MEETING NOTES

WATER FOR 2060
PRODUCED WATER WORKING GROUP

Meeting #2
June 7, 2016
1:30 p.m.
Oklahoma Water Resources Board
3800 N. Classen Boulevard, Oklahoma City, OK 73118

J.D. Strong, Executive Director of the Oklahoma Water Resources Board, and Chairman of the Water for 2060 Produced Water Working Group (PWWG), welcomed the members and attendees to the first meeting of the Group. He stated Governor Fallin had announced establishment of the PWWG on December 1, 2015, and charged the Group with discussing opportunities and challenges associated with treating produced water for beneficial uses to save fresh water by reusing and recycling oil and gas produced water, particularly alternatives to deep well disposal.

Chairman Strong gave a short review of PWWG responsibilities, goals, expected timeline, and highlights of the previous meeting in March and presented an outline of what his office has been doing in the interim, specifically, developing with both the Oklahoma Office of the Secretary of Energy and the Environment and CH2M a study proposal for a federally funded grant to evaluate potential challenges and solutions to a statewide beneficial alternative to produced water disposal.

Members of the PWWG in attendance were: Bud Ground, Environmental Federation of Oklahoma; Jeff Everett (for Usha Turner), OG&E Energy Corporation; Jesse Sandlin, Oklahoma Oil & Gas Association; A.J. Ferate (for Mike Mathis), Oklahoma Independent Petroleum Association; Michael Dunkel, CH2M; Mike Ming, GE Global Research; Dan Yates (for Mike Paque), Groundwater Protection Council; Fred Fischer, Oklahoma Panhandle Agriculture & Irrigation Association; Tina Gunter (for Secretary of Agriculture Jim Reese); Tim Baker (for Tim Rhodes), Oklahoma Corporation Commission; Scott Thompson, Oklahoma Department of Environmental Quality; Brent Kisling, Enid Regional Development Alliance; Alan Riffel, Oklahoma Municipal League; Dr. Garey Fox, Oklahoma State University; and Terry Stowers, Coalition of Oklahoma Surface & Mineral Owners.

Kyle Murray, OGS, presented on his recent studies related to quantity and quality of and produced water. Some highlights from the presentation:

- Seismic activity is a little lower since the OCC cut back injection by 40% in some key areas.
- OGS is tracking disposal volumes to estimate produced water volumes geographically by county.
- The USGS has water quality data available, but it may be dated.
- Disposal well applications have water quality on the form, but this has yet to be captured in a database anywhere at the state.
- The average produced water (PW) TDS across OK is about 150,000 mg/l.
- Could more produced water be recycled for oil and gas EOR (Enhance oil recovery)?

* This presentation is on PWWG web page in PDF format.

Mr. Lloyd Hetrick, Newfield Exploration, presented on the challenges of recycling produced water in Oklahoma. Some highlights from the presentation:

- Newfield has designed their own recycling plant for Kingfisher County, but has put off plans to build it.
- Newfield wants to cooperatively share water facilities, transportation, and storage, with other operators and share water volumes for re-use. The next step is for the operators to gather and discuss a plan forward.
- Newfield thinks a coop is the best commercial model.
- Mr. Hetrick highlighted that regulatory structure creates substantive barriers to the coop concept, especially in areas of ownership/responsibility/liability.
- Mr. Hetrick highlighted the ownership issue of produced water and which led to a lengthy discussion involving the larger group.

Mr. Michael Dunkel, CH2M, presented his grant proposal to evaluate multiple scenarios for reuse solutions. Some highlights and comments from the presentation follow:

- Mike Ming from GE thought that a risk analyses should be included in the study as a deliverable.
- Discussion about potentially focusing on Oil and gas reuse as much as possible; Mr. Dunkel stated that Oil and Gas reuse is in the work plan; however, the non-oil and gas re-use has not been comprehensively studied previously and there is far more PW than oil and gas reuse can use.

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Other group discussion that followed:

- Aquifer storage and water flooding was mentioned as a possible PW use.
- Scott Thompson from DEQ suggested setting up subcommittees to consider parameters for water quality analyses, and a second subcommittee about legal/regulatory issues.
- Chad Warmington from OKOGA suggested possibly getting research funds from OSU's NESI.

Chairman Strong concluded the meeting stating he anticipated the group would meet again this summer and he thanked everyone for their participation and attention.