

PWSAP Webinar Series: Groundwater Renewal Process

Part 3 - Groundwater Project Renewals: Water Level Monitoring & Grant Program

Key Personnel:

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Hydrogeologist
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Webinar Overview

- **Part 1 -Groundwater Project Renewals: A Two-Step Process**
 - Completed January 28, 2021
- **Part 2 – Groundwater Project Renewals: Operational Monitoring and Operational Testing**
 - Completed February 25, 2021
- **Part 3 – Groundwater Project Renewals: Water Level Monitoring & Grant Program**
 - March 25, 2021

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New Fact Sheets



- One per webinar topic
- Available on our website
- Copy included with your invite
- Check our website for the latest version, as we expect these to change and be updated

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What Has Gone Before

- Two-Step Process to answer the Three Questions
 - Aquifer Testing Plan or Waiver Request
 - Meet aquifer testing requirement once
 - Projects with previously approved tests have met 806.12
- Application Deadline - 6-Months before expiration
 - Waiver/ Plan Does not Count
- Utilize existing data
 - Supplement with operational monitoring/ operational testing
 - Develop an action plan for your renewal (or have us do it!)
 - SRBC VAP may provide SRBC evaluation option

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What to Expect Today

- Basics of Water Level Monitoring
- Purpose and Benefits of Monitoring
 - Evaluate current conditions
 - Identify trends/ problems
- How to Collect, Record, and Report
- Basic evaluation of water level data
 - Importance of long-term data
- Grant Program



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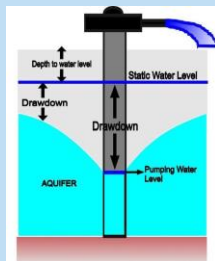
What is Water Level Monitoring?

Measurement of water level
within an operational well.

Static Water Level

vs.

Pumping Level



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Regulatory Requirement

Why is this required? and Who does it apply to?



Commission Regulation 18 CFR § 806.30

PART 806-REVIEW AND APPROVAL OF PROJECTS

Subpart D-Terms and Conditions of Approval

§806.30 Monitoring.

- (4) Measure groundwater levels in all approved production and other wells, as specified by the Commission.
- (5) Measure groundwater levels at additional monitoring locations, as specified by the Commission.

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Required Part of Dockets - Conditions

SUSQUEHANNA RIVER BASIN COMMISSION
400 Rock Hill Road • Annapolis, Maryland 21403-1006
(410) 386-6100 • Fax: (410) 386-6101
www.srbcc.org

Project No. 2019-001
Approved Date: March 10, 2021

PROJECT SPONSOR:
Cromwell Waterway LLC, c/o Annapolis Water Utility, c/o
State Street Water Treatment Plant, 1000 E. Street, Annapolis, MD 21403

Section 1. Approval
After review of the permit application and findings of the Commission, the Commission has determined that the proposed project meets the requirements of the Commission's rules and regulations, and that the project is in the public interest. The Commission has approved the project, subject to the conditions set forth in this permit. The permittee shall comply with all conditions of this permit, and shall submit a plan to the Commission for review and approval for the implementation of a groundwater elevation monitoring program in accordance with Commission Regulation 18 CFR § 806.30(a)(4). The plan shall include proposed methods for the daily measurement and recording of groundwater elevations from all sources.

GROUNDWATER ELEVATION MONITORING PLAN
PROJECT SPONSOR
ANY TOWN, ANYPLACE COUNTY, PAINTED
March 10, 2021
Prepared By:
Consultant #123
Project No. 1234

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What do I do once I have all this good data?

Record Keeping and Reporting

1. Record Keeping
 - a. Project Sponsors should keep a daily log of withdrawal and groundwater elevation measurements.
 - b. Manual log vs. Electronic log
2. Reporting Data: MDW – Monitoring Data Website
 - <https://services.srbcc.net/reporting/>
 - <https://services.srbcc.net/reporting/helpandsupport.aspx>

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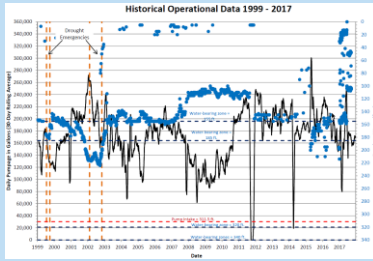
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Benefits to Monitoring Water Levels

Required Part of Renewals / Waivers



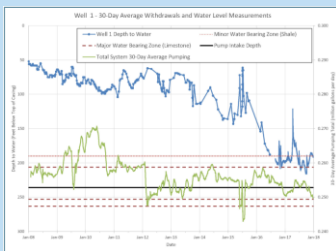
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Benefits to Monitoring Water Levels

Identification of Potential Problems



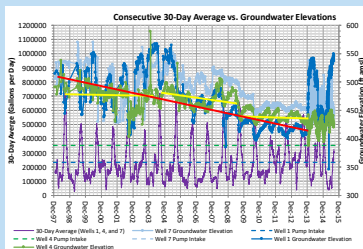
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Benefits to Monitoring Water Levels

Is There a Problem Here?



Routine review and identification of abnormal water level changes can include early detection of the following:

- ☐ Well integrity/construction issues
- ☐ Pump efficiency decreases
- ☐ Piping failures or leaks; and
- ☐ Influences/interference from other users

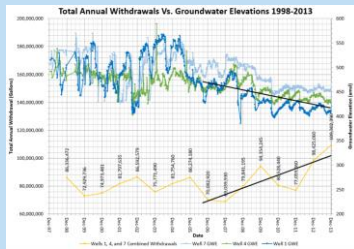
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Benefits to Monitoring Water Levels

Long-term Trends Show the Problem



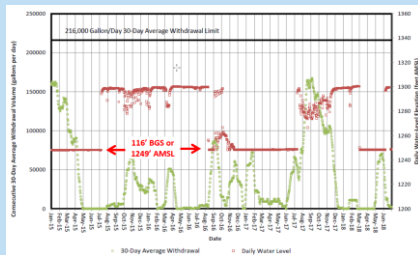
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Benefits to Monitoring Water Levels

Is There a Problem Here?



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How is Water Level Monitoring Accomplished?

Groundwater Elevation Data Collection

Commonly Used Water Level Monitoring Devices:

1. Electronic water level meter
2. Pressure transducer/ data logger
3. Air line



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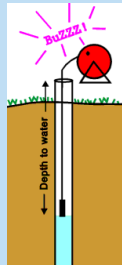
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How is Water Level Monitoring Accomplished?

Water Level Meter – Basic Operation

- Water level meters consist of a probe or electrode and insulated wires inside a graduated tape, with an internal power source.
- Unit typically has an audible alarm or an ammeter that visually indicates when water has been sensed.
- The graduated tape is then manually read at a benchmark location to provide a depth to water reading.



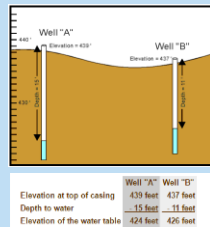
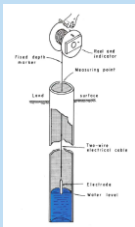
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How is Water Level Monitoring Accomplished?

Converting Depth to Water Measurements to Groundwater Elevation



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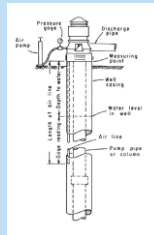
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How is Water Level Monitoring Accomplished?

Groundwater Elevation Data Collection using Air Line / Bubbler Systems

Air Line / Bubbler Systems Basic Operation

- Installation of a small-diameter pipe or tube (the air line).
- Depth to water is determined with an air pump and a pressure gage.
- The stabilized pressure-gage reading indicates the height of the water column originally in the air line.



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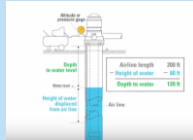
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How is Water Level Monitoring Accomplished?

Converting Pressure-Gage Readings to Groundwater Elevations

1 psi = 2.31 feet of water
40 psi x 2.31 feet = 92.4 feet of water



<https://www.youtube.com/watch?v=yLFUxjYFmow>

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How is Water Level Monitoring Accomplished?

Groundwater Elevation Data Collection Using Pressure Transducers



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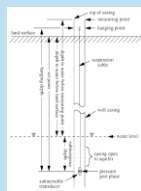
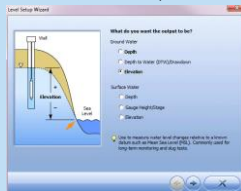
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How is Water Level Monitoring Accomplished?

Converting Transducer Data to Groundwater Elevations

Transducers can be programmed to display in formats including: Level Depth, Level Surface Elevation, and Level Depth to Water.



The calculation of groundwater elevation is specific to the selected setup options

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SUMMARY

- The Commission regulates and requires approved projects to monitor and report operational water level data (18 CFR § 806.30).
- Guidance document is available to assist in the preparation of GWEMPs.
- The collection and evaluation of routine water level data provides a wealth of information that can be beneficial in support of renewal/ waiver requests.
- Identify problems before it is too late.
- Do not hesitate to contact Commission staff with any questions.

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Water Level Grant Program

- Intended to help with costs of water level monitoring
 - Water level data is important, especially during the renewal process
 - Better resource management
- Most projects eligible
 - SRBC approval
 - Grandfathered projects
 - Projects seeking SRBC approval
 - Remediation projects are not eligible
- Selection criteria in development



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Water Level Grant Program

- Submit application (look for link on website/ email)
 - Approximately 20 questions
 - Complete application in one sitting
- Receive award notice, including amount
- Complete the work and submit for reimbursement
- Work completed on or after 4/1/21 is eligible for grant

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Water Level Grant Program

- Application period is April 1 through June 30
 - Check your email or look on our website on 4/1
 - No joke!
- Awards notified no sooner than August 2
- \$1,500 per source; \$7,500 per facility
- Facility – Independent system, plant, golf course, etc.
 - Owners of multiple facilities can apply for each facility



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Water Level Grant Program

- Grant awards may be used for:
 - Purchase equipment for a new system
 - Upgrade an existing system
 - Repair/ replace existing equipment
 - Improving accuracy or efficiency
 - Automating collection and recording of data
 - Software upgrades/ modifications
- Contact staff with any questions

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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
- Jeff Thomas jthomas@srbc.net

PWSAP

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

Other important references:

- ☒ Water Level Monitoring Fact Sheet
- ☒ Operational Monitoring and Operational Testing Fact Sheet
- ☒ Online Application Instructions
- ☒ Online Waiver/Plan Templates
- ☒ Online Application Functional Template
- ☒ Aquifer Test Guidance

Questions & Additional Information

If you have any questions or would like to request a free pre-application consultation, please contact the Commission's Manager of Project Review at 717-238-0423.

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Up Next

- Grant Program is active on April 1, 2021
- Next webinars will be on policy and reg revisions
 - Currently planned for:
 - April 6 at 6 PM (Tuesday)
 - April 14 at 2 PM (Wednesday)
 - Some changes are significant and may affect your project
- Summer Webinar Series
 - Most feedback related to aquifer testing/ plans

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Summary

- Water level data helps with normal operation of the source as well as the renewal
 - May help predict when to expect an “emergency”
- Do more with the data than collect and report – Use it!
- Commission supporting water level monitoring with grant program (~\$100,000 available)

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