

**BEFORE THE OKLAHOMA WATER RESOURCES BOARD
STATE OF OKLAHOMA**

IN THE MATTER of Determining the Maximum)
Annual Yield for the Arbuckle-Simpson)
Groundwater Basin underlying parts of Murray,)
Pontotoc, Johnston, Garvin, Coal and Carter)
Counties)

POST HEARING COMMENTS

The U.S. Fish & Wildlife Service (Service), a Department of the Interior agency whose mission is to work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people, manages two facilities dependent on surface water resources originating in the Arbuckle-Simpson Groundwater Basin. The Service strongly supports water management policy, such as the Oklahoma Water Resources Board's proposed Maximum Annual Yield (MAY), intended to protect surface water flows while still allowing some use of the basin's groundwater resources.

This brief summarizes the surface water resources used by the two Service facilities (Tishomingo National Fish Hatchery and Tishomingo National Wildlife Refuge), addresses some of the concerns related to the U.S. Geological Survey's groundwater model of the Arbuckle-Simpson Aquifer, and offers some suggestions related to the rulemaking process needed to evaluate effects current and future groundwater permit applications may have on surface water resources.

TISHOMINGO NATIONAL FISH HATCHERY

The federal government established Tishomingo National Fish Hatchery in the late 1920s. The hatchery is one of the largest federal fish hatcheries in the country and is the only federal fish hatchery in Oklahoma. Hatchery activities are focused on imperiled aquatic species. Pennington Creek supplies most of the water needed to operate the hatchery. The hatchery holds Oklahoma Water Resources Board (OWRB) Permit No. 1931-0018 allowing the hatchery to divert 10 cubic feet per second of surface water from Pennington Creek. In addition, OWRB issued Temporary Permit No. 1997-0693 authorizing the hatchery to pump 420 acre-feet per year of groundwater from two wells. The hatchery relies heavily on the flow of water in Pennington Creek. The hatchery returns a large portion of the diverted water to Pennington Creek at a location immediately downstream of the facility. If the flow of water in Pennington Creek were to decline substantially, that condition could result in the hatchery no longer remaining viable for the purpose for which it was established by the federal government.

TISHOMINGO NATIONAL WILDLIFE REFUGE

Tishomingo National Wildlife Refuge provides habitat and breeding grounds for migratory birds and other wildlife. The federal government set aside the refuge lands in 1946. The primary body of water within the refuge is Cumberland Pool which is the north end of Lake Texoma. Although Cumberland Pool receives water from several sources, the most important source is Pennington Creek. Using flows measured at U.S. Geological Survey stream gage number 07331300 Pennington Creek near Reagan, OK, to provide an estimate, Cumberland Pool likely receives an average amount of water on the order of 30,000 acre-feet per year from

Pennington Creek. Other Cumberland Pool water sources include Big Sandy Creek and Washita River. However, these other sources are not as reliable as Pennington Creek. In 2005, Tishomingo National Wildlife Refuge submitted a surface water permit application for water from Pennington Creek to OWRB. Currently, the application, No. 2005-0017, is pending before OWRB. The refuge holds OWRB Permit No. 1984-0073 for 400 acre-feet per year of surface water from Big Sandy Creek. Under typical conditions, water flows in Big Sandy Creek on a seasonal basis. The highest flows in the creek occur during the spring runoff. The creek ceases flowing in the hottest part of the summer. Like the Tishomingo National Fish Hatchery, the Tishomingo National Wildlife Refuge is unlikely to be able to continue functioning in the manner envisioned without water from Pennington Creek.

ARBUCKLE-SIMPSON AQUIFER GROUNDWATER MODEL

At the MAY hearing, some parties raised concerns about possible shortcomings of the U.S. Geological Survey's Arbuckle-Simpson Aquifer groundwater model. The OWRB based its tentative MAY order in part, but not entirely, on results from the groundwater model. It is unknown whether changing the groundwater model would result in the OWRB proposing a different MAY. In the absence of clear evidence in support of a different MAY, the Service supports the adoption of OWRB's proposed MAY. The Service understands that OWRB has the authority to increase the MAY in the future, but once adopted cannot lower the MAY. Assuming further scientific studies are funded and completed and that such studies support a higher MAY, then OWRB has the option to adopt a higher MAY. Under the current circumstances, the Service feels the proposed MAY will protect surface water flows and, therefore, prefers the

OWRB adopt the proposed MAY rather than continue with the status quo of issuing temporary groundwater permits.

RULEMAKING PROCESS

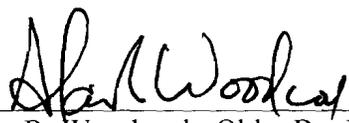
The Service appreciates the opportunity to comment on the proposed methodology contained in Attachment 2 “Calculation of Percent Depletion of a Spring or Stream by Pumping Wells” of the March 13, 2012 Tentative Determination of Maximum Annual Yield of Groundwater from the Arbuckle-Simpson Groundwater Basin, Revised. The Service supports and would like to be involved in the rulemaking process. To that end, the Service offers the following suggestions:

- 1) Evaluate each pending or future permit application on a case-by-case basis to encourage the use of site-specific hydrologic parameters.
 - 2) Project spring or stream depletions over a sufficiently long period of time that additional changes occurring after the selected time period are minimized. The Service recommendation is to project spring and stream depletions for a period of 40 years unless evaluation results clearly indicate that no or only very small additional depletions will accrue after a shorter period of time.
 - 3) Consider using the Glover and Balmer (1954) method to estimate the amount of water pumped from a well or proposed well that comes from a nearby, hydraulically connected stream.
 - 4) If OWRB adopts the Theis and Conover (1963) method, the Service would like to examine the TheisCon program and documentation by Engdahl. The Service suggests OWRB make the program and documentation available for download from its website.
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- 5) The Service may wish to evaluate effects to springs not recognized by USGS or OWRB. Therefore, the Service suggests OWRB establish a process to review and act on requests to evaluate springs not meeting USGS or OWRB criteria.
- 6) The Service may wish to evaluate effects to stream segments not included in the National Hydrography Dataset (NHD). The Service suggests OWRB establish a process to review and act on requests to evaluate streams not included in the NHD.
- 7) The Service suggests the OWRB not establish a predetermined radius for evaluations. Instead, as suggested in Item 1 above, evaluate each permit application on a case-by-case basis using site-specific hydrologic parameters to the extent such are available.

The Service reserves the right to review and submit comments on specific rules the OWRB may adopt related to methodology, well spacing, well setbacks, and similar topics.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on the 31st day of May, 2012, a true and correct copy of the foregoing document was placed in the U.S. Postal Service, with proper postage thereon, to the attached mailing list. In addition, I certify that on the 31st day of May, 2012, a true and correct copy of the foregoing document was electronically forwarded to the e-mail addresses shown on the attached distribution list.


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