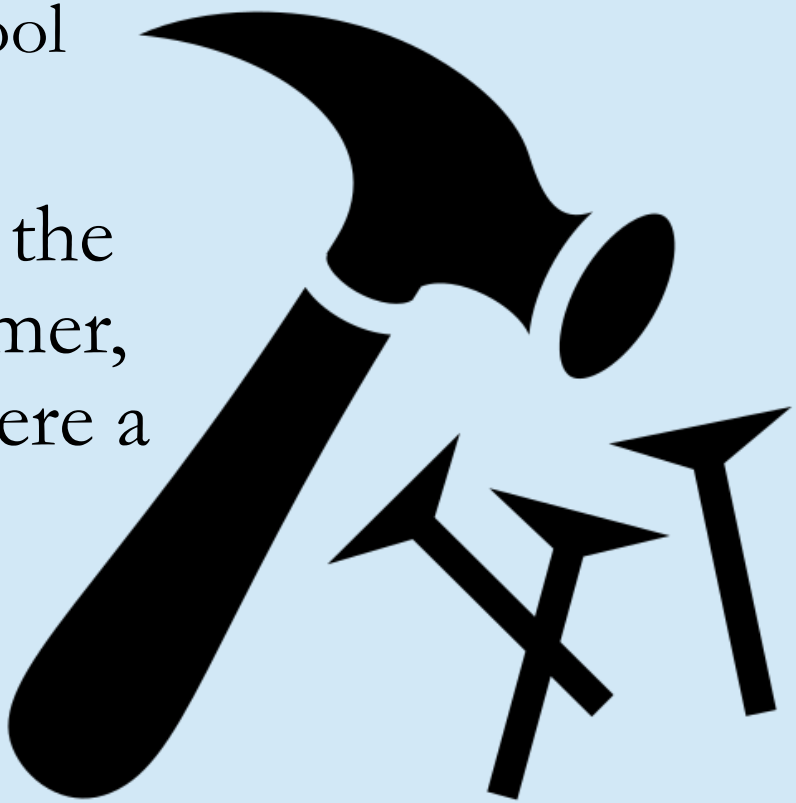
Preparing for Renewals: Is There a Better Way?

Mike Appleby, P.G. *Groundwater Supervisor*

Abraham Maslow

- Law of the Instrument
  - Birmingham screwdriver?
  - Over-reliance on a familiar tool

- "I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail."



SRBC
SUSQUEHANNA RIVER BASIN COMMISSION
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NY ▪ PA ▪ MD ▪ USA

Public Water Supply Assistance Program - Fall 2019 Workshop

Groundwater Withdrawal Approval Process:
Technical Training for Public Water Suppliers and Consultants

Binghamton Community Center
1905 Coleman Road, Binghamton, NY 13903
October 30, 2019

AGENDA

8:00 AM	**Registration, Continental Breakfast** (*Provided*)
8:30 AM	**Welcome and Workshop Overview** (*Andrew Dehoff, P.E.,* Executive Director, SRBC)
8:35 AM	**Preparing for Renewals: Is There a Better Way?** (*Mike Appleby, P.G.,* Supervisor, Groundwater Project Review, SRBC)
9:15 AM	**Environmental Resources and Interagency Coordination** (*Dave Haklar,* Environmental Scientist, SRBC)
10:00 AM	**Break**
10:15 AM	**Development of Aquifer Test Plans** (*Brent Bauman, P.G.*, Hydrogeologist, SRBC)
11:00 AM	**Preparing for Renewals Work Session** (*Mike Appleby, P.G.,* Supervisor, Groundwater Project Review, SRBC)
11:15 AM	**Aquifer Test Implementation** (*Bill Miller, P.G.*, Hydrogeologist, SRBC)
12:00 PM	**Networking and Lunch** (*Provided*)
12:45 PM	**Operations of the City of Binghamton's Water Filtration Plant** (*Michael Donahue*, Town of Binghamton Highway Department, New York)
1:15 PM	**Overview of NYS Department of Health's Role in the Management of NY Public Water Suppliers** (*Monika King*, NYSDOH Bureau of Water Supply Protection)
1:45 PM	**Preparing for Renewals Work Session: Action Plans** (*Mike Appleby, P.G.,* Supervisor, Groundwater Project
2:15 PM	**Break**
2:30 PM	**Determining System Demand and Total System Limits** (*Brent Bauman, P.G.*, Hydrogeologist, SRBC)
3:00 PM	**Post-Approval Process and Reporting** (*Bill Miller, P.G.*, Hydrogeologist, SRBC)
3:30 PM	**Adjourn**

This workshop has been approved for 5.5 contact hours for New York Certified Water Operators

Why Do Renewals Exist?

- Initial approvals based on limited data
- Change is a constant
- Opportunity to evaluate withdrawal rates

SRBC Groundwater Approval Process

Pre-Application/ PWSAP Meeting

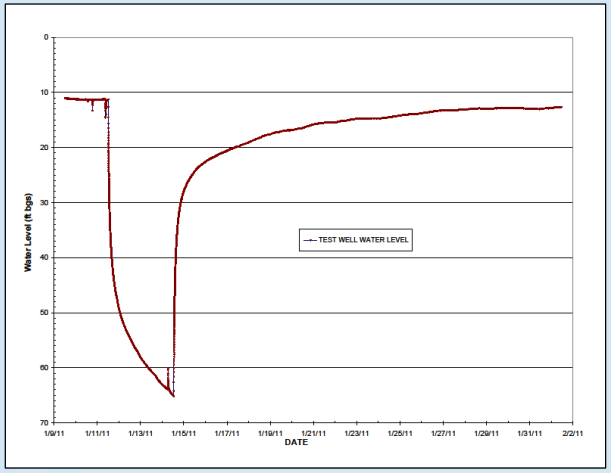
Submit Aquifer Testing Plan

Conduct Aquifer Test

Submit Application

SRBC Review

Commissioner Action



Waivers: The Great Unknown

PWSAP Meeting (Voluntary)

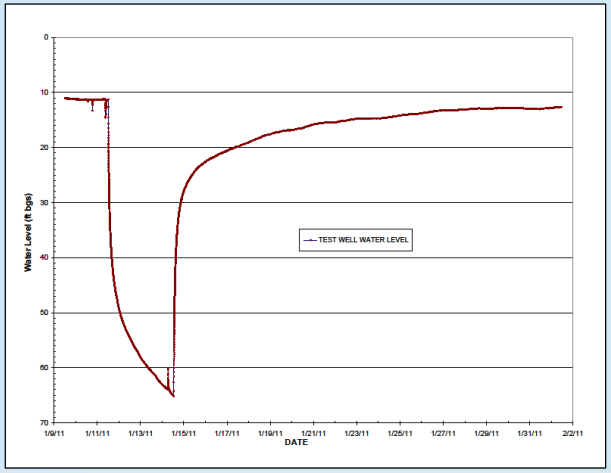
Action Plan (Voluntary)

Implement Action Plan (Voluntary)

Submit Waiver and Application
(Not Voluntary)

SRBC Review

Commissioner Action



Common Renewal/ Waiver Issues

- Old approvals for old sources (Original permits may pre-date SRBC)
- Lack data to support the historic approval
- Standard for a renewal is the same as for a new source
- "Paper" water

Public Water Supply Assistance Program
Types of Assistance

- General Outreach and Education on Regulatory Requirements
- Targeted System-Specific Assistance
- Training & Workshops
- Post-Approval Condition Evaluation & Resolution

Targeted System-Specific Assistance

Development of Renewal Action Plans

- Contact eligible systems 5 years prior to the expiration of their approval(s);
- Review existing data to identify gaps that should be filled prior to application submittal; identify methods for collecting data during normal system operation that can be used to support application(s);
- Review projected growth rates and evaluate the ability of current sources to meet future demand; evaluate the regulatory impact of adding new sources to a system;
- Develop Action Plans to serve as a system-specific guide through the regulatory process.

Waiver From Aquifer Testing

Request a waiver of the aquifer testing requirement

Since 2008, > 90% of waivers have been approved. However, not all are approved at the requested quantity

Three Questions

- Is the withdrawal sustainable?
- Significant adverse impacts to other users?
- Significant adverse impacts to the environment?

Sustainable

- Can the well produce the requested quantity?
- Can it be relied upon during drought conditions?
- How do you know?

Impacts to Other Users

- Are other users present in area of influence?
- Will the withdrawal impact other wells?
- What happens if the well is operated at the maximum rate?

Impacts to the Environment

- Often overlooked during operations
- What is in the vicinity of the well?
- Are those features sensitive?

Action Plan

- Help project sponsors develop approvable waivers
- Assess data needs
- Develop plan to fill data gaps

Public Water Supply Assistance Program Workshop
October 30, 2019
City of Townsville

Background:

1. System name/ well name: City of Townsville Well 4
2. Previously approved quantity: 0.500 mgd
3. Current 30-day demand for system:
   a. Briefly list all sources for the system, including interconnections and grandfathered sources, and their capacities: Wells 1, 2, and 3; each at 0.100 mgd
4. 15-year projected 30-day demand for system: Current demand of 0.250 mgd; future of 1.0 mgd
5. Current 30-day average for well: 0.250 mgd
6. Expected renewal quantity for the well: 0.500 mgd
7. Rate permitted with other agencies: 0.500 mgd
8. Well construction:
   a. Total depth 65 feet
   b. Depth to pump/ screen 55 (screen)
   c. Depth of primary water bearing zone NA
9. Type of Aquifer (alluvial/ glacial, bedrock) Glacial outwash
10. Confined or unconfined aquifer? Unconfined; depth to water of 6 feet

Historical Testing:

11. Was test completed (if No, skip this section)? If yes, was it a Commission approved test? Date of Plan approval? Unapproved test in 1978
12. How many wells (not including test well) were monitored (provide distance to well, use of well)? 0
13. Were surface water features monitored? (If yes, describe) No
14. Was the test a constant rate test? What was the test rate? Variable rate starting at 100, ending at 600 gpm
15. Where was test discharge? Next to well
16. Duration of test? 36 hours
17. Precipitation during test? No
18. Results? Single well test indicated that 600 gpm was likely too much but estimated a rate of 350 gpm would be ok. Projected water level stayed about 2 feet above the top of the screen.

Historical Operation:

19. Are water levels collected? If so, how frequently and are water level records available? Not Collected
20. Has the well been operated at or near the approved rate? No; Maximum of 0.275 mgd (30-day average)
21. How has the well been operated during drought conditions?
    a. Is the well limited due to low water levels? Yes
    b. Does the yield decline (If yes, describe)? Only during the worst droughts
    c. Is the screen or water bearing zones exposed? No water levels
    d. After drought conditions are over, do water levels recover? NA
22. What is the long-term trend of water levels in the well/ aquifer? NA
23. Does the operational data match the test results? NA
24. Have any maintenance events been completed on the well? Periodically cleaned

Impacts to Other Users or the Environment:

25. Are surface water features present within the area of influence (AOI)?
    a. Wetlands? Yes
    b. Streams? Yes
26. Are rare, threatened, or endangered species present that may be impacted by the withdrawal? Unknown
27. Are surface water features of exceptional value (if yes, explain)? Yes – regulated wetlands
28. Does the service area for the PWS include the entire AOI? No
29. Are other groundwater users within the AOI (Including springs, seeps, wells)? Yes. Several shallow residential wells located within 1,000 feet of the well.

Other: Large industrial development is underway that will increase demand 300% over current use within the next 5 years.

Public Water Supply Assistance Program Workshop
October 30, 2019
Town of Village

Background:

1. System name/ well name: Town of Village Well 2
2. Previously approved quantity: 0.500 mgd
3. Current 30-day demand for system:
   a. Briefly list all sources for the system, including interconnections and grandfathered sources, and their capacities: Well 1; 0.500 mgd
4. 15-year projected 30-day demand for system: 0.200 mgd
5. Current 30-day average for well: 0.200 mgd
6. Expected renewal quantity for the well: 0.200 mgd – backup well not normally used
7. Rate permitted with other agencies: 0.500
8. Well construction:
   a. Total depth 65 feet
   b. Depth to pump/ screen 55 (screen)
   c. Depth of primary water bearing zone NA
9. Type of Aquifer (alluvial/ glacial, bedrock) Glacial outwash
10. Confined or unconfined aquifer? Confined; depth to water of 20 feet

Historical Testing:

11. Was test completed (if No, skip this section)? If yes, was it a Commission approved test? Date of Plan approval? Unapproved test in 1988
12. How many wells (not including test well) were monitored (provide distance to well, use of well)? 2 – Well 1 plus an observation well.
13. Were surface water features monitored? (If yes, describe) No
14. Was the test a constant rate test? What was the test rate? Constant rate after 2 hours at 600 gpm
15. Where was test discharge? 1,000 feet from well to river
16. Duration of test? 48 hours
17. Precipitation during test? No
18. Results? 10 feet of drawdown during test with additional 5 feet projected for 90 days with level well above the screen. Minor drawdown observed in other wells.

Historical Operation:

19. Are water levels collected? If so, how frequently and are water level records available? Not Collected
20. Has the well been operated at or near the approved rate? No; Maximum of 0.100 mgd (30-day average)
21. How has the well been operated during drought conditions? Used briefly during one drought period at 0.075 mgd.
    a. Is the well limited due to low water levels? No
    b. Does the yield decline (If yes, describe)? NA
    c. Is the screen or water bearing zones exposed? No water levels
    d. After drought conditions are over, do water levels recover? NA
22. What is the long-term trend of water levels in the well/ aquifer? NA
23. Does the operational data match the test results? NA
24. Have any maintenance events been completed on the well? No

Impacts to Other Users or the Environment:

25. Are surface water features present within the area of influence (AOI)?
    a. Wetlands? No
    b. Streams? No
26. Are rare, threatened, or endangered species present that may be impacted by the withdrawal? No
27. Are surface water features of exceptional value (if yes, explain)? No
28. Does the service area for the PWS include the entire AOI? Yes
29. Are other groundwater users within the AOI (Including springs, seeps, wells)? No

Other: Well is located several hundred feet from primary well and is built similarly. Maximum use for primary well matches the max 30-day average and 15-year projected demand.

Discussion

- Scenario 1
  - Needs the water
  - Poor original test
  - No water level data
  - No assessment of impacts to others
- Result?

Discussion

- Scenario 2
  - Water demands are less
  - Good original test
  - No good operational data
  - Not a sensitive setting
- Result?

Work Session

- Consider how this affects your system
- Consider how each topic this morning relates to your renewal
- Will develop action plans and discuss the results

Bottom Line

- Be creative
- Use all tools available
- Use existing data to the extent possible
- Test as a last resort, but make sure the data can tell the story it needs to tell.