

Checklist for Complete Alternative Submittals to Site-Specific Reviews under Section 32706c

- The proposed large quantity withdrawal (LQW) has a pumping rate  $\geq 70$  gallons per minute and  $\leq 1,000,000$  gallons per day (694 gallons per minute). [Subsection 32706c(1)]
- The submittal includes the information described in Subsection 32706a(3): [Subsection 32706c(1)]
  - The pump capacity. [Subsection 32706a(3)(a)]
  - The withdrawal location. [Subsection 32706a(3)(b)]
  - The withdrawal source whether surface water or groundwater. [Subsection 32706a(3)(c)]
  - If the withdrawal source is groundwater, whether the source is a glacial stratum or bedrock. [Subsection 32706a(3)(d)]
  - The depth of the withdrawal if from groundwater. [Subsection 32706a(3)(e)]
  - The amount and rate of water to be withdrawn. [Subsection 32706a(3)(f)]
  - Whether the withdrawal will be intermittent. Include the pumping schedule. [Subsection 32706a(3)(g)]
- The submittal includes an analysis of the proposed withdrawal by any of the following: [Subsection 32706c(1)]
  - An individual holding a license or registration from any state as a professional hydrologist, hydrogeologist, or geologist (with supporting documentation).
  - A current certification as a Professional Geologist by the American Institute of Professional Geology (with supporting documentation). [Subsection 32706c(12)(k)]
- The submittal includes either of the following: [Subsection 32706c(1)]
  - An analysis of the proposed LQW by a professional hydrologist or hydrogeologist calculating the streamflow depletion. [Subsection 32706c(1)(a)]
    - The streamflow depletion calculation is an evaluation of the potential streamflow depletion in which all the following are done: [Subsection 32706c(12)(l)]
      - The streambed conductance of the potentially impacted streams is measured in-situ using slug testing, seepage meter testing, or both. The method(s) used is (are) identified and all data and test results are included. [Subsection 32706c(12)(l)(i)]

- An aquifer performance test representing the proposed withdrawal location has been conducted. [Subsection 32706c(12)(l)(ii)]
- An aquifer performance test means a controlled field test in which all the following are done: [Subsection 32706c(12)(a)]
  - At least 1 monitoring well is installed. The monitoring well must be installed in the same aquifer and screened at or near the same depth as the production well and be located at 1-5 times the aquifer thickness from the proposed production well. A nearby existing well may be used as a monitoring well for the test instead if it meets all the monitoring well requirements. The well logs for the pumping and monitor wells are included. [Subsection 32706c(12)(a)(i)]
  - Static water level elevation measurements are taken at 1-minute intervals for 24 hours before the pumping portion of the test to an accuracy of +/- 0.05 feet. All data are included. [Subsection 32706c(12)(a)(ii)]
  - Pumping is conducted at a rate  $\geq$  the desired production rate for the duration of the test and metered or periodically measured to ensure pumping rate consistency. [Subsection 32706c(12)(a)(iii)]
  - The pumping portion of the test is conducted for 24 hours in confined aquifers or 72 hours in unconfined aquifers, during which drawdown measurements are taken at 1-minute intervals to an accuracy of +/- 0.05 feet. All data are included. [Subsection 32706c(12)(a)(iv)]
  - After completion of the pumping period, water level recovery measurements are taken at 1-minute intervals for 24 hours to an accuracy of +/- 0.05 feet. All data are included. [Subsection 32706c(12)(a)(v)]
  - An analysis is conducted to determine, at a minimum, the aquifer's transmissivity and storage coefficient employing the methods of Cooper and Jacob, 1946; Theis, 1935; Hantush and Jacob, 1955; Hantush and Jacob, 1960; Hantush and Jacob, 1961; Neuman, 1972; Neuman, 1974; or Hunt and Scott, 2007. The method(s) used will be identified and the results included. [Subsection 32706c(12)(a)(vi)]

- The analysis to calculate streamflow depletion uses the Hunt (1999 and 2003), Ward and Lough (2011), or a similar peer-reviewed groundwater model that assesses potential streamflow depletion. The analysis may be conducted on existing LQWs in the same water management area (WMA), or units, as the proposed LQW if applicable data are available. This may be used to provide additional evidence as needed to demonstrate a proposed LQW is unlikely to cause an Adverse Resource Impact. All hard copy and electronic model files needed to verify the model's inputs and outputs are included.  
[Subsection 32706c(12)(l)(iii)]
- The streamflow depletion calculation shall be based on an aquifer performance test, streamflow depletion calculations, and geological data consisting of at least 1 of the following, which shall be included with the analysis:  
[Subsection 32706c(1)(a)]
  - Evidence that the proposed LQW is in the WMA, or units, that were part of a regional or watershed-based study of water use impacts accepted by the Department of Environmental Quality under Part 327. The evidence must include an affidavit by the property owner that the proposed LQW is in a river system and aquifer included in the study, and records of applicable data collected in the study. [Subsection 32706c(1)(a)(i)]
  - A hydrogeologic analysis of the WMA(s) that will be potentially affected by the proposed LQW, incorporating data from well logs, gamma ray logs, surficial glacial geology maps, geologic cross-sections, and any other available hydrogeologic data. [Subsection 32706c(1)(a)(ii)]
- An analysis by a professional hydrologist or hydrogeologist of a proposed LQW from an aquifer separated from streams by bedrock, calculating streamflow depletion of the proposed withdrawal by providing hydrogeologic data demonstrating the bedrock transmissivity for the formation or relying on published estimates of transmissivity for the bedrock formation.  
[Subsection 32706c(1)(b)]