



Groundwater Withdrawal Permitting Program

Office of Water Supply
Water Withdrawal Permitting & Compliance

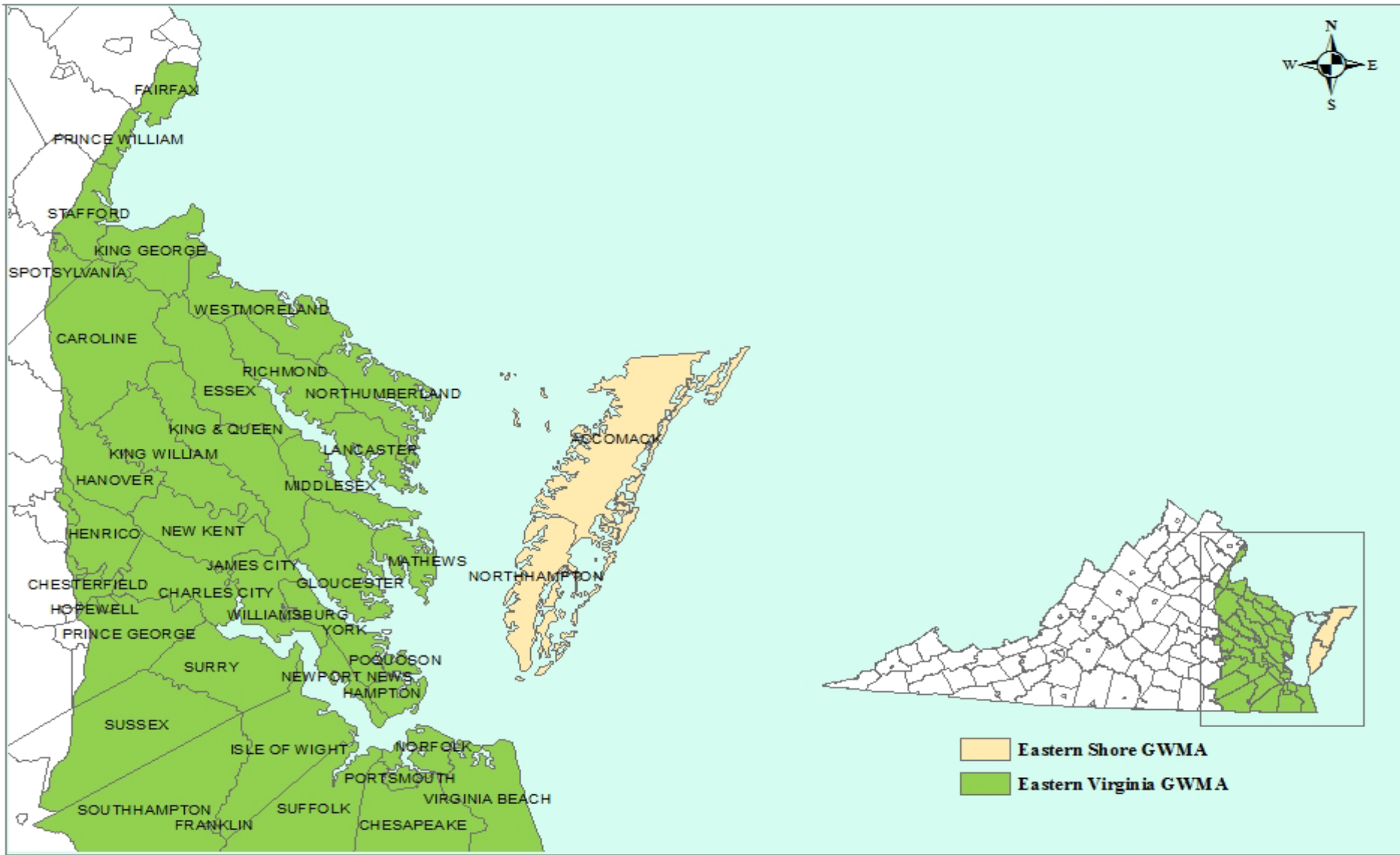
Presentation Outline

- Permitting Program History
- Permitting Program Requirements
- Permitting Process
- Permit Application Requirements
- Post Permit Issuance
- Questions / Answers

Permitting Program History

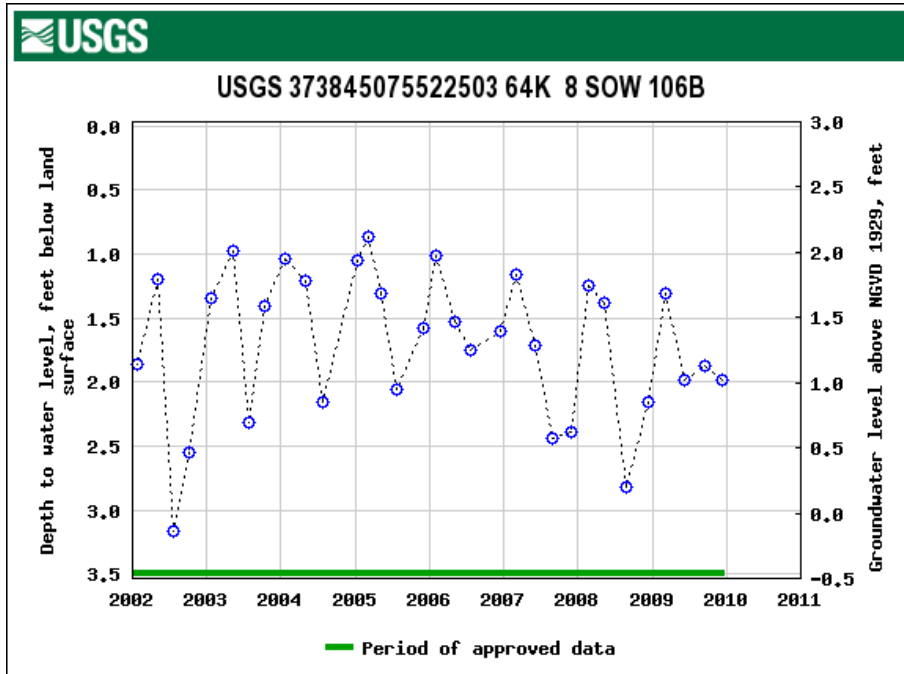
- 1973 – Ground Water Management Act
- 1976 – Eastern Shore GWMA
 - Declining water levels
 - Groundwater withdrawal interference
 - Salt water intrusion
- 1992 – Ground Water Management Act
 - Agriculture added as a “beneficial use”
- 1993 – Groundwater Withdrawal Regulations
- 2014 – Expanded Eastern Virginia GWMA

COMMONWEALTH OF VIRGINIA GROUNDWATER MANAGEMENT AREAS (GWMA)



Effective: January 1, 2014
Prepared By: Virginia Department of Environmental Quality
Groundwater Withdrawal Permitting Program

Eastern Shore Groundwater Levels

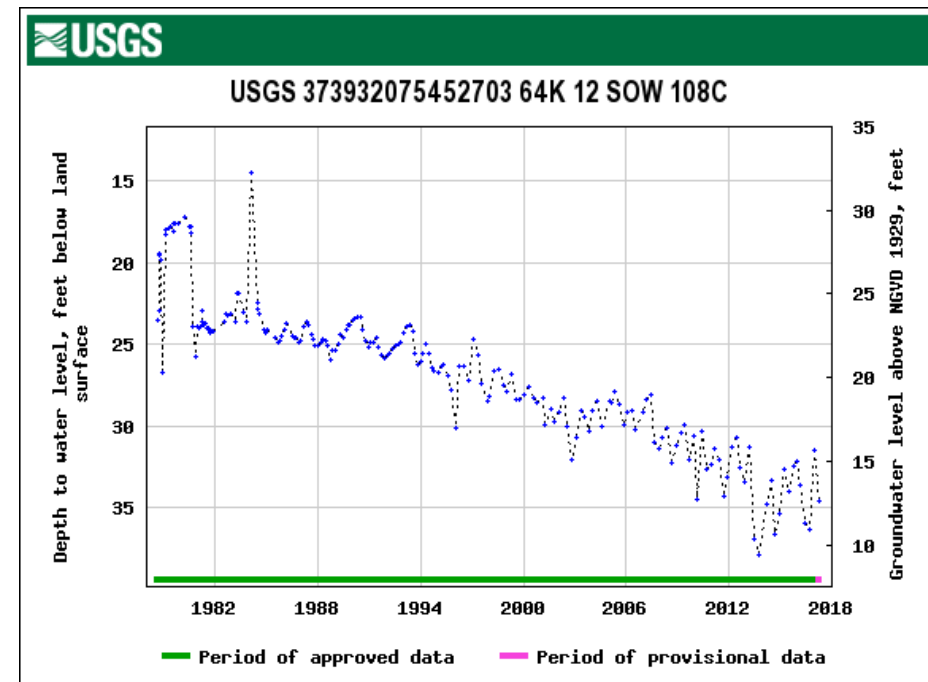


284 Feet Deep Well Near Melfa, Accomack

- Slow decrease in water level over time due to use.

95 Feet Deep Well Near Hacksneck, Accomack

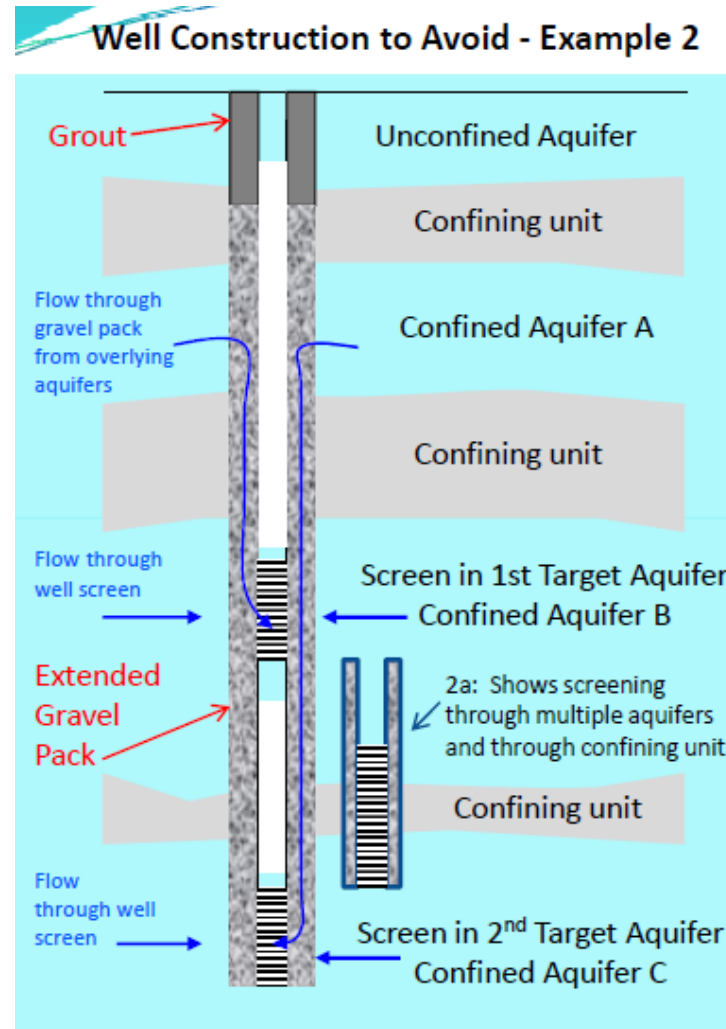
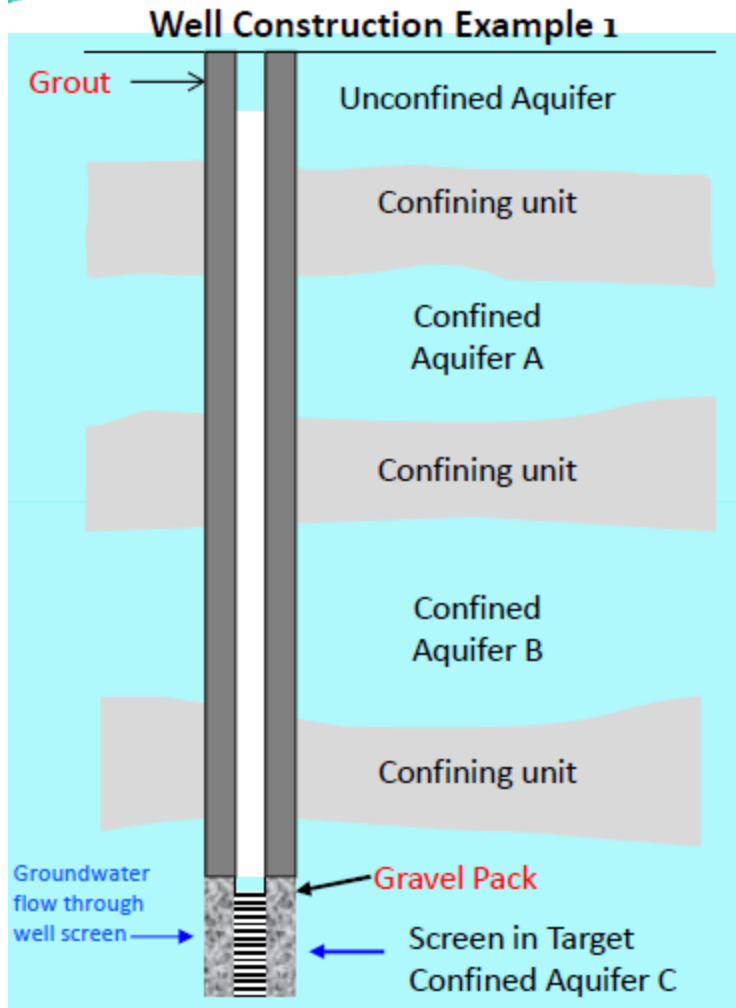
- Trend changes mainly due to rainfall patterns, seasonal withdrawals.



Permitting Program Requirements

- Who need a permit?
 - Anyone using $\geq 300,000$ gallons in any one month in a designated GWMA
 - Applies to entire “withdrawal system”
 - Evaluated on a case-by-case basis
- Exclusions from permitting
 - Withdrawals $< 300,000$ gallons per month
 - Temp. construction dewatering (< 24 months)
 - Groundwater remediation (< 60 months)
 - Geophysical investigations (inc. pump tests)

Well Construction Guidelines

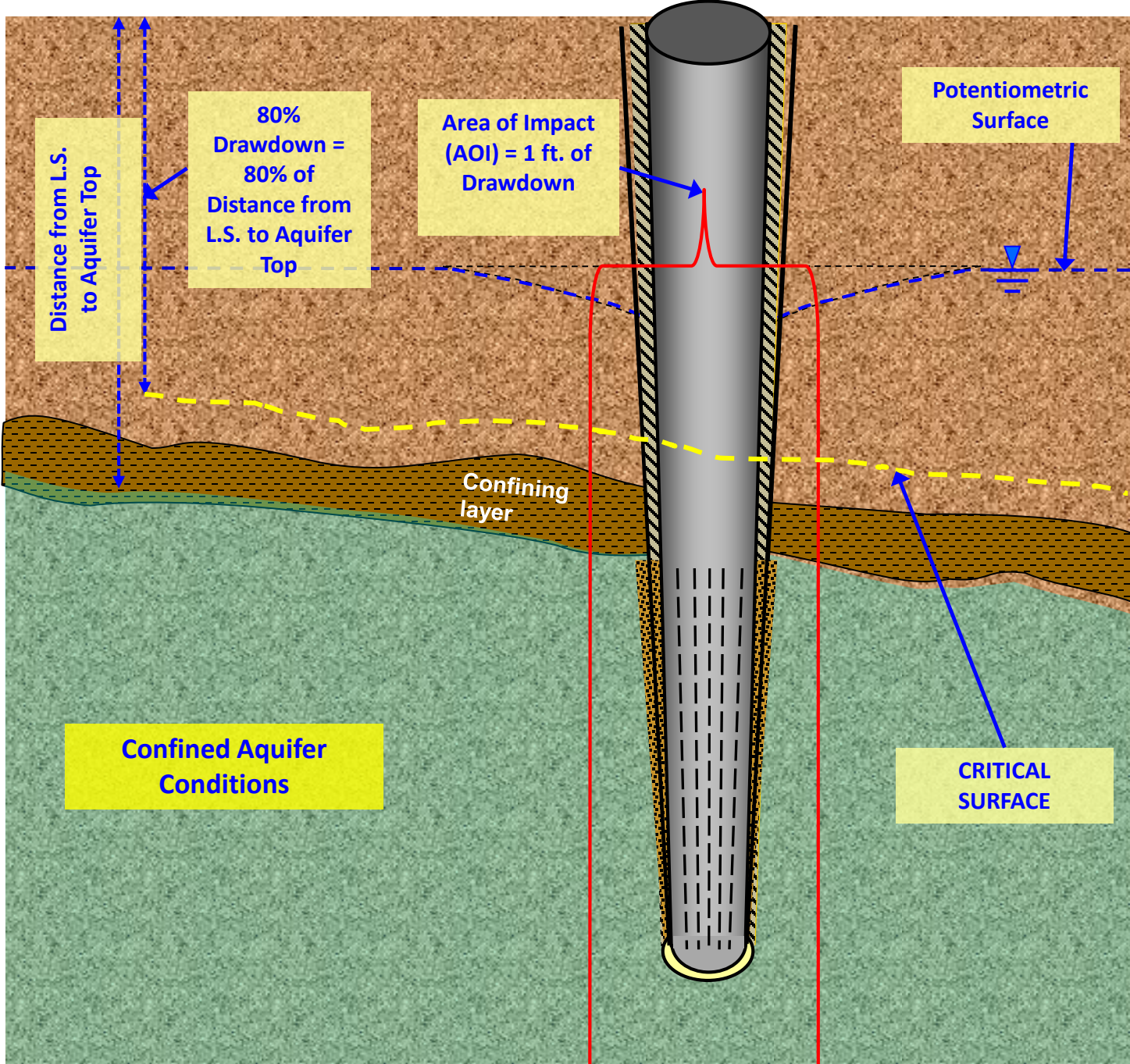


Permitting Process

- Pre-application meeting w/ DEQ staff
- Prepare app. and supporting documentation
- Submit application
- DEQ completeness review
 - DEQ may request additional information or identify deficiencies to be corrected
- DEQ technical review (technical evaluation)
- Draft Permit / Fact Sheet
- Public Notice (30-day public comment period)
- Final Permit issued

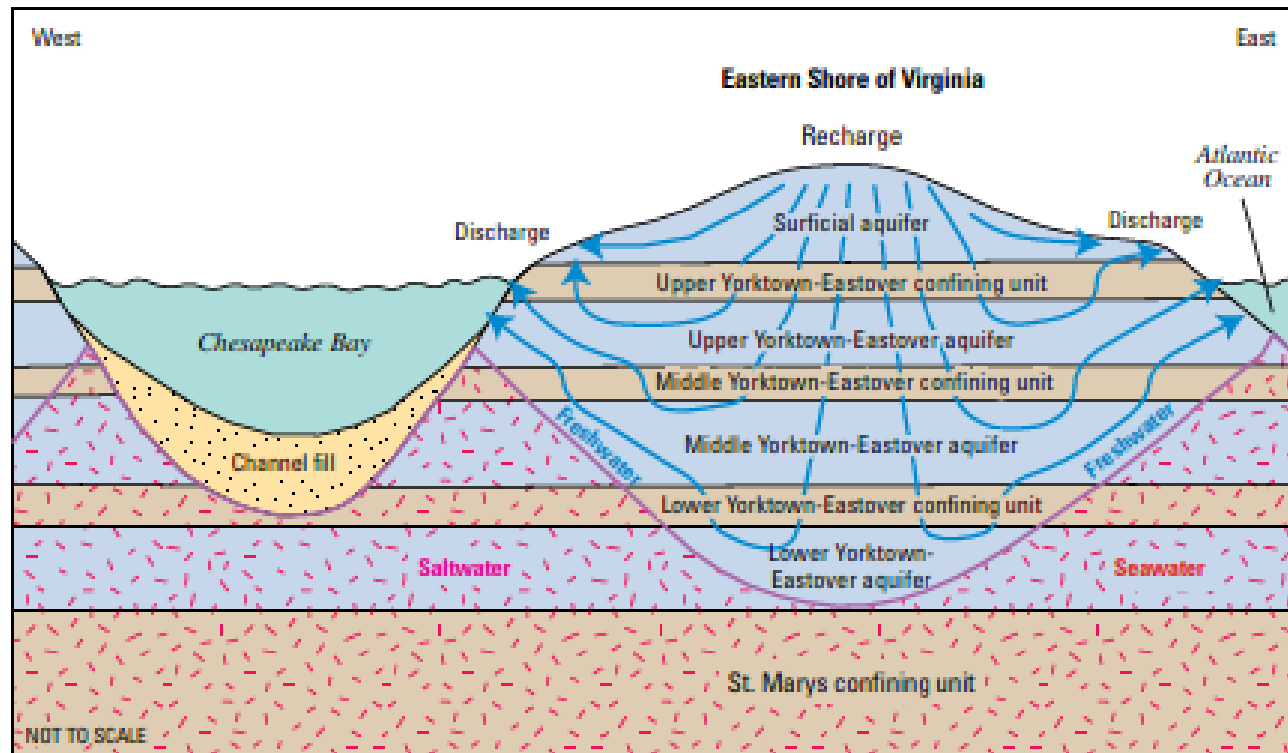
Technical Evaluation

- Identify Area of Impact (AOI)
 - Does AOI remain on property?
 - Existing groundwater users within AOI?
 - Mitigation Plan
- Evaluate against 80% drawdown criteria
 - Identify critical surface
 - Reduced withdrawal amounts / rates
- Evaluate potential for salt water intrusion
 - Chloride monitoring and reporting



Salt Water Intrusion

As withdrawals increase, less freshwater available to push back on seawater, which can then enter the aquifer.



EXPLANATION

➔ General direction of groundwater flow

Permit Application Requirements

- Water Well Construction Documentation
 - Water Well Completion Reports (GW-2 Forms)
- Facility Map
 - Well locations (latitudes/longitudes)
 - Property boundaries
- Withdrawal Records or Estimates
 - Metered data or estimates using Engineering Principles
- Withdrawal System Drawing
 - Line drawing showing flow of water through system
- Local Government Ordinance Form

Example Well Documentation

Form GW-2
1978-10,000

COMMONWEALTH OF VIRGINIA
WATER WELL COMPLETION REPORT
(Certification of Completion/County Permit)

BWCM No.

State Water Control Board
P. O. Box 11143
2111 North Hamilton St.
Richmond, Va. 23230

CAN'T LOCATE WHARF

County/City Northumberland

County/City Stamp

• Virginia Plane Coordinates
 _____ N
 _____ E
 Latitude & Longitude
 _____ N
 _____ W
 • Topo. Map No. 145-D
 • Elevation _____ ft.
 • Formation KPTX
 • Lithology SDC
 • River Basin _____
 • Province 1
 • Type Logs G
 • Cuttings YES
 • Water Analysis -
 • Aquifer Test -

SWCB Permit _____
 County Permit _____
 Certification of inspecting official:
 This well does _____ does not
 meet code/low requirements.
 S. _____
 Date _____
 For Office Use

Tax Map I.D. No. _____
 Subdivision _____
 Section _____
 Block _____
 Lot _____
 Class Well: I _____, IIA _____
 IIB _____, IIIA _____, IIIB _____
 IIIC _____, IIID _____, IIIE _____

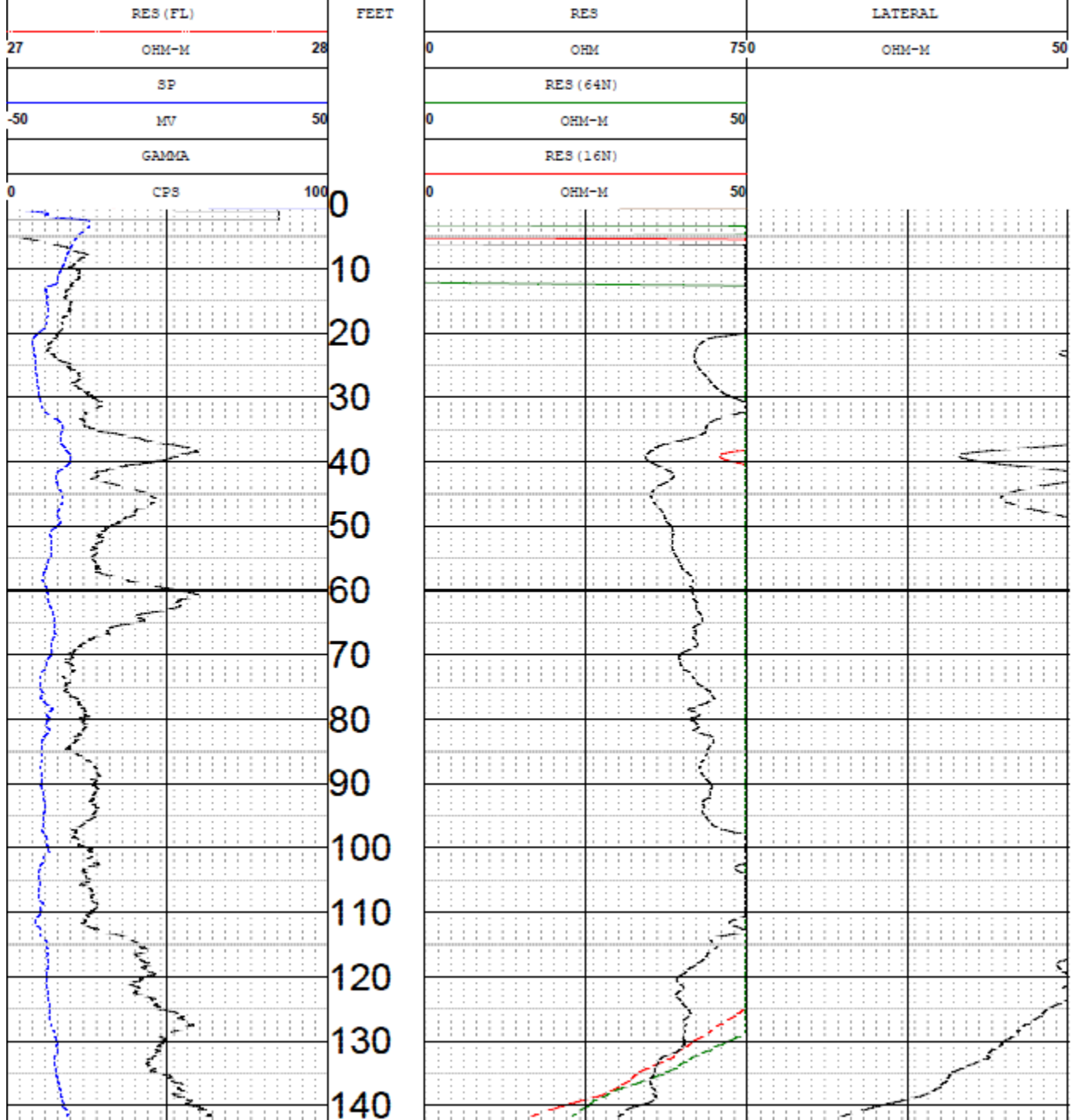
WELL LOCATION: 1 1/2 miles N direction of BLACKWELLS WHARF
 and _____ feet/miles (direction) of NEAR INTERSECTION OF RT. 699 AND RT. 603
 (If possible please include map showing location marked)

Date started 3-1-65 • Date completed 3-4-65 Type rig ROTARY

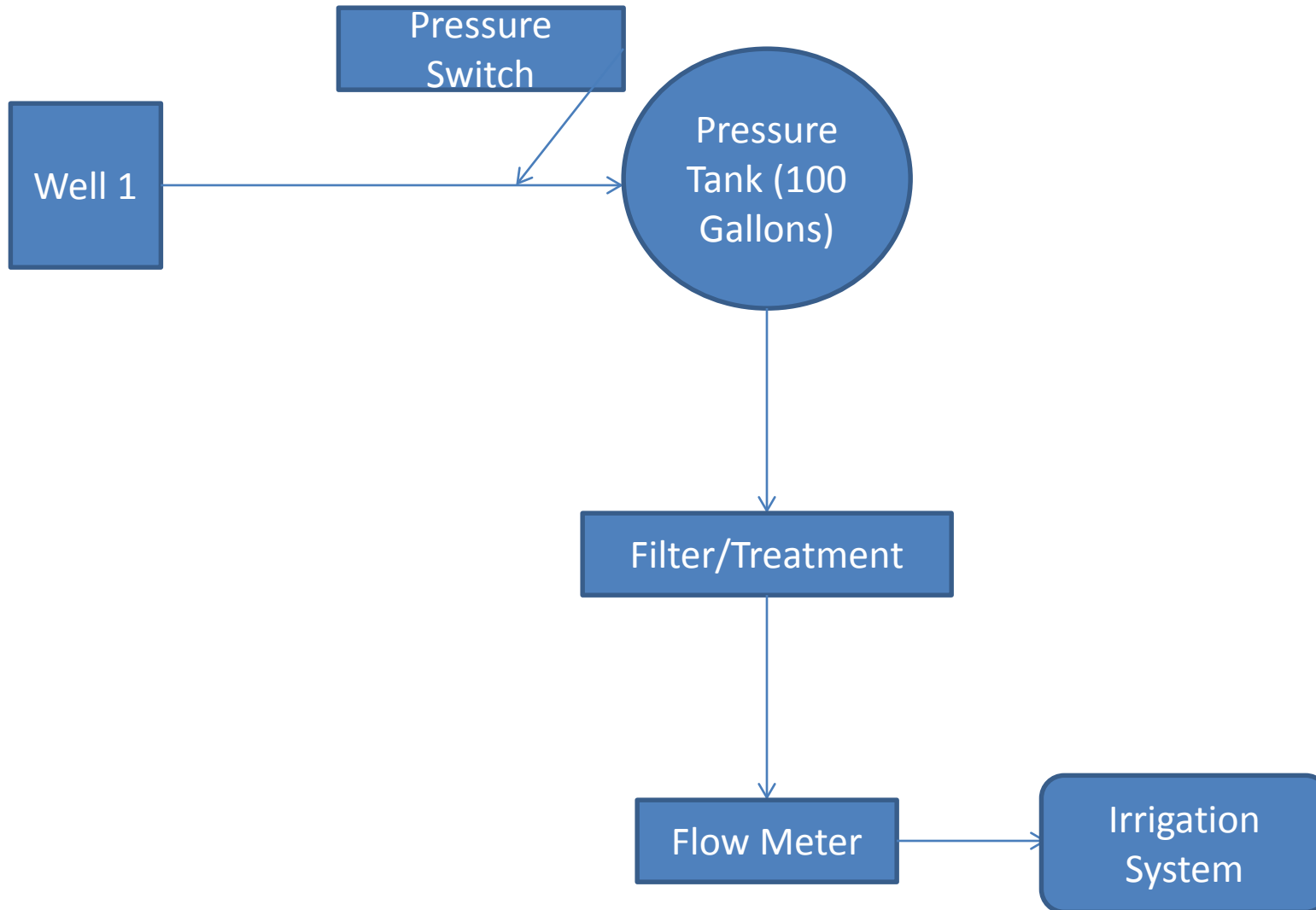
- I. WELL DATA: New Reworked _____ Deepened _____
- Total depth 304 ft.
 - Depth to bedrock _____ ft.
 - Hole size (Also include reamed zones)
 - 6 inches from 0 to 231 ft.
 - 3 1/2 inches from 231 to 304 ft.
 - _____ inches from _____ to _____ ft.
 - Casing size (I.D.) and material
 - 4 inches from 0 to 231 ft.
Material _____
Wt. per foot _____ or wall thickness _____ in.
 - 2 inches from 231 to 655 ft.
Material _____
Wt. per foot _____ or wall thickness _____ in.
 - 2 inches from 660 to 766 ft.
Material 746 - 788
Wt. per foot _____ or wall thickness _____ in.
 - Screen size and mesh for each zone (where applicable)
 - 2 inches from 655 to 660 ft.
• Mesh size _____ Type _____
 - 2 inches from 766 to 776 ft.
• Mesh size _____ Type _____
 - 2 inches from 788 to 798 ft.
• Mesh size _____ Type _____
 - _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
 - Gravel pack
 - From _____ to _____ ft.
 - From _____ to _____ ft.
 - Grout
 - From _____ to _____ ft., Type _____
 - From _____ to _____ ft., Type _____

2. WATER DATA • Water temperature _____ of
 • Static water level (unpumped level-measured) 84 ft.
 • Stabilized measured pumping water level 130 ft.
 • Stabilized yield 33 1/3 gpm after 2 hours
 Natural Flow: Yes _____ No _____, flow rate: _____ g pm
 Comment on quality _____
3. WATER ZONES: From 655 To 660
 From 766 To 776 From 788 To 798
 From _____ To _____ From _____ To _____
4. USE DATA:
 Type of use: Drinking Livestock Watering _____
 Irrigation _____ Food processing _____ Household
 Manufacturing _____ Fire safety _____ Cleaning
 Recreation _____ Aesthetic _____ Cooling or heating _____
 Injection _____ Other _____
 • Type of facility: Domestic _____, Public water supply
 Public institution _____ Farm _____, Industry _____
 Commercial _____, Other _____
5. PUMP DATA: Type SUB • Rated H.P. _____
 • Intake depth 168 • Capacity 40 at _____ head
6. WELLHEAD: Type well seal _____
 Pressure tank _____ gal., Loc. _____
 Sample tap _____, Measurement port _____
 Well vent _____, Pressure relief valve _____
 Gate valve _____, Check valve (when required) _____
 Electrical disconnect switch on power supply _____
7. DISINFECTION: Well disinfected _____ yes _____ no _____
 Date _____, Disinfectant used _____
 Amount _____, Hours used _____
8. ABANDONMENT (where applicable) • yes _____ no _____
 Casing pulled yes _____ no _____ not applicable _____
 Plugging grout From _____ to _____ material _____

Example Well Documentation



Example Withdrawal System Drawing



Permit Application Requirements (cont.)

- Justification
- Demand Projections
- Alternatives Analysis
- Water Conservation and Management Plan
 - Operational plan governing use of water at specific facility
 - Designed for continuous improvement
- Mitigation Plan
 - Process to resolve claims regarding adverse impacts from the withdrawal on existing groundwater users

Post Permit Issuance



COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

Quarter 1 2 3 4

Quarterly Groundwater Withdrawal Report

Owner: _____ Name of Operator _____
 Facility: _____ Position/Title _____
 Address _____ Signature _____ Date _____
 address line 2 _____ Phone: _____
 address line 3 _____ Permit: #GW00XXXXXX (Expires XXXXXXXXX)
 Note: New Application Due – xxxxxx XXXX

Meter Readings are in _____ (gallons, 100's or 1000's of gallons, cubic ft (*cbft conversion use 7.48051948*), etc.)

Month of _____ Year of _____ Total Year to Date from Previous Quarter

Owner Well Number	DEQ Well Number and VWUDS MPID Number	Present Reading	Previous Reading	Total Gallons
				0
				0
				0
				0
				0
Total Gallons This Month				0
Total Gallons Year to Date				0

- Withdrawal Reporting
- Water Quality Reporting
- Water Level Reporting
- Other Permit Conditions
- Compliance Inspections



Questions / Answers

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