

PWSAP Webinar Series: Alternative Hydrogeologic Evaluation (AHE)

Part 1 - Alternative Hydrogeologic Evaluation (AHE) Process/ Impacts to Other Users

Key Personnel

| | |
|---------------|-------------------------|
| Andrew Dehoff | Executive Director |
| Todd Eaby | Manager, Project Review |
| Mike Appleby | Supervisor, Groundwater |
| Bill Miller | Hydrogeologist |
| Dave Haklar | PWSAP Coordinator |



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Webinar Series Overview

- Alternative Hydrogeologic Evaluation (AHE) Process/
Impacts to Other Users
 - January 27, 2022
- Part 2 – AHE Process: Evaluating Sustainability and
Impacts to the Environment
 - February 24, 2022
- Part 3 – AHE Process: Form Completion and
Implementation using Voluntary Action Plans
 - March 24, 2022

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What to Expect Today

- 60 minute webinar (please mute and cameras off)
- Presentation (~45 minutes)
 - Introduce AHE
 - Provide the foundations on which the AHE was built;
 - Provide an overview of the three principal risk factors;
 - Discuss data gaps; and
 - Begin our in-depth discussion of the principal risk factors, starting with impacts to other users.
- Questions (~15 minutes)
 - Please utilize chat box


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New AHE Policy



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| | |
|------------------------|--|
| Policy Number: | Policy No. 2021-01 |
| Title: | Alternative Hydrogeologic Evaluation Policy |
| Effective Date: | September 17, 2021 |
| Authority: | Public Law 91-575, 84 Stat. 1509 <i>et seq.</i> , Sections 3.1, 3.4(2) & (8), 3.5(1) and 3.10, 18 CFR §§ 806.2, 806.4, 806.12, 806.13, 806.14, and 806.23. |

<https://www.srbc.net/regulatory/policies-guidance/docs/alternative-hydrogeologic-evaluation-policy-2021-01.pdf>

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New Form

- <https://www.srbc.net/regulatory/application-process/>
- Function sample template available for perusal or use (with login)

Groundwater

The online Groundwater Projects Water Withdrawal application and plan/Alternative Hydrogeologic Evaluation tools require use of Firefox.

Aquifer Testing

- [Instructions for completing an ATP/AHE](#)
- [Log-in page for Functional Sample Template for Aquifer Testing Plan](#)
- [Log-in page for Aquifer Testing Plan](#)

Alternative Hydrogeologic Evaluation

- [Instructions for completing an ATP/AHE](#)
- [Log-in page for Functional Sample Template for Alternative Hydrogeologic Evaluation](#)
- [Log-in page for Alternative Hydrogeologic Evaluation](#)

Groundwater Withdrawal Application

- [Instructions for Completing a Groundwater Withdrawal Application](#)
- [Log-in page for Functional Sample Template for Groundwater Withdrawal Application](#)
- [Log-in page for Groundwater Withdrawal Online Application](#)

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Why Did We Create the AHE?

- Heard from projects that the waiver was uncertain; hard to predict
- Define process for both projects and staff
- Tests are costly; need to use existing data

LEARNING IS A PROCESS, NOT AN EVENT



Katie Martin; Learner-Centered Innovation

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Overview

- What is an AHE?
 - Intuitive – focus on what matters
 - Risk-based approach for utilizing existing data
 - Screening process to assess if data collection is needed
- When is one required?
 - When the aquifer testing requirement of 806.12 has not been met
- When is one not required?
 - Docket may tell you
 - Small capacity sources (rare exceptions)
 - Contact staff if you have questions

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How is an AHE Done?

- Compile existing data
 - Compartmentalize based on the Principal Risk Factors
 - Develop site-conceptual model
- Evaluate each risk factor
 - Series of screenings to determine if more evaluation is needed.
 - Document findings
 - If risk factor can't be screened out, then look at targeted data collection
- Operational testing and monitoring, if needed
- Complete evaluation

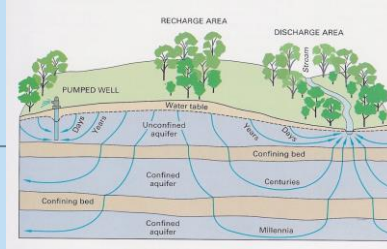
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Principal Risk Factors



- Sustainability
 - Reliability of the requested rates
 - Does not consider impacts, just if the water can be pumped
 - Compare historical testing to operational data
- Impacts to other users
 - Look within 2,500 feet or 90-Day projected drawdown area of influence
 - Can be simple if no groundwater users, small AOI, or low drawdown
- Impacts to the environment
 - RTE species
 - Water quality designations
 - Prior testing should consider surface water/ ecological impacts

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Screenings?

- Examples for each risk factor will be provided
- Should be fairly intuitive, but must be described and documented
- May need more than one line evidence, depending on how the evidence was determined (e.g. clay layers)



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Data Gaps

By regulation, renewal applications need to be submitted to the Commission at least six months prior to the expiration date of the approval.

recommended that projects initiate renewal activities to allow time for a Plan or Waiver to be prepared, submitted, reviewed, and approved with sufficient time to prepare and submit the groundwater withdrawal application by the 6-month deadline. In the case of Plan submittal, additional time would also be needed to implement the Plan to complete the necessary testing before application submittal.

WHAT ARE COMMON DATA GAPS?

Some of the most common data gaps for the desired renewal rate are surface water monitoring, such as springs, streams and wetlands, as well as impacts to other users. For projects with usable historical data and/or testing, supplemental operational testing may be the solution to collecting data to fill the gaps. The Commission has developed companion fact sheets that describe operational monitoring and water level monitoring, and how those can be used to support a renewal application. Commission staff is available to assist projects in identifying and evaluating data gaps and options for resolving those gaps.

TWO-STEP PROCESS

STEP 1: Approved Aquifer Testing Plan or Waiver

STEP 2: Renewal Application

For most projects, submitting a renewal application is a two-step process involving a Plan or Waiver (Step 1), followed by a groundwater withdrawal application (Step 2). However, some projects may have already satisfied Step 1 and can proceed directly to Step 2. The Commission has been reviewing and approving aquifer testing plans for many years, and some projects undergoing the renewal process may have already satisfied the requirement to complete a Commission approved test. For those projects, submittal of a Plan or Waiver is not required and those projects may begin with Step 2. Projects should begin to assemble the data available early to help

(continued on next page)

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- Items that cannot be screened out
- Review historical data
 - Prior tests
 - Withdrawal data
 - Post-approval conditions
 - Water level data
- Pre-application meetings

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Four Common Data Gaps

1. Groundwater Availability Analysis (GWAA):
 - Define a **reasonable** GW contribution area
 - Identify an appropriate 1-in-10 year recharge rate
 - Estimate other GW users
 - GWAA – not an exact science, but helps identify an issue

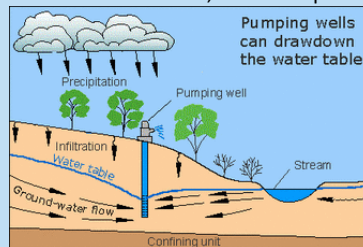


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Four Common Data Gaps

2. Historical Aquifer Testing:

- Is there a previous SRBC approved test?
- Any previous test can be considered
- Common problems –
 - single well test
 - short duration
 - well not in final form



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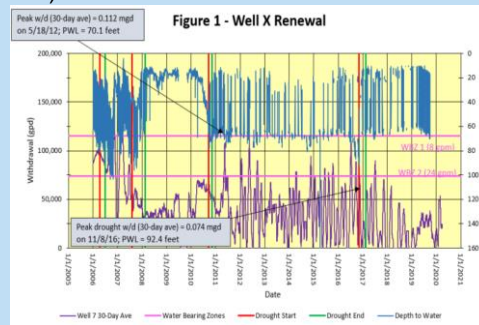
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Four Common Data Gaps

3. Historical Operations Data:

- Withdrawal data AND water levels
- The longer the data record, the better
- Common problems –
 - No water level data
 - Static vs. Pumping
 - W/d lower than approved rate



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Four Common Data Gaps

4. Environmental Resources

- Setting
- Sensitive resources
- Common env. resource data gaps:
 - SW Monitoring
 - Sensitive Resources
- Are operational changes proposed?



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Bill Miller

- Will discuss Impacts to Other Users
- Accomplished geologist and fantasy football manager



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Impacts to Other Users

- Sustainability of the withdrawal
- IMPACTS TO OTHER USERS
- Impacts to the environment

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Impacts to Other Users

Assessing the potential for significant adverse impacts to other users.

- Significant adverse impact?
- Evaluating using the AHE / risk-based approach

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Impacts to Other Users

Significant Adverse Impact:

- Dependent on characteristics of the other source
- Available water column evaluation
 - Wells in close proximity can have different potential for significant adverse impacts
 - Consider percent decrease in available water column as the primary criteria, not absolute drawdown
 - Consider water levels due to operation of the evaluated well
 - Incorporate expected seasonal variation

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Impacts to Other Users AHE / Risk-Based Approach

Series of screenings, with increasing detail and data requirements.

- Area of Influence
- Existence of wells or other water users in the area
- Potential impacts to other users

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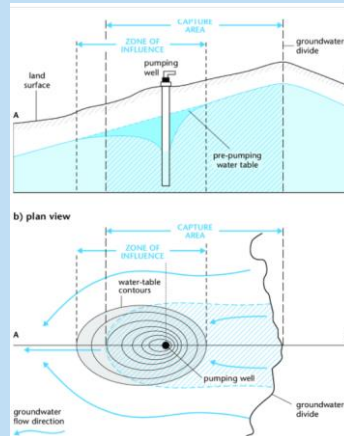


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Impacts to Other Users AHE / Risk-Based Approach

Area of Influence

- Default is a 2,500 feet radius from well
- Setting Dependent
 - Anisotropic Aquifer
 - Transmissivity
- Other Considerations
 - Historical Testing
 - Analog Wells



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Impacts to Other Users AHE / Risk-Based Approach

Other Water Users

- Databases (PAGWIS, NYDEC, SRBC-WAAV)
- Public Water Systems
 - Distribution System Extent
 - Tap-In Ordinances
- Reconnaissance
 - Driving Survey
- Source Inventory
 - All properties within AOI
 - Gather all available source data



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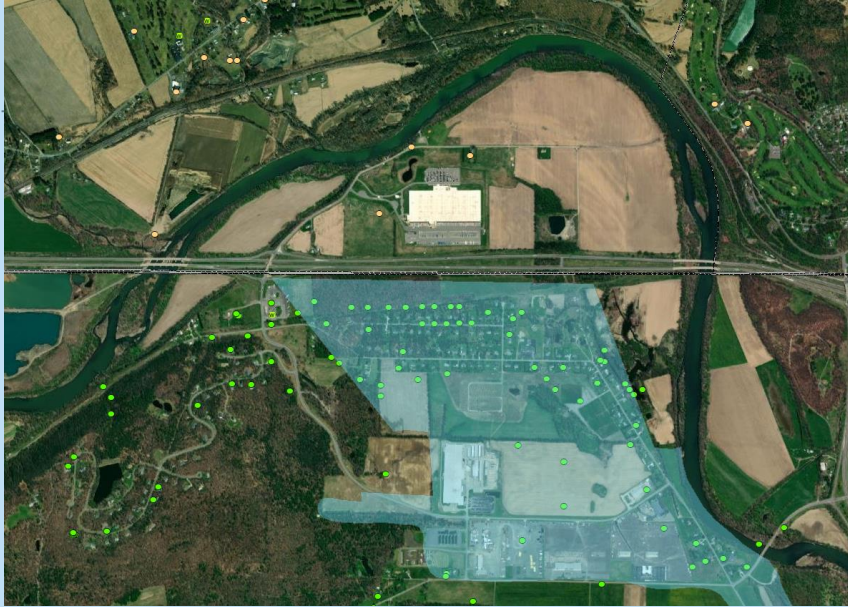
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Impacts to Other Users AHE / Risk-Based Approach

Potential Impacts

- Hydrogeologic Setting Dependent
 - Anisotropic Aquifer
 - Horizontal and Vertical Barriers
 - Water-Bearing Zones
 - Source Location
- Source Characteristics
 - Available Water Column
 - Projected Impact (90-day withdrawal projection)



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Impacts to Other Users AHE / Risk-Based Approach

High-Level Screening

- Almost a desktop screening exercise
- Conservative Assumptions
- Considerations:
 - Well-defined area of influence
 - Well yield / Requested withdrawal
 - Hydrogeologic setting is well defined
 - Absence of other users

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Impacts to Other Users AHE / Risk-Based Approach

Refined Screening

- Increased data collection
 - Source Inventory Survey
- Refine assumptions
 - Hydrogeologic Setting
 - Source Location
 - Area of Influence

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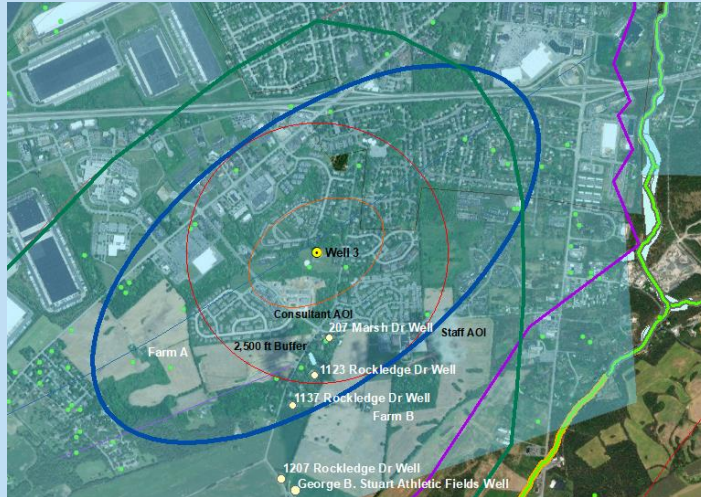


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Impacts to Other Users AHE / Risk-Based Approach

- Historical use vs. previously approved and requested withdrawals.
- Use of other sources
- Seasonal variability

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Impacts to Other Users AHE / Risk-Based Approach

Documentation

AHE activities should be fully described in the AHE form.

- All assumptions and the basis / justification of the assumptions
- All pertinent collected information
 - Source Inventory
 - Public water supply distribution areas
 - Pertinent correspondence

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Impacts to Other Users AHE / Risk-Based Approach

Reminder

- AHE / Risk-Based Approach uses existing data to evaluate the potential for significant adverse impacts to existing water users.
- IF existing data is not sufficient to evaluate the potential impacts to existing water users, the identified data gap must be addressed by additional testing.
 - Typically operational testing
 - Should be targeted by the results of the AHE / Risk assessment

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Additional Resources

General Project Review Questions

- Todd Eaby, teaby@srbc.net

Groundwater Projects

- Mike Appleby mappleby@srbc.net
- Bill Miller wmiller@srbc.net

PWSAP

- Scott McFeaters smceaters@srbc.net
- Dave Haklar dhaklar@srbc.net
- Mike Appleby mappleby@srbc.net

Important References

- ☒ Groundwater Project Renewal Process Fact Sheet
- ☒ Operational Monitoring and Operational Testing Fact Sheet
- ☒ Water Level Monitoring Fact Sheet
- ☒ Alternative Hydrogeologic Evaluation Policy
- ☒ Functional Sample Templates
- ☒ Aquifer Testing Guidance
- ☒ Online Form Instructions

Questions & Additional Information

If you have questions or want to schedule a free pre-application meeting, please contact the Commission's Manager of Project Review or the Groundwater Supervisor

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Up Next

- Part 2 – AHE Process: Evaluating Sustainability and Impacts to the Environment
 - Thursday, February 24th, 2022 (1:00 - 2:00 pm)
- Part 3 – AHE Process: Form Completion and Implementation using Voluntary Action Plans
 - Thursday, March 24th, 2022 (1:00 - 2:30 pm)
- Classroom and/or virtual AHE workshop
 - April – May 2022, targeting consultants

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Summary

- Groundwater project renewal is a two step process
 - Collect and evaluate hydrogeological information in support of the requested withdrawal rate.
 - Prepare and submit the groundwater withdrawal application **six months** prior to expiration
- Use existing information to the fullest extent possible
- Start early and coordinate with Commission staff – starting with a pre-application meeting

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