AQUIFER TESTING WAIVER REQUESTS

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AQUIFER TESTING WAIVER REQUESTS

A project sponsor may request a waiver of any requirement, provided the request and explanation is made in writing at the time that the aquifer test plan is submitted (18 CFR § 806.8).

- Under Commission Resolution 2015-06 (Administration Authorizations) the Executive Director of the Commission has the authority to waive aquifer testing requirements.

- What Questions do we need to answer?
  - Sustainability of the withdrawal
  - Impacts to competing groundwater or surface water users
  - Impacts to the Environment

AQUIFER TESTING WAIVER REQUESTS

Waiver Requests should include:

- Historic operational data demonstrating reliable production at the requested rate with minimal impacts to existing users and the environment
- Historic Water Level Data
- Hydrogeologic description
- Groundwater availability analysis
- Background information

Waiver requests must be able to satisfy 18 CFR § 806.23 *(standards for withdrawals)*

§ 806.23 Standards for water withdrawals.

(a) The project sponsors of all withdrawals subject to review and approval under § 806.4, § 806.5 or § 806.6 of this part shall comply with the following standards, in addition to those required pursuant to § 806.21.

(b) *Limitations on withdrawals.* (1) The Commission may limit withdrawals to the amount (quantity and rate) of water that is needed to meet the reasonably foreseeable needs of the project sponsor.

(2) The Commission may deny an application, limit or condition an approval to ensure that the withdrawal will not cause significant adverse impacts to the water resources of the basin. The Commission may consider, without limitation, the following in its consideration of adverse impacts: Lowering of groundwater or stream flow levels; rendering competing supplies unreliable; affecting other water uses; causing water quality degradation that may be injurious to any existing or potential water use; affecting fish, wildlife or other living resources or their habitat; causing permanent loss of aquifer storage capacity; or affecting low flow of perennial or intermittent streams.

STAFF REVIEW OF WAIVER REQUESTS

- Request for waivers from aquifer testing must provide similar evaluation as testing.
  - Waivers are not waivers from evaluating impacts or sustainability and are not “rubber stamps”
  - Waivers can be complicated, as sufficient data does not always exist.
  - When in doubt, test.

WAIVER REQUEST SCENARIOS

Potential waiver request scenarios

- 72-hour testing won't satisfy 18 CFR § 806.23 (ex. dewatering projects, mine pools, etc.)
- Docket renewal at previous approved quantity, demonstrated use at requested rate with lack of impacts, stable historic water levels, drought conditions, etc.
- Docket renewal below previous approved quantity, requested rate coincides with demonstrated use, etc.
  - (historic approval based on unsustainable quantity - blown yield or MIWR)
  - Current infrastructure won't support historic approval
  - Regulatory concerns

WAIVER REQUEST SCENARIOS

Questionable waiver request scenarios

- Docket renewal at previous approved quantity without historic use or valid testing at requested rate that demonstrates :
  - lack of impacts to other users (new development, etc.)
  - lack of impacts to the environment (new species of concern)
  - Sustainable drawdown at the requested rate (historic water levels)
- Request to increase over previously approved/ demonstrated rates
- New or replacement Well

EXAMPLE 1 – PWS A

- Public Water Supply in PA.
- PWS wells situated in close proximity to a stream
- Expiring approval (Well A). PWS A requested renewal at previously approved rate.

Data submitted in support of the waiver request included:

- Historic Testing Data -
  - Well A - aquifer testing completed in the early 1980's.
  - Testing from additional system wells
- Operational Data - Historic withdrawal data was available from 1991 to present.

EXAMPLE 1 – PWS A

Staff review of submitted data indicated:

Historic Testing

- Well A – Testing not completed to current standards
  - No GW or SW water features monitored during testing
  - Test rate fluctuated significantly / not a constant-rate test

Operational Data -

- Historic withdrawal data reviewed from July to September 1991 (documented drought) revealed sustainable use of the withdrawal at the requested (and previously approved) withdrawal rate.
- Historical water level data supports that the target rate can be withdrawn without adversely impacting groundwater levels.

No information to evaluate potential impacts to nearby SW features

EXAMPLE 1 – PWS A

- PWS A developed and implemented an operational monitoring plan to evaluate potential impacts to the surface water feature during operation of well (rather than during a stand-alone aquifer test).

Result – Staff recommended approval of the waiver request; the withdrawal was approved without a passby; and historic testing data was used to approve a MIWR that had not been incorporated as part of the original approval.

EXAMPLE 2 – PWS B

- Public Water Supply in PA.
- PWS B initiated new sources to accommodate growth.
- The addition of new sources subjected previously GF sources to review and approval.
- PWS B requested waivers for the previously grandfathered withdrawals.
- Rubber stamp approach requested.
- Requested rates could not be demonstrated with historical data or valid testing. Waiver requests were denied and aquifer tests were required for each of the grandfathered withdrawals.
- PWS B decided to test an expiring source to eliminate operational restrictions.

EXAMPLE 2 – PWS B

Result - Benefits of testing

- **Well 1** could not sustainably produce at desired withdrawal rate. The well was successfully re-tested at a lower rate. PWS voluntarily reduced their requested withdrawal to that demonstrated by testing.
- **Well 2** test demonstrated use at the requested rate.
- **Well 3** indicated that more water is likely available than their requested rate.
- **Well 4** demonstrated a lack of impacts to surface water features and eliminated a withdrawal restriction from the previous approval.

EXAMPLE 3 – PWS C

- Public Water Supply in PA. Expiring approval (Well 1). PWS requested: (1) renewal at a higher rate than previous approval; and (2) a waiver from aquifer testing.

- Withdrawals satisfied from a karst aquifer / fracture zone reservoir with delayed response to pumping; short-term pumping changes result in minor drawdown.

- Data submitted in support of the waiver request included:
  - Historic Testing - 24-hour constant- rate aquifer test completed in the 1970's, pumped at higher rate than the expiring approval.
  - Operational Data - Historic Well 1 operation data from 2000 to 2013.

EXAMPLE 3 – PWS C

Staff review of submitted data indicated:

Historic Testing –

- No background or recovery monitoring data;
- No observation well monitoring data; and
- No surface water or wetlands monitoring data.

Operational Data -

- Long term operational data did not demonstrate withdrawals at the requested rate.
- During the drought of 2002, and 2008 / 2009, Well 1 demonstrated insufficient yield and the to supply demand and required the use of an interconnect to meet demand.

EXAMPLE 3 – PWS C

- Revised Waiver Request – The PS submitted a revised waiver request with reduced withdrawal to a rate that had been demonstrated during drought periods.

- The PS proposed a Mitigation Plan to reduce their withdrawals at pre-determined trigger water levels should future issues arise.

- Result – Staff recommended approval of the waiver request at the reduced rate and the project was approved.

EXAMPLE 4 – INDUSTRIAL USER

- Agricultural Processing Plant, Susquehanna Lowland section of Valley and Ridge province
- High seasonal demand in late summer (Aug - Nov)
- Historically operated with 3 wells in a clastic aquifer (Hamilton group) known for iron, manganese, hydrogen sulfide issues).
- PWS source available in limited quantity, not ideal for user based on temperature

EXAMPLE 4 – INDUSTRIAL USER

- Operation started in the mid-1960's
- By the early 1980's, demand began to increase.
- Installed several test borings and completed 48-hour aquifer tests demonstrating relatively high rates of production.
- By mid 1980's, adverse impacts began to occur to neighboring residential supply wells.

EXAMPLE 4 – INDUSTRIAL USER

- Mitigation was completed on many of the impacted water supplies (deepened wells, lowered pumps, installed treatment systems). Ultimately, the residents were connected to PWS.

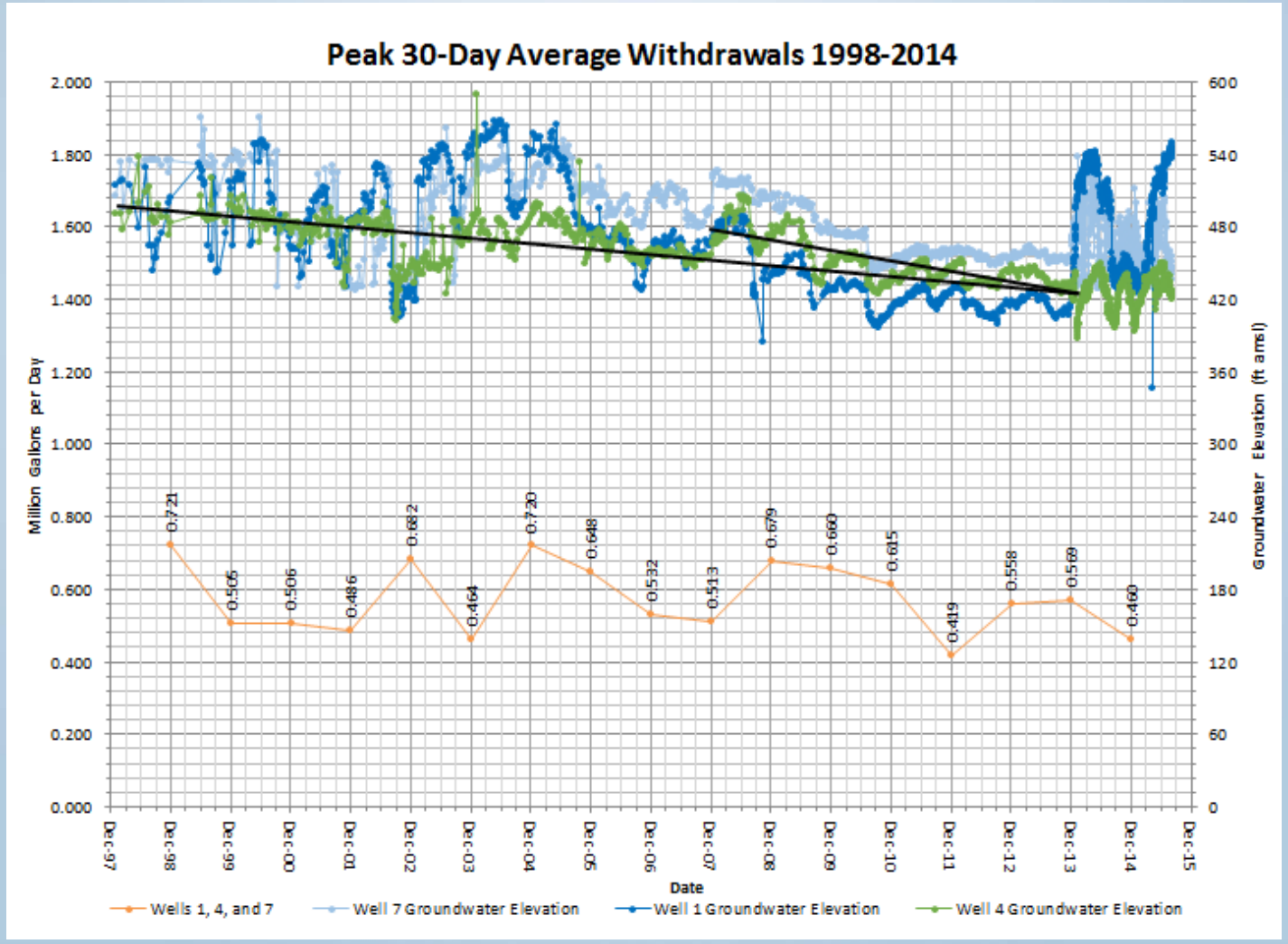
- Demand continued to increase, and water use expanded beyond the 3-month peak season operation.

- By the early 1990's, they began explore the installation of additional wells to meet demand (separate carbonate aquifer).

EXAMPLE 4 – INDUSTRIAL USER

- 2010's - mechanical issues limited production from carbonate well.
- Two emergency certificates required (in successive years).
- Upon renewal of the 1986 docket for the 3 clastic wells, PS requested a waiver from aquifer testing and a renewal of the docket at ~75 % of their previous approved rate.
- Reduced rate was based on historic testing and the combined withdrawals from the 3 wells at their peak season during the 1999 drought.

EXAMPLE 4 – INDUSTRIAL USER



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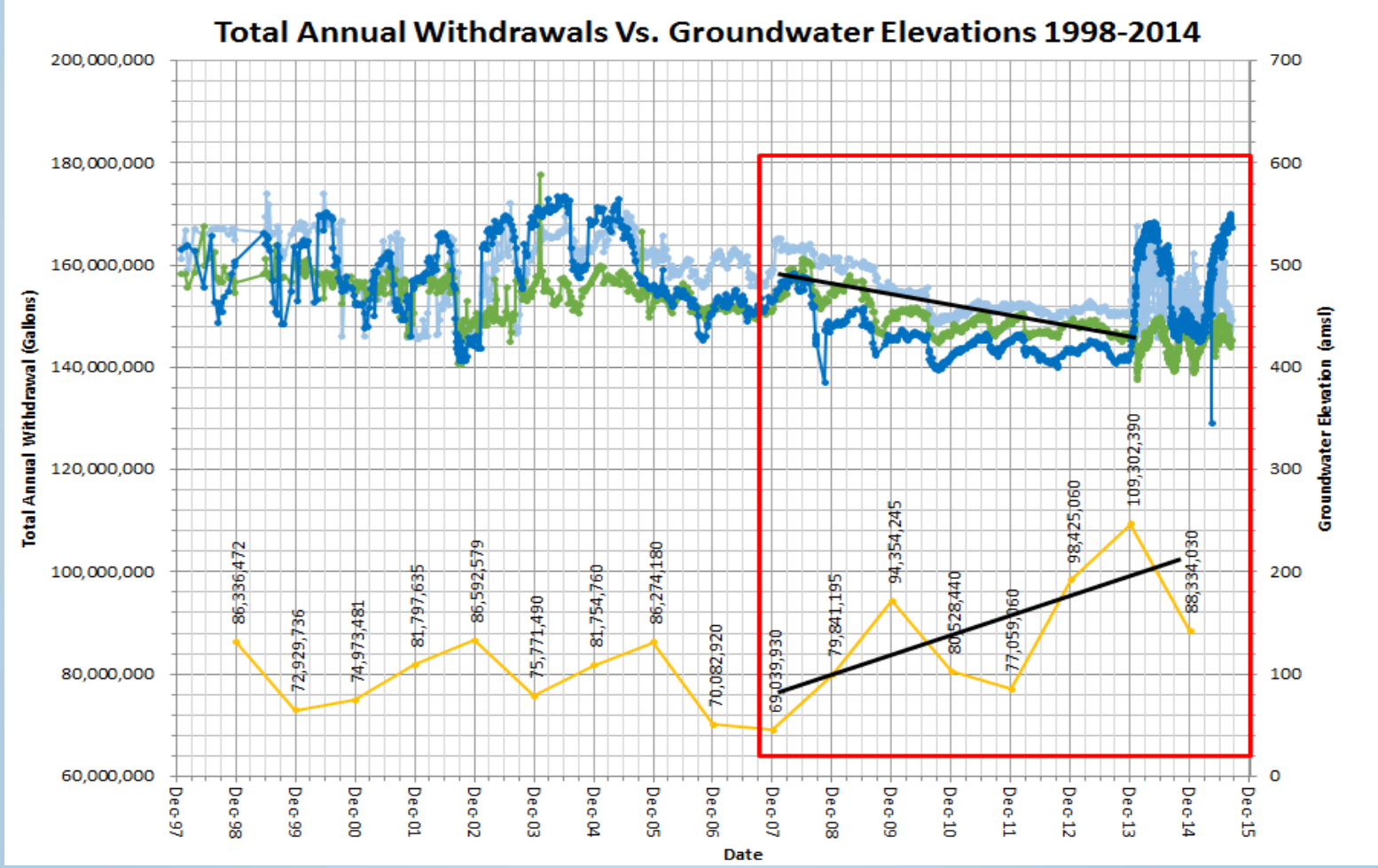

EXAMPLE 4 – INDUSTRIAL USER

Result –Historic approval was not sustainable; paper water.

Staff worked with Project Sponsor to structure an approval with phased implementation of additional sources that could be operated sustainably given their business model.

QUESTIONS…