PUBLIC WATER SUPPLY ASSISTANCE PROGRAM

APPLICATION AND REVIEW PROCESS

MAY 17, 2016

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Aquatic Biologist

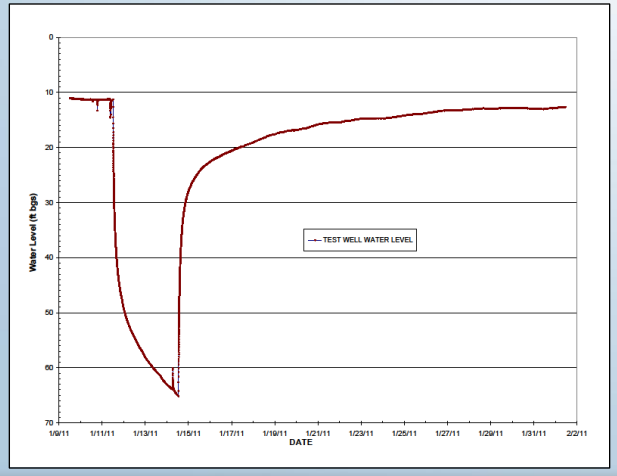
SRBC GROUNDWATER APPLICATION PROCESS

Pre-Drill Well Site Review (not required)

Well Drilling

Submit Aquifer Testing Plan

Conduct Aquifer Test



Pre-Application Meeting

Submit Application

SRBC Review

PRE-APPLICATION MEETING

WITHDRAWAL APPLICATION

- 18 CFR § 806.14 Contents of application
- 18 CFR § 806.23 Standards for water withdrawals
- For renewals, due 6 months prior to expiration (even if ATP is needed) 18 CFR § 806.31

APPLICATION PROCESS

- Submit Application
  - Form 24P
  - Hydro report
  - Foreseeable need
  - Metering/ Monitoring Plans
- Get pending number, complete notices
  - 20 days to complete notices (was 10 days)
  - Staff can provide assistance, current guidance on CD, but check website for updates
- Provide notice materials
- Administrative Review
- Technical Review
- Staff Recommendations

METERING/ GWEMP

- Metering Plans
  - Describe metering equipment
  - Calibration
  - Flow control devices to meet limits

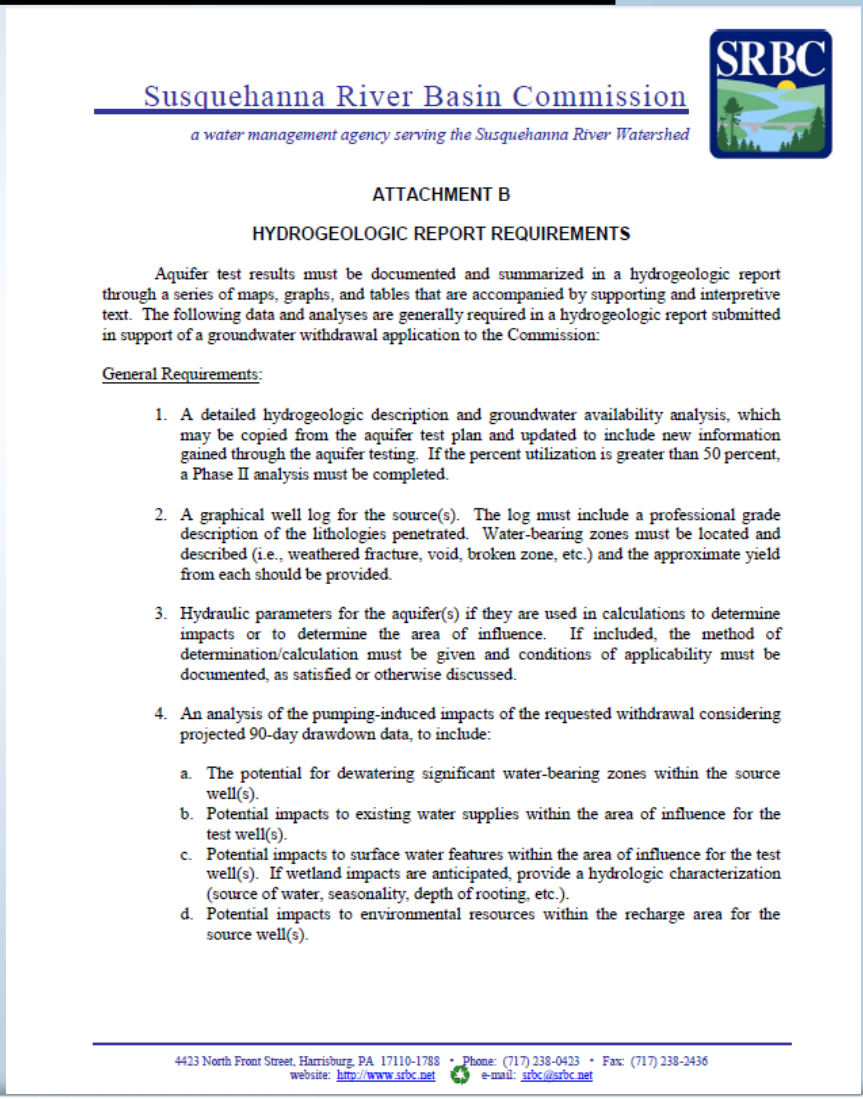
- Groundwater Elevation Monitoring Plan
  - Daily collection of water levels from all sources
  - Methodology used to collect water levels
  - Schedule for implementation

COORDINATION

- Submit application to SRBC and other agencies
- Memorandum of Understanding
  - Process for joint reviews
  - Defines steps for coordination
- MOU coordination on groundwater projects
  - New York
  - Pennsylvania
  - Maryland (no MOU)

AQUIFER TEST PLAN APPROVAL LETTER

- Attachment B (on CD)
- List of 25 items that may be needed in Hydro report
- Not everything on the list is needed for all projects. Discretion is required.



Susquehanna River Basin Commission

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ATTACHMENT B

HYDROGEOLOGIC REPORT REQUIREMENTS

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website: http://www.srbc.net e-mail: srbc@srbc.net

GOALS OF REGULATORY PROGRAM

1. Sustainable withdrawals
2. Impacts to competing groundwater or surface water users
3. Impacts to the environment

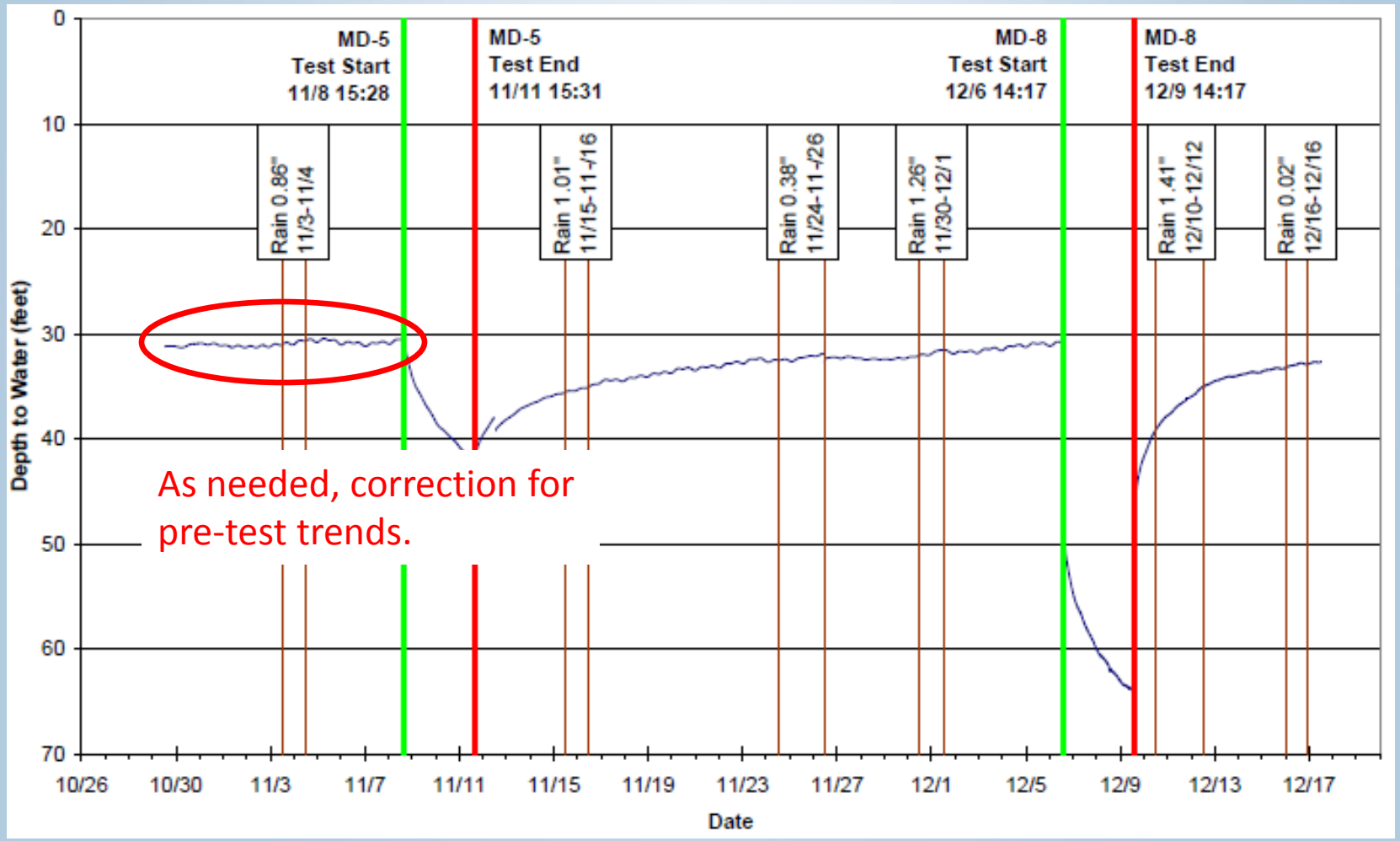
GROUNDWATER AVAILABILITY

- Revise analysis, if needed, based on test data
- May provide for a larger demonstrated groundwater basin
- Will be used with historical withdrawal data and/ or test data to evaluate requested rate
- Staff typically does not recommend approval of greater than 100% of 1-in-10 year drought availability

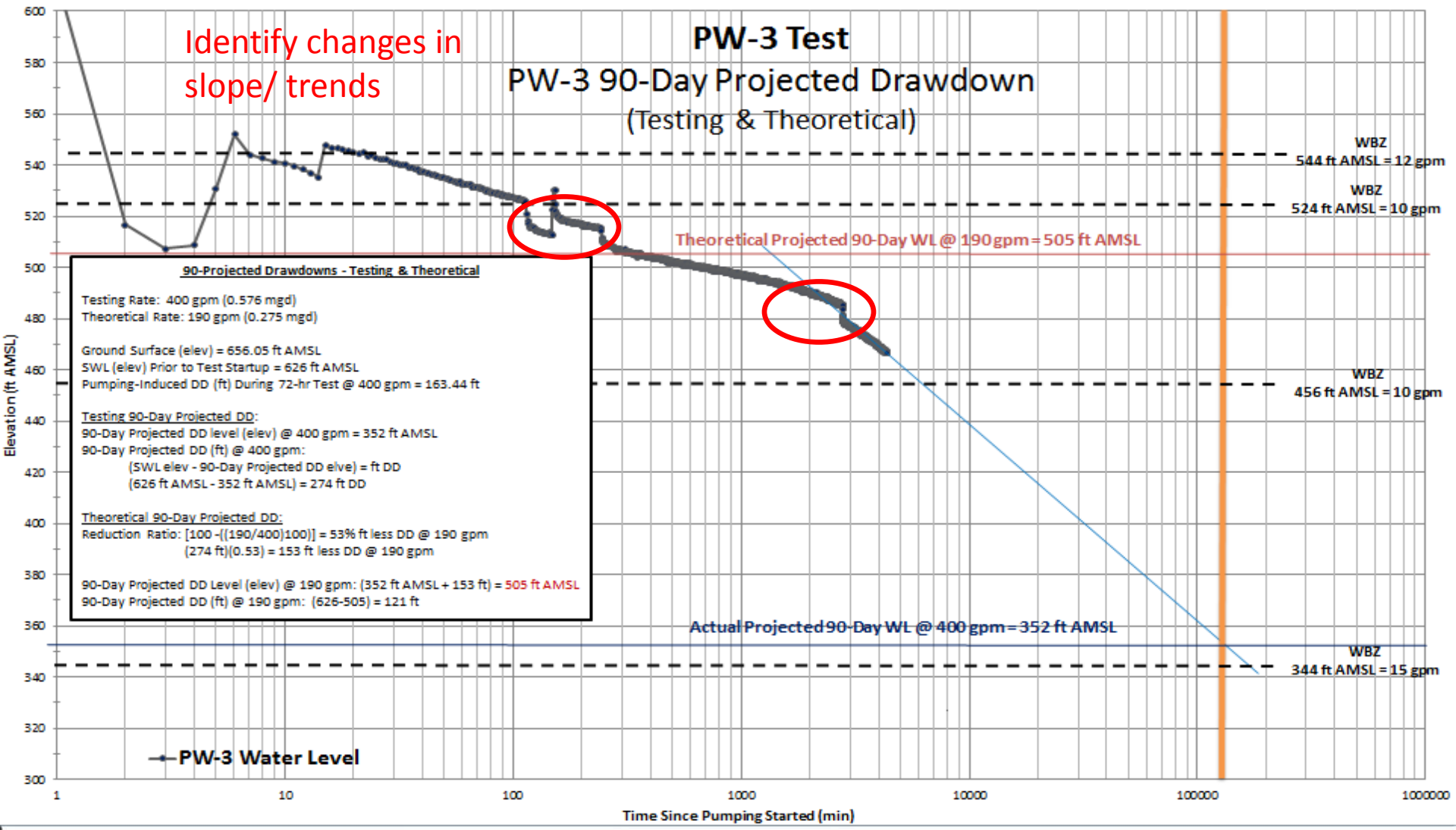
SUSTAINABLE WITHDRAWAL

- Linear graphs to show overall aquifer conditions
- Semi-log graph with 90-day projected water levels
  - Consideration of normal water level fluctuation may be needed
  - DEP's uses 180-day projection
- Residual drawdown, as shown in Driscoll
  - Test well
  - Monitoring wells

LINEAR GRAPH



SEMI-LOG GRAPH



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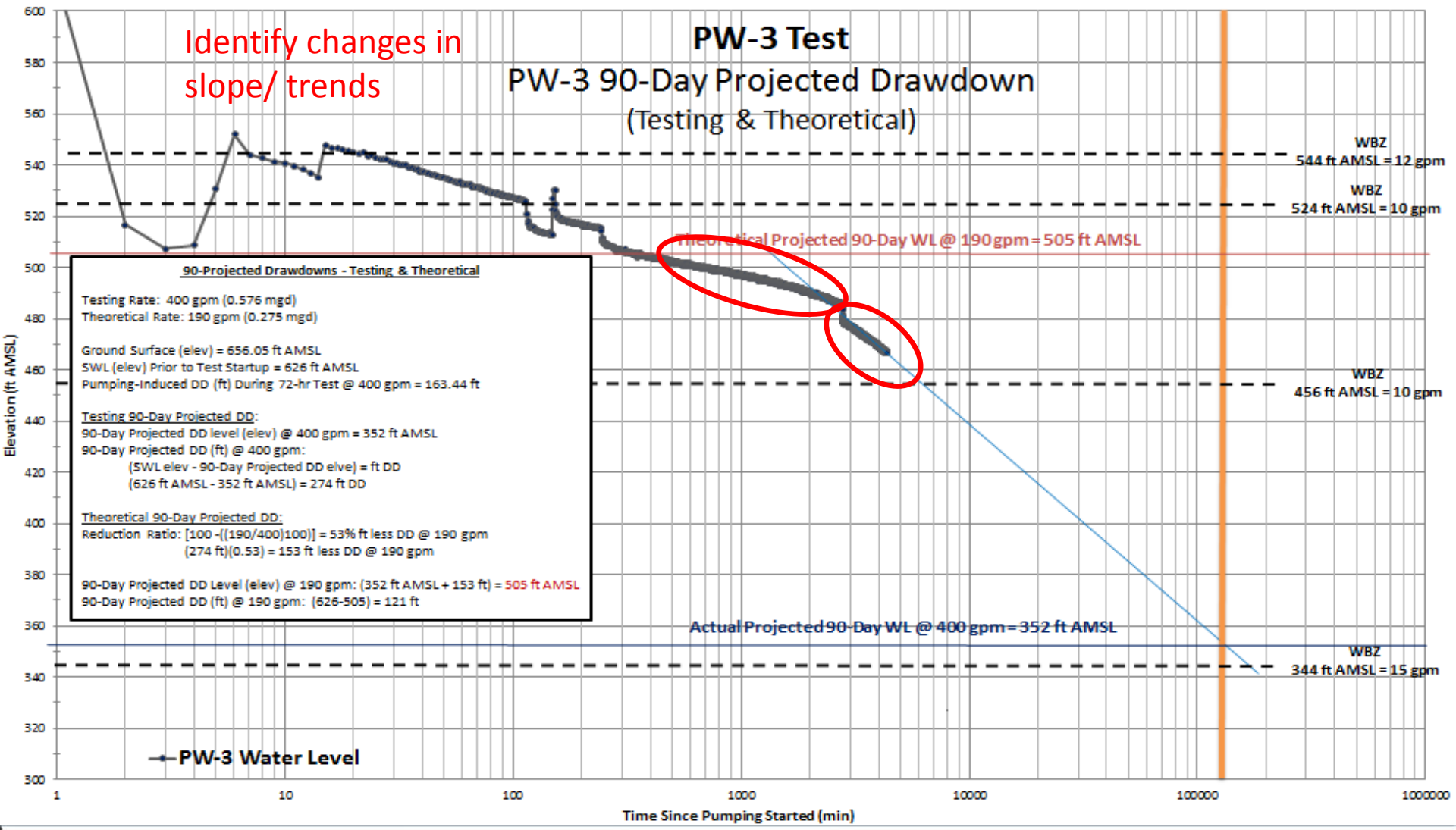

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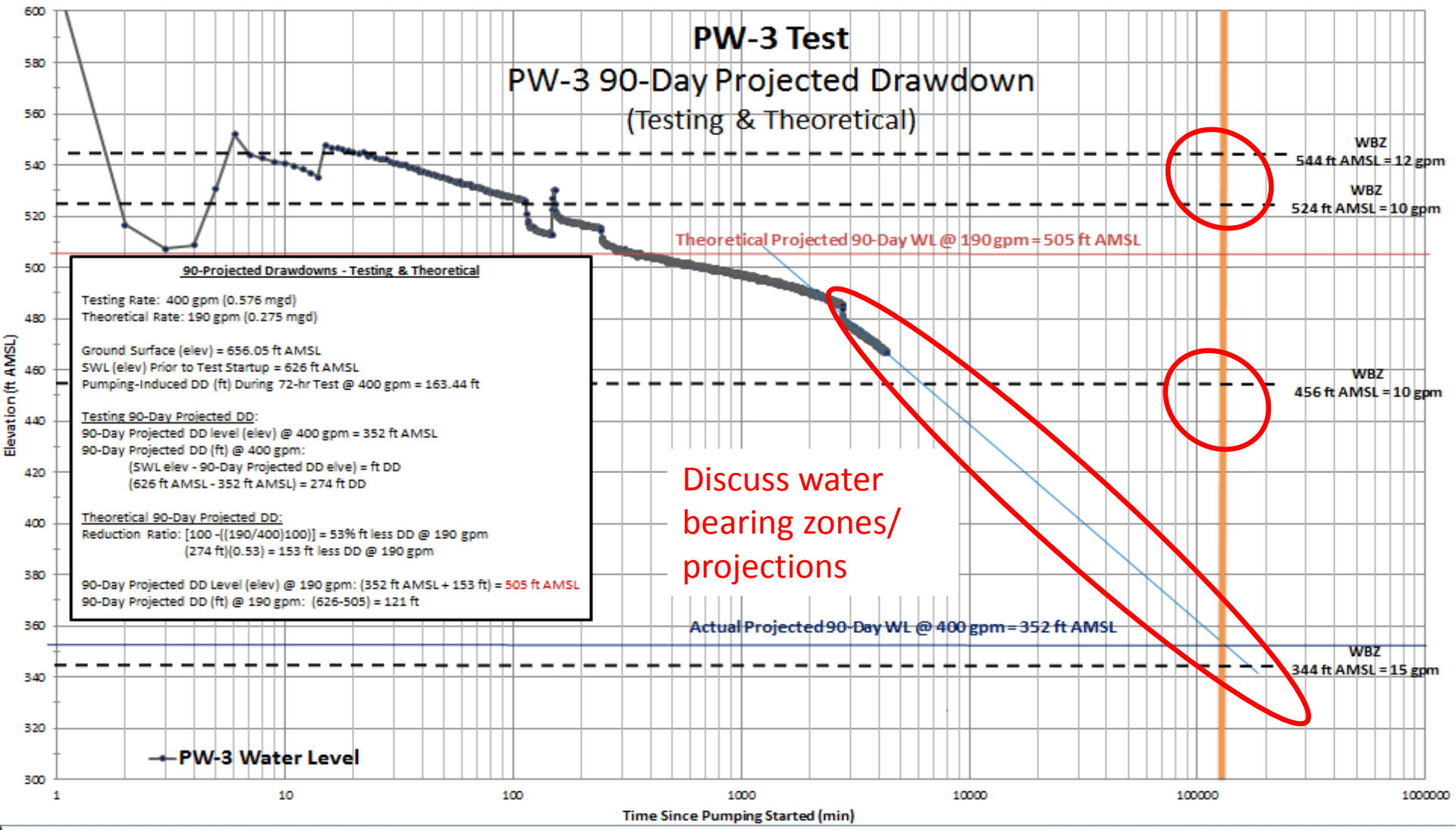
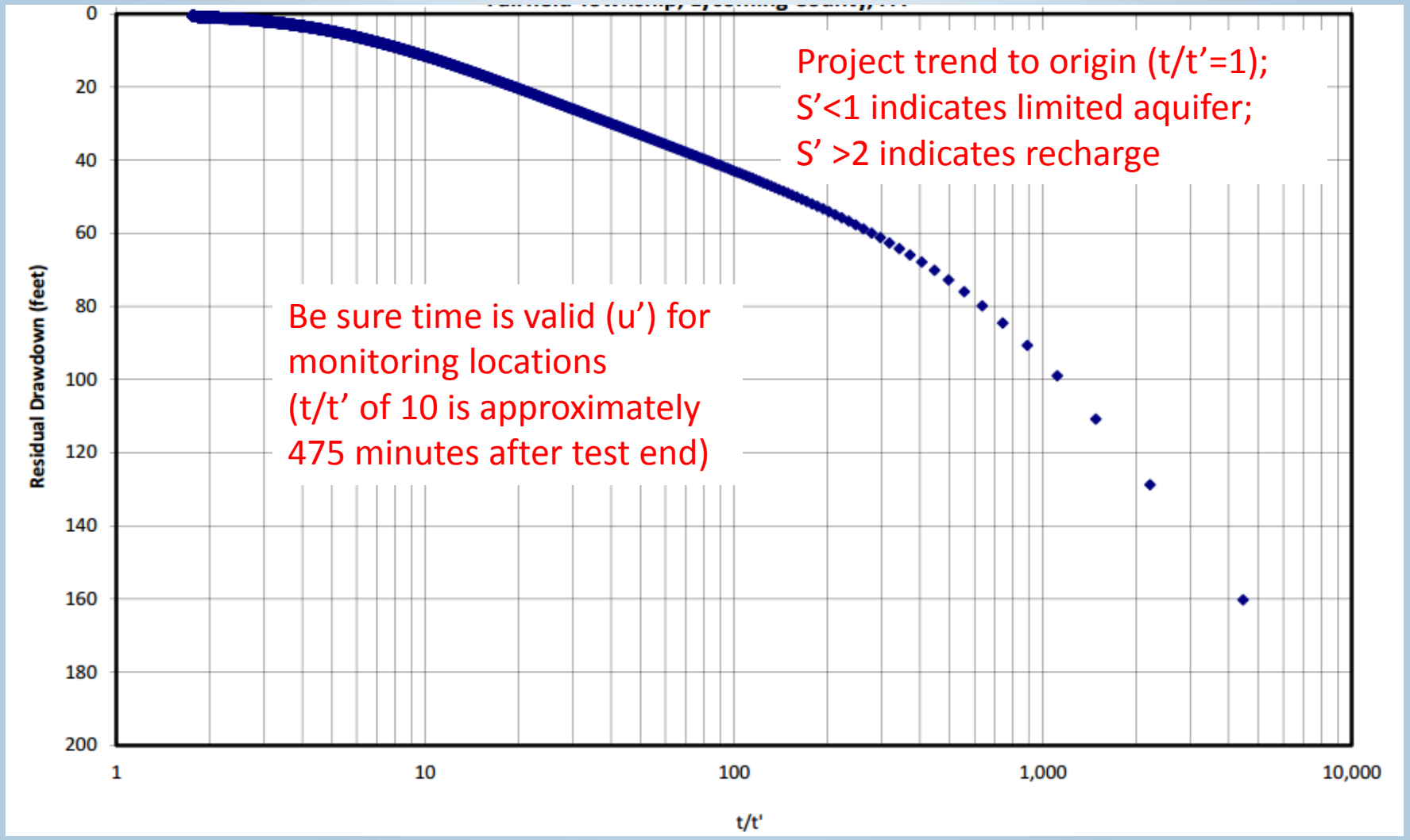


RESIDUAL DRAWDOWN



GOALS OF REGULATORY PROGRAM

1. Sustainable withdrawals
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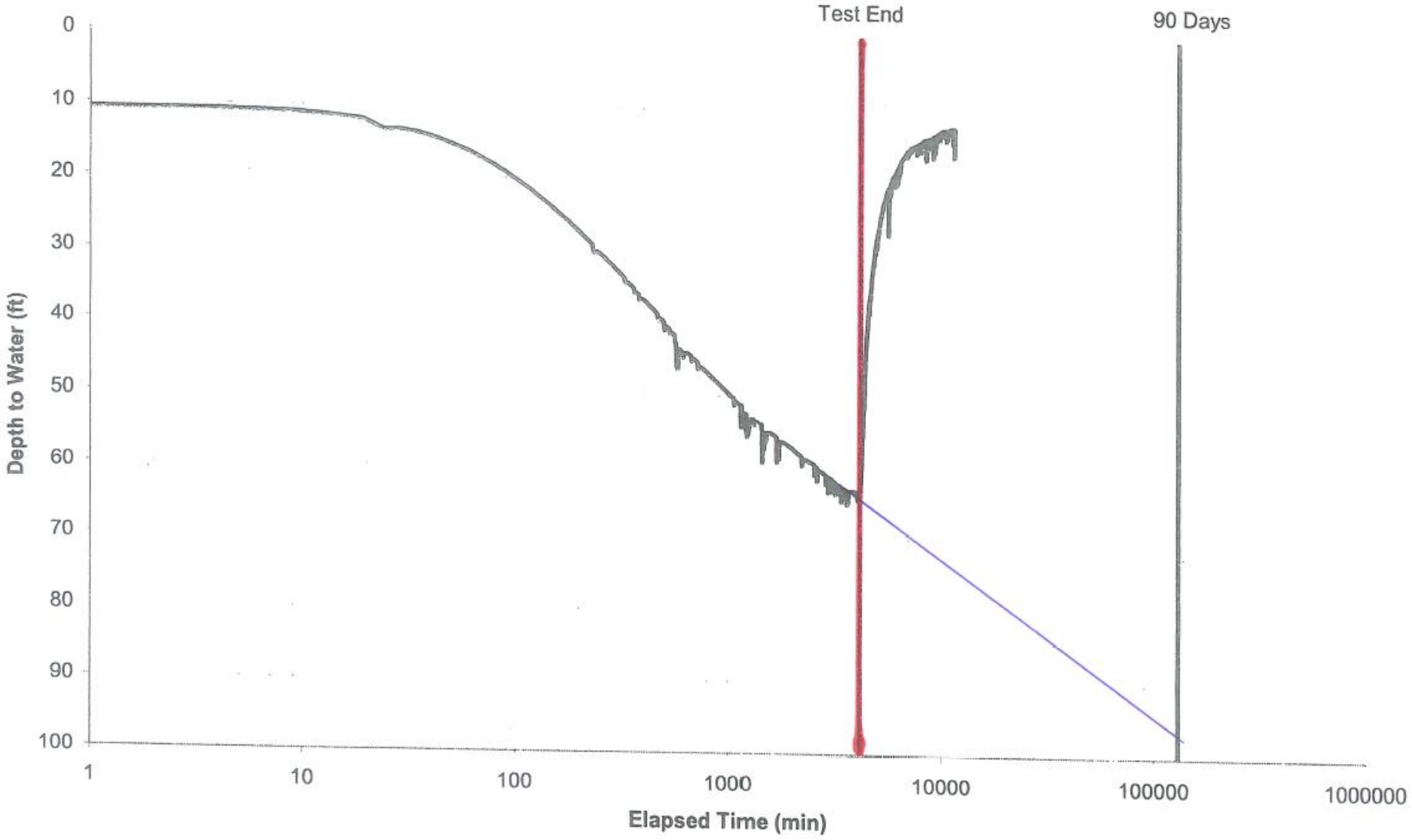
3. Impacts to the environment

SIGNIFICANT ADVERSE IMPACTS

- What does it mean?

- Depends on situation and what we know
  - Shallow well, small water
  - Deep well, large water column
  - Primary water bearing zones?

SIGNIFICANT ADVERSE IMPACTS



MONITORING WELL EVALUATIONS

- Linear graphs to show overall aquifer conditions
  - All phases of testing
- Semi-log graph with 90-day projected water levels
  - Consideration of normal water level fluctuation may be needed
  - Recovery data shown on semi-log graph
- Residual drawdown, as shown in Driscoll

GOALS OF REGULATORY PROGRAM

1. Sustainable withdrawals

2. Impacts to competing groundwater or surface water users

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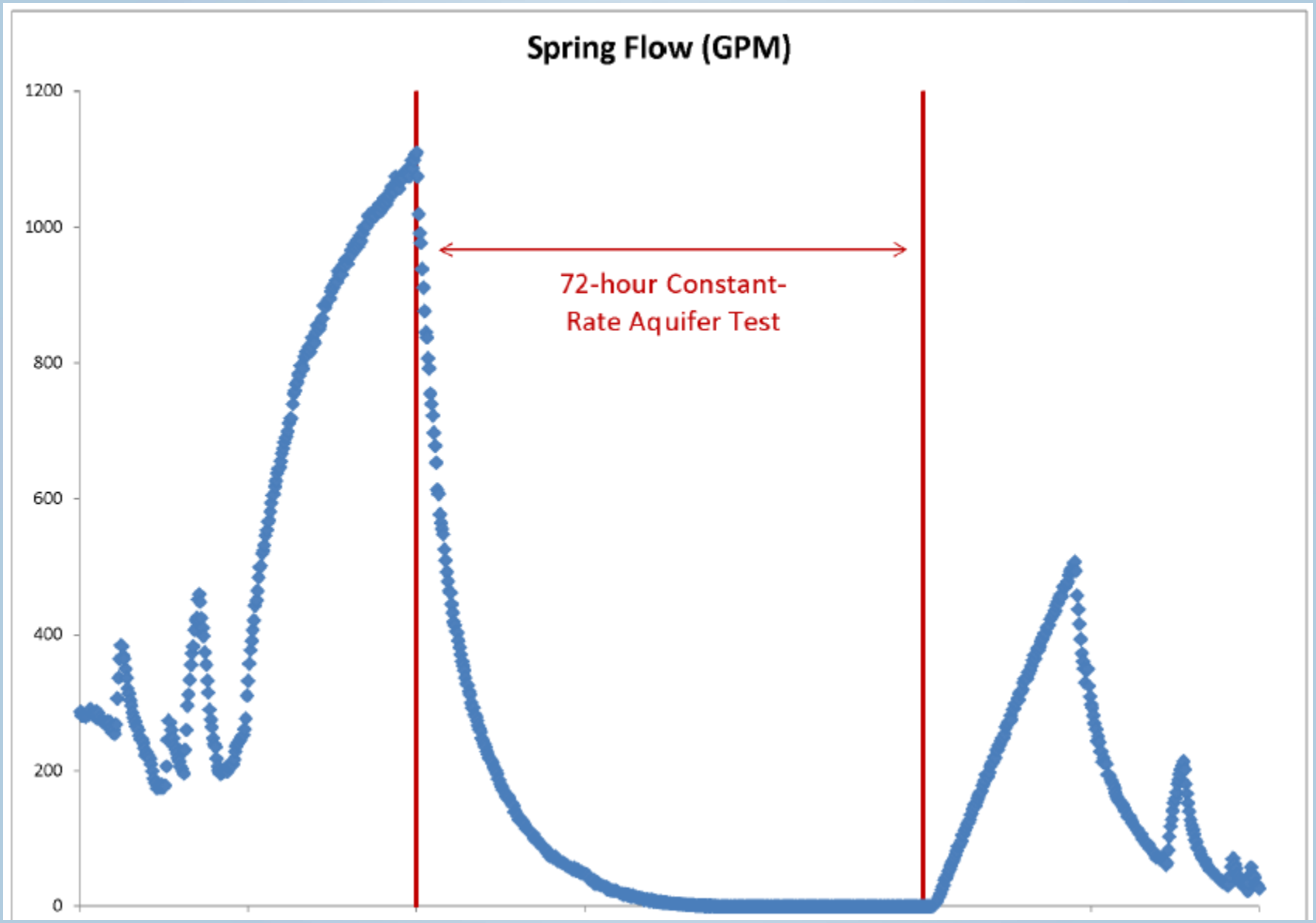
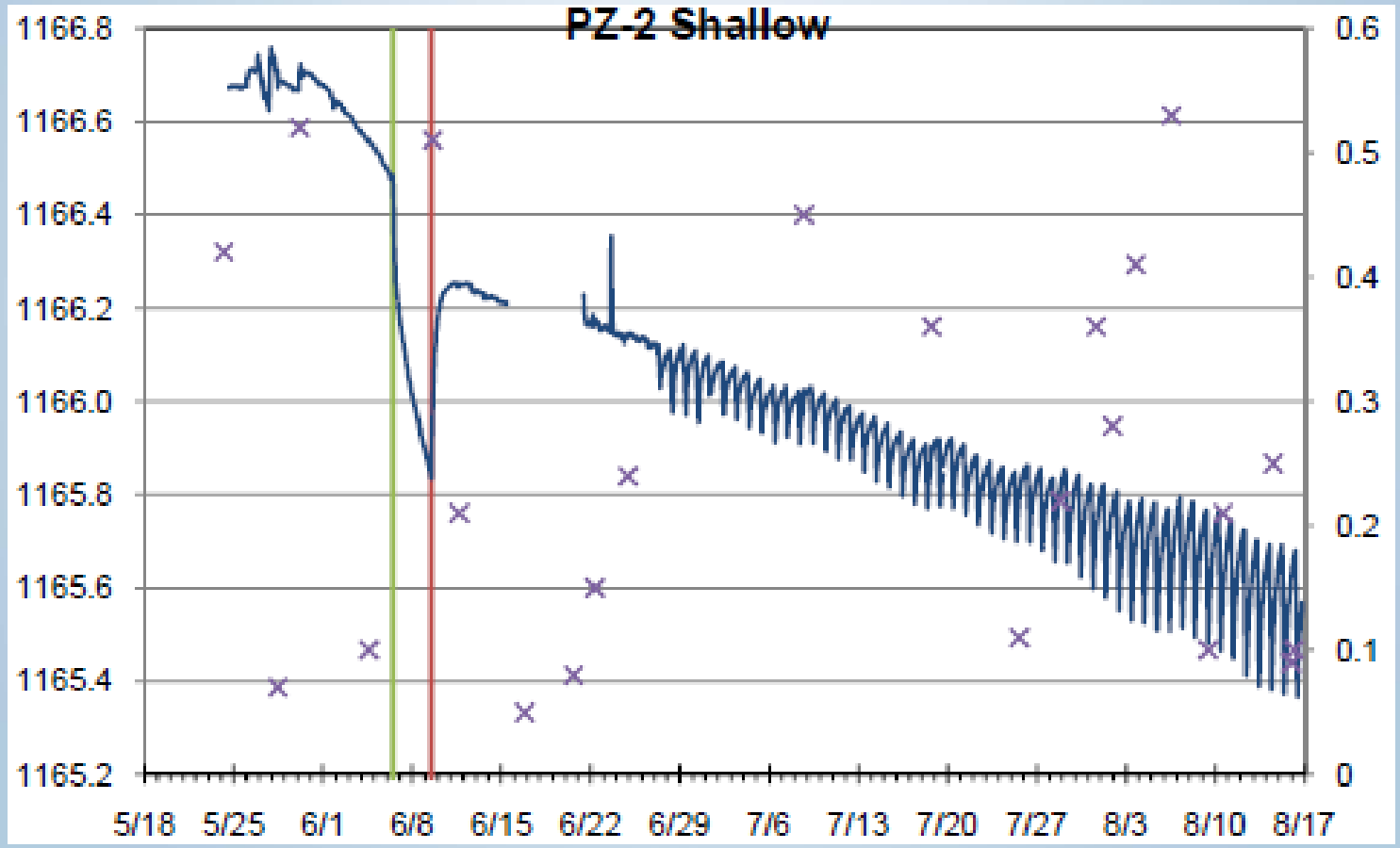
SURFACE WATER EVALUATION

- Convert level to flow (must have reference point)
- Address potential impacts in hydro report
- Account for barometric changes.
  - Becomes more important for low-level impacts
  - Water level data for shallow piezometers, weirs, and flumes are useless unless vented/ corrected


Spring Flow (GPM)
1200
1000
800
600
400
200
0
72-hour Constant-
Rate Aquifer Test

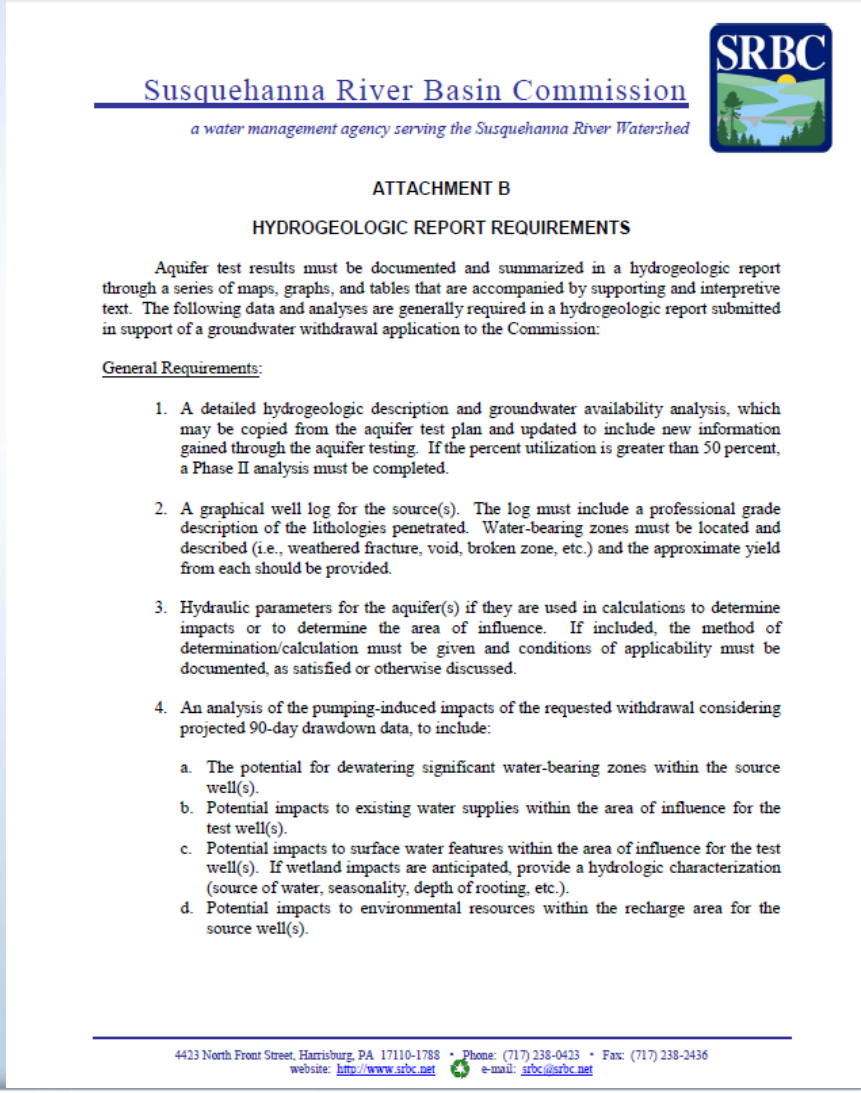

06/21/2011 12:15

WETLANDS IMPACTS



OTHER ITEMS

- Contour maps
- Tables
- Nearby well information
  - Within Area of Influence
  - Well construction (as much as possible)
- Other maps and graphs



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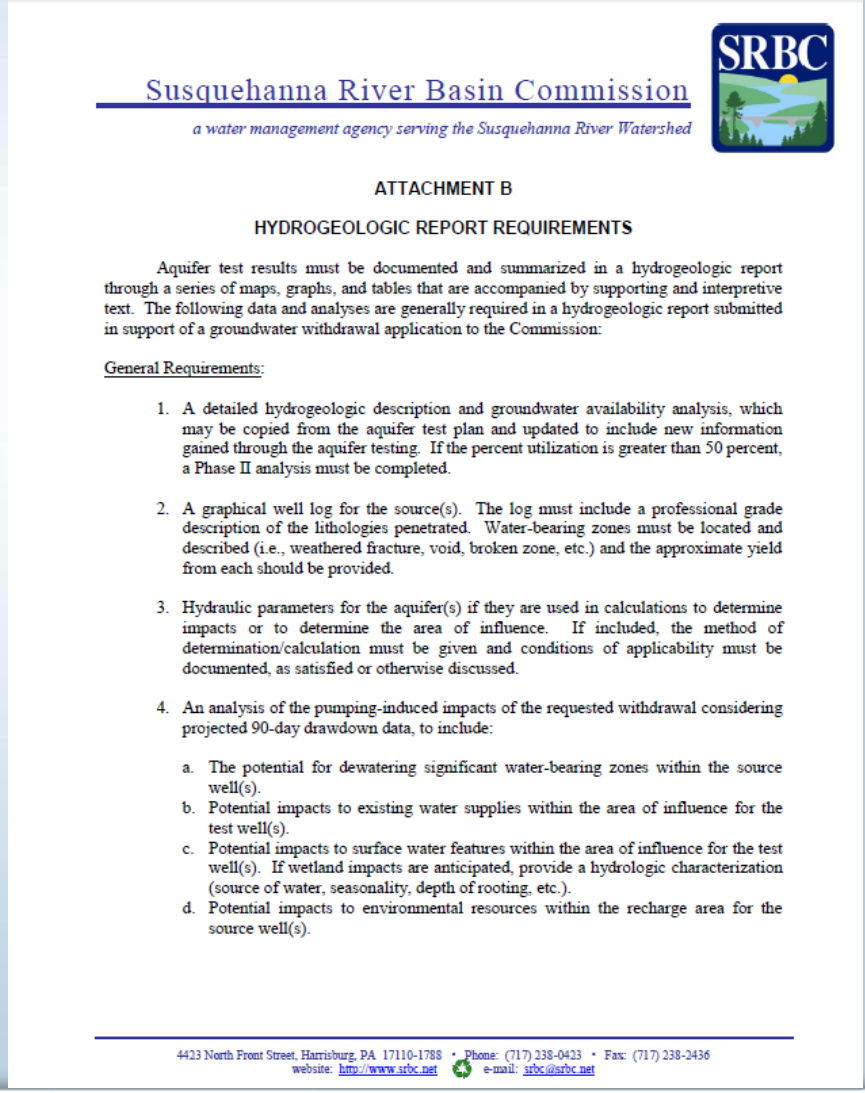
SUMMARY

- How have you addressed these items?
  1. Sustainable withdrawals
  2. Impacts to competing groundwater or surface water users
  3. Impacts to the environment
- Are other items needed?
  - Monitoring plan?
  - Mitigation plan?
  - Operations plan?



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Environmental Review – Groundwater Withdrawal Application

Environmental Review – GW Withdrawal Application

1. Update the desktop environmental screening with pertinent results from aquifer test monitoring locations.
2. Assist GW review staff if monitoring data indicates potential impact to streams, wetland, and/or sensitive natural features.
3. Both efforts inform whether or not an aquatic resource survey should be conducted in nearby stream(s).
4. Both efforts inform if other protective or mitigating measures are needed.

IMPACTS TO A WETLAND

Is the wetland of exceptional quality?

If yes:

- Has an alternative been proposed?
- Can impacts be avoided?
- Is mitigation allowable?
- Is project, as proposed, approvable?

Is the wetland any other type?

If yes:

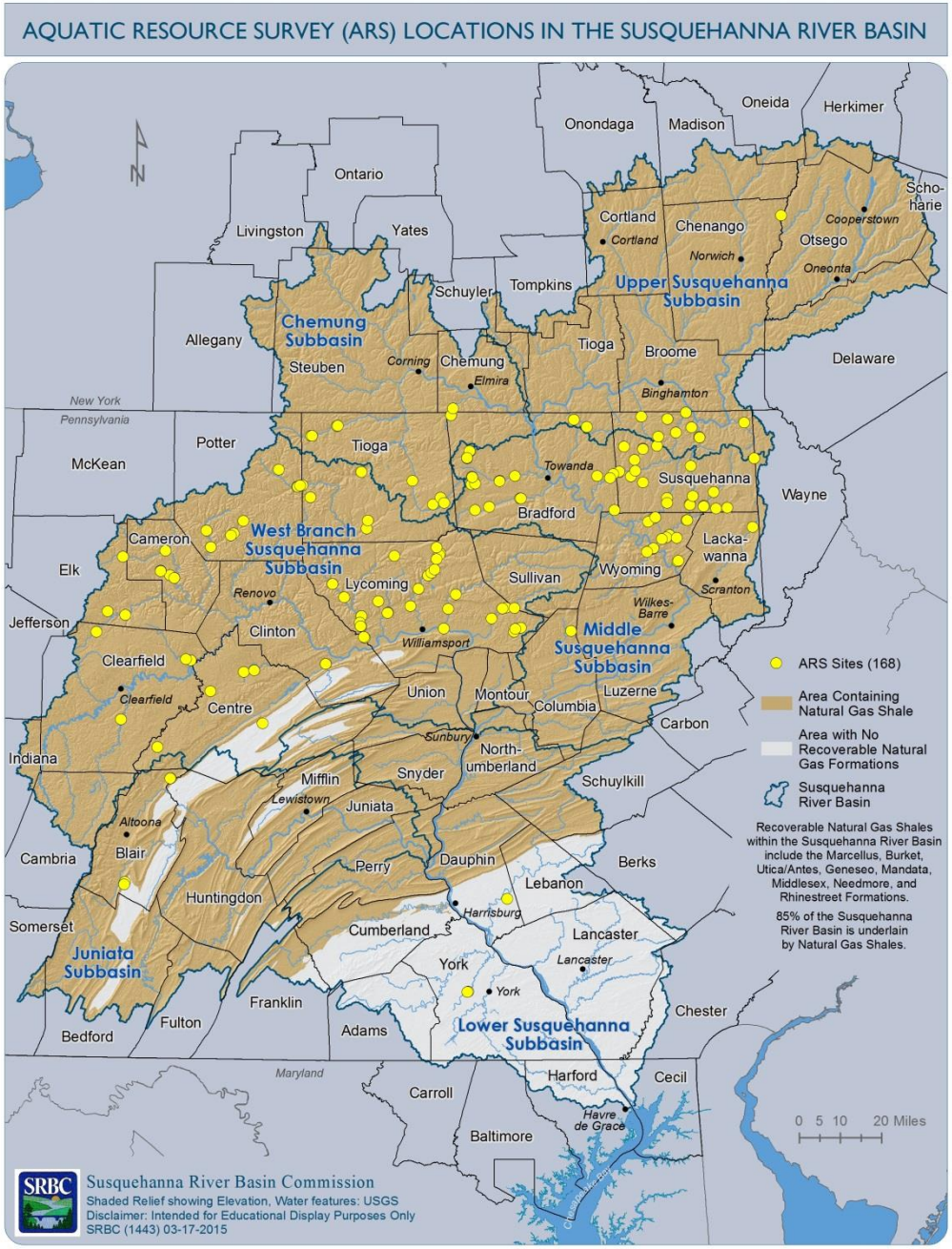
- Are impacts considered significant and adverse?
- Will wetland function be diminished?

IMPACTS TO A STREAM

If impacts detected, staff will first decide if an Aquatic Resource Survey is required to collect instream aquatic community data.

Additionally:

- Is the stream a headwater (ARC 1) stream, with no de minimis withdrawal standard?
  - If yes, a passby flow condition is likely warranted, or some equivalent mitigating measure.
- Is the stream a of exceptional or high quality?
  - If yes, a passby flow condition or a reduced pumping rate may be warranted.
- Is the stream a supporting wild trout populations?
  - If yes, a passby flow condition is likely warranted, and may affect classification of any wetlands hydrologically connected to the stream.



Aquatic Resource Survey (ARS)

SRBC aquatic biologists conduct comprehensive field investigations of streams to collect:

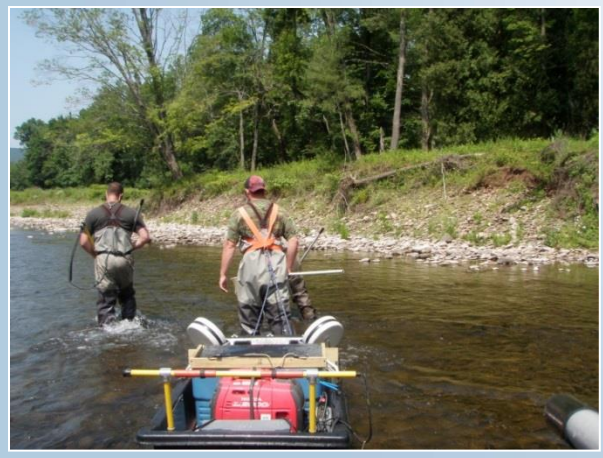
- Habitat data,
- Chemical data,
- Biological data

Data uses include:

- Establish baseline conditions prior to withdrawal
- Supplement technical review

(http://www.srbc.net/pubinfo/docs/AquaticResourceSurveyInfoSheet_20130814_fs169972v1.pdf)

Aquatic Resource Survey (ARS) Results



Do ARS results indicate:

- higher quality than existing classification?
- naturally reproducing trout populations?
- rare, threatened, or endangered species?

If yes, additional protections may be warranted.

Informing Conditions for Surface Water & Wetlands Protection

Combined results of aquifer test monitoring data + ARS results can yield appropriate protective conditions against significant adverse impacts during low flow conditions in a stream or during the growing season of a wetland. Especially important in high quality or headwater settings:

- instream passby flow during low flow conditions
- wetland hydrology mitigation
- monitoring rare species populations

DOCKET 101

- Docket process/ Timing
- Deny application, limit or condition approval
- Parts of approval
  - Standard Conditions
  - Special Conditions
- Grandfathering section
  - Information during application review may be requested
- 3-year initiation requirement
- All approvals available on Water Resource Portal (WRP)
  - http://srbc.net/wrp/Default.aspx

COMMON CONDITIONS/ LIMITS

- Reduced 30-day average
- Reduced MIWR
- Passby
- Impact Mitigation
- Reduce system losses
- Total system limit
- Post approval monitoring/ confirmation of results

REDUCED LIMITS

- GWAA
- Safe yield of well/ protection of water bearing zones
- Impacts to other users
- Impacts to surface water features
- Several of these may serve as mitigation measures

PASSBY

- Applicable to groundwater sources
- ARC 1 – no de minimis quantity
- To be discussed in more detail

MITIGATION

- Drill new supply
- Water level restrictions
- Reduced withdrawal
- Connection to PWS

- Flow augmentation (surface water features)

WATER CONSERVATION STANDARDS

- Reduce distribution system losses to a level not exceeding 20% of the gross withdrawal (18 CFR § 806.25(a) for public water supply)
  - Various Methodologies
  - Must calculate 20%
- Industrial standard 18 CFR § 806.25(b)
- Irrigation standard 18 CFR § 806.25(c)

2015 Annual Unaccounted for Water Loss (UAW) System Calculation

Project Nam _____

Docket No/s. _____

Total Water Pumped (all sources):

Water Pumped From System Sources:		gallons
Water Purchased From Interconnections:		gallons
Totals:	0	gallons

Accounted for Water:

Domestic		gallons
Commercial		gallons
Industrial		gallons
Institutional		gallons
Interconnection Sales		gallons
Municipal (municipal builings, fire hydrants, line flushing, tank repair/cleaning, water treatment, fires, etc.)		gallons
Bulk Sales (pool filling, natural gas, etc)		gallons
Other* - (Please Describe)		gallons
Other* - (Please Describe)		gallons
Other* - (Please Describe)		gallons
Other* - (Please Describe)		gallons
Totals:	0	gallons

"Known or repaired leaks shall not be included in the "Other" category.

Unaccounted for Water:	0	gallons
Percent Unaccounted for Water:	#DIV/0!	

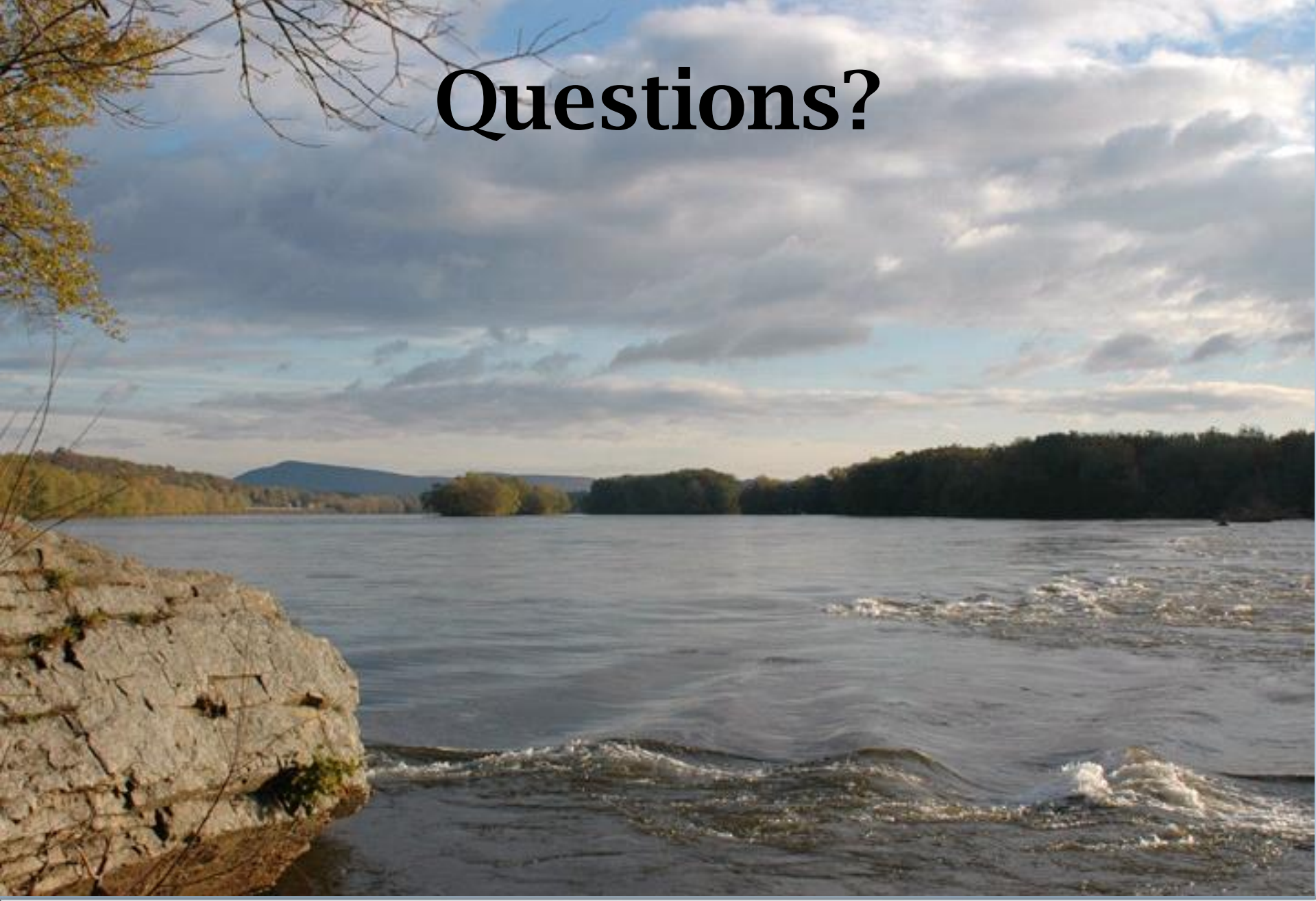
Comment:

TOTAL SYSTEM LIMIT

- Calculate total system demand (for all sources) for the term of the approval (usually 15 years)
- Use maximum projected 30-day average (not peak day or ADD)
- Approval may include a total system limit that applies to all sources
- Total system limits are intended to reduce over-allocation of resources and allow for development by other parties
- Water Resource Development Plan

POST APPROVAL MONITORING

- Try to avoid – often difficult to obtain and review data
- Confirm staff's findings about impacts
- Not to be used to overcome poor testing data
- Can be expensive and time consuming


Questions?