction diagram including completion (i.e., screened) intervals and screen diameter, filter pack setting (if applicable), casing diameter and setting, cemented intervals or other seals;
 - 2. Lithologic description of geology anticipated during well drilling; and
 - 3. Location
 - (i) Provide map(s) showing location of property relative to county level and location of well relative to property boundaries and other relevant features
- B. Discussion of hydrogeologic setting must include the following:
 - 1. Identification of aquifer;

2. Surface and subsurface geology, including, as applicable, occurrence of any significant groundwater recharge features such as outcrop, surface water bodies, sinkholes, faults or other geologic features;
 3. Depth interval of proposed water bearing zone; identify target production zone; and anticipated screen interval(s);
 4. Anticipated thickness of water bearing zone and well screen(s);
 5. Whether the target production zone is anticipated to be confined or unconfined;
 6. Estimates of thickness of confining layer at well site location, if applicable;
 7. Aquifer parameters at the well site, including transmissivity, hydraulic conductivity and storativity based on the Texas Water Development Board (TWDB) approved Groundwater Availability Model for the aquifer or other site-specific data if available;
 8. Identify all registered and permitted wells within a 1-mile radius of the proposed well using publicly-available well databases;
 9. Include streams or springs within a 1-mile radius;
- C. Water Quality
1. Discussion of known quality in the area based on literature, well reports.
- D. Interference Analysis
1. Provide quantitative analysis that shows the projected impacts from 1) the proposed production from the well or well system (if applicable) and 2) the well or well system (if applicable) running 100% of the simulation periods. NOTE: Applicant is advised to work with District Staff to settle on proposed production volume prior to performing the analysis.
 - a. Simulation results showing drawdown at 24 hours and 30 days
 - b. Discussion of the methodology used for estimating drawdown, including software that was used, the assumptions and/or solution method employed.
 - c. Illustration and/or maps showing the estimated cone of depression; if there is more than one well in the group, two maps should be included demonstrating:
 - a. contours for impacts from pumping the proposed well only, and
 - b. contours for impacts from all wells in the system.
 2. For well systems, a discussion of the amount or degree of interference that each of the system wells may exert on other system wells.
 3. Discussion of the estimated impacts on existing registered or permitted wells.

III. Post-Drilling Requirements

If available, the well owner shall provide the following information:

1. Geophysical logs required to be submitted upon completion of the well.
 - a. Geophysical logs to consist of a resistivity or induction curve and a spontaneous potential or gamma ray curve at a minimum.
 - b. Geophysical logs performed in the initial open-borehole are required and will consist of resistivity (self potential and gamma ray at a minimum).
 - c. Wells cased with PVC require induction and gamma ray logs.
 - d. All digital log files to be submitted in LAS format as well as printed.
2. All public water supply sampling completed in accordance with TCEQ/EPA requirements must be submitted to the District.
3. Digital or tabulated data of water levels measured during drawdown, specific capacity, or aquifer test; and an estimate of specific capacity and transmissivity from tests that were performed
4. Field parameters of specific conductivity, temperature and pH of measurements made during the drawdown or pumping test, or well sampling; and/or
5. Any laboratory analysis completed on samples collected from the well after construction and development.