COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DRAFT PERMIT
TO WITHDRAW GROUNDWATER IN THE EASTERN SHORE GROUNDWATER MANAGEMENT AREA

Permit Number: GWI000360

Effective Date: Xxxxxxx XX, 2025

Expiration Date: Xxxxxxx XX, 2040

Pursuant to the Ground Water Management Act of 1992 (Section 62.1-254 et seq. of the Code of Virginia) and the Groundwater Withdrawal Regulations (Regulations) (9VAC25-610), the Department of Environmental Quality hereby authorizes the Permittee to withdraw and use groundwater in accordance with this permit.

Permittee Fern Point Limited Partnership

Facility Jones 2 Farm

Facility Address Bayford Rd., Tax Parcels 20-A-52, 20-1-B,

20-A-104, 20-1-C1 and 20-1-C2

Franktown, VA 23354

The Permittee's authorized groundwater withdrawal shall not exceed:

87,100,000 gallons for the permit term,
10,600,000 gallons per year,
4,191,000 gallons per month

The permitted withdrawal will be used to fill an on-site irrigation pond to be used for crop irrigation, to dilute substances for spray application, and to wash farm equipment at Jones 2 Farm. Other uses are not authorized by this permit.

The Permittee shall comply with all conditions and requirements of the permit.

By direction of the Department of Environmental Quality, this Permit is granted by:

Signed _____ Date _____

Bryant Thomas
Interim Director, Water Division

This permit is based on the Permittee's application submitted on February 26, 2025, and subsequently amended to include supplemental information provided by the Permittee on June 2, 2025. The following are conditions that govern the system set-up and operation, monitoring, reporting, and recordkeeping pertinent to the Regulations.

Part I
Operating Conditions

A. Authorized Withdrawal

1. The withdrawal of groundwater shall be limited to the following wells identified in the table below. Withdrawals from wells not included in Table 1 are not authorized by this permit and are therefore prohibited. 9VAC25-610-140 A

Table 1. Wells Authorized for Groundwater Withdrawals

Owner Well Name	DEQ Well #	Type	Well Depth (ft. bls)	Screen Intervals (ft. bls)	Aquifer
Well #1	165-00541	Production	144.6 infilled	88.2-144.6 infilled	Upper Yorktown-Eastover

2. Any actions that result in a change to the status, construction, or pump intake setting of wells included in this permit must be pre-approved by the Department of Environmental Quality (Department or DEQ) in writing prior to implementing the change and a revised GW-2 Form must be submitted to the Department within 30 days after the physical construction of a well is altered or the pump intake setting has been changed. If changes are a result of an emergency, notify the Department within 5 days from the change. 9VAC25-610-140 C

B. Pump Intake Settings

1. The Permittee shall not place a pump or water intake device lower than the top of the uppermost confined aquifer that a well utilizes as a groundwater source or lower than the bottom of an unconfined aquifer that a well utilizes as a groundwater source in order to prevent dewatering of the aquifer, loss of inelastic storage, or damage to the aquifer from compaction. 9VAC25-610-140 A 6

2. Pump settings in individual wells are limited as follows. Any change in the pump setting must receive prior approval by the Department.

Table 2. Maximum Pump Intake Settings

Owner Well Name	DEQ Well #	Maximum Pump Setting (feet below land surface)
Well #1	165-00541	90

C. Reporting

1. Water withdrawn from each well shall be recorded monthly at the end of each month and reported to the Department, in paper or electronic format, on a form provided by the Department by the tenth (10^{th}) day of each January, April, July and October for the respective previous calendar quarter. Records of water use shall be maintained by the Permittee in accordance with Part III.F, 1 through 5

of this permit. 9VAC25-610-140 A 9

2. The Permittee shall report any amount in excess of the permitted withdrawal limit by the fifth (5th) day of the month following the month when such a withdrawal occurred. Failure to report may result in compliance or enforcement activities. 9VAC25-610-140 C

3. Groundwater withdrawal reports may be submitted electronically through the myDEQ portal at https://portal.deq.virginia.gov/ or via email to withdrawal.permitting@deq.virginia.gov. Groundwater withdrawal reports may also be mailed to the office address stated below. All other required notifications and submittals shall include facility name and permit number and be submitted electronically to withdrawal.permitting@deq.virginia.gov or mailed to the office stated below, unless otherwise directed in writing by the Department subsequent to the issuance of this permit: Virginia Department of Environmental Quality, Attn: Groundwater Withdrawal Compliance, P.O. Box 1105, Richmond VA 23218.

4. The following is a summary of reporting requirements for specific facility wells:

Table 3. Summary of Reporting Requirements for Facility Wells

Owner Well Name	DEQ Well #	Reporting Requirements
Well #1	165-00541	Water Use

5. Surface water withdrawals associated with the facility that meet the threshold requiring reporting according to 9VAC25-200-30 shall be reported annually.

D. Water Conservation and Management Plan

1. The Water Conservation and Management Plan (WCMP) submitted in the application received February 26, 2025 and subsequently amended on March 28, 2025 and then approved by the Department on March 28, 2025 is incorporated by reference into this permit and shall have the same effect as any condition contained in this permit and may be enforced as such.

2. By the end of the first year of the permit cycle [*date*] the Permittee shall submit documentation to the Department that the leak detection and repair program defined in the WCMP has been initiated. This documentation shall include activities completed during the first year of the permit term. 9VAC25-610-100 B

3. As soon as completed but not later than the end of the second year of the permit cycle [*date*] the Permittee shall submit to the Department results of an audit of the total amount of groundwater used in the distribution system and operational processes. This documentation shall include any resulting changes to the leak detection and repair program in the WCMP. 9VAC25-610-100 B

4. A report on the plan's effectiveness in reducing water use, including revisions to those elements of the WCMP that can be improved and addition of other elements found to be effective based on operations to date shall be submitted by the end of years five [*date*] and ten [*date*] of the permit term. These reports shall include as appropriate: 9VAC25-610-140 C

    a. Any new water saving equipment installed or water saving processes adopted;

b. WCMP actions taken to reduce the volume of water needed to supply the system;

c. Planned short or long term efforts and actions to be added to the WCMP to improve the efficiency of water use in the system or by customers and for reducing the loss of water;

d. Results of additional water audits completed;

e. Review of water use category (residential, commercial, industrial) per-connection use in municipal systems;

f. Evaluation of the leak detection and repair program;

g. Description of educational activities completed; and

h. Identification of any water reuse opportunities identified.

5. If revisions or additions to the plan are necessary, an updated WCMP shall be submitted to the Department for approval along with the report prior to implementation of the revised plan.

6. Records of activities conducted pursuant to the WCMP are to be submitted to the Department upon request.

E. Mitigation Plan

The Mitigation Plan approved on March 28, 2025 by the Department is incorporated by reference into this permit and shall have the same effect as any condition contained in this permit and may be enforced as such. 9VAC25-610-110 D 3 g

F. Well Tags

1. Each well that is included in this permit shall have affixed to the well casing, in a prominent place, a permanent well identification plate that records, at a minimum, the Department well identification number, the groundwater withdrawal permit number, the total depth of the well, and the screened intervals in the well. Such well identification plates shall be in a format specified by the Department and are available from the Department. 9VAC25-610-140 A 12

2. Well tags shall be affixed to the appropriate well casing within 30 days of receiving the tags from the Department. The accompanying well tag installation certification form shall be returned to the Department within 60 days of receipt of the tags. 9VAC25-610-140 C

Part II
Special Conditions

A. Impoundment Water Level Control

The Permittee shall install and maintain a device to measure impoundment water levels within three (3) months of permit issuance (by *date*), and provide to the Department a summary of procedures implemented to monitor impoundment water levels during pumping to ensure that groundwater pumping does not result in overfilling the impoundment.

Part III
General Conditions

A. Duty to Comply

The Permittee shall comply with all conditions of the permit. Nothing in this permit shall be construed to relieve the permit holder of the duty to comply with all applicable federal and state statutes, regulations and prohibitions. Any permit violation is a violation of the law and is grounds for enforcement action, permit termination, revocation, modification, or denial of a permit application. 9VAC25-610-130 A

B. Duty to Cease or Confine Activity

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a permit has been granted in order to maintain compliance with the conditions of the permit. 9VAC25-610-130 B

C. Duty to Mitigate

The Permittee shall take all reasonable steps to avoid all adverse impacts that may result from this withdrawal as defined in 9VAC25-610-10 and provide mitigation of the adverse impact when necessary as described in 9VAC25-610-110 D 3 g and 9VAC25-610-130 C.

D. Inspection, Entry, and Information Requests

Upon presentation of credentials, the Permittee shall allow the Department, or any duly authorized agent of the Department, at reasonable times and under reasonable circumstances, to enter upon the Permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the permit conditions, and to inspect any facilities, well(s), water supply system, operations, or practices (including sampling, monitoring and withdrawal) regulated or required under the permit. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency. 9VAC25-610-130 D

E. Duty to Provide Information

The Permittee shall furnish to the Department, within a reasonable time, any information that the Department may request to determine whether cause exists for modifying or revoking, reissuing, or terminating the permit, or to determine compliance with the permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by regulation or this permit. 9VAC25-610-130 E

F. Monitoring and Records Requirements

1. The Permittee shall maintain a copy of the permit on-site and/or shall make the permit available upon request. 9VAC25-610-130 E

2. Monitoring of parameters shall be conducted according to approved analytical methods as specified in the permit. 9VAC25-610-130 F 1

3. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. 9VAC25-610-130 F 2

4. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three years from the date of the expiration of a granted permit. This period may be extended by request of the Department at any time. 9VAC25-610-130 F 3

5. Records of monitoring information shall include as appropriate: 9VAC25-610-130 F 4

    a. the date, exact place and time of sampling or measurements;

    b. the name(s) of the individual(s) who performed the sampling or measurements;

    c. the date the analyses were performed;

    d. the name(s) of the individual(s) who performed the analyses;

    e. the analytical techniques or methods supporting the information, such as observations, readings, calculations and bench data used;

    f. the results of such analyses; and

    g. chain of custody documentation.

G. Environmental Laboratory Certification

The Permittee shall comply with the requirement for certification of laboratories conducting any tests, analyses, measurements, or monitoring required pursuant to the State Water Control Law (§ 62.1-44.2 et

seq. of the Code of Virginia), Environmental Laboratory Certification Program (§ 2.2-1105 et seq. of the Code of Virginia), Certification for Noncommercial Environmental Laboratories (1VAC30-45), and/or Accreditation for Commercial Environmental Laboratories (1VAC30-46), and

1. Ensure that all samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. Conduct monitoring according to procedures approved under 40CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency.

3. Periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements. 1VAC30-45-20

H. Future Permitting Actions

1. A permit may be modified or revoked as set forth in Part VI of the Groundwater Withdrawal Regulations. 9VAC25-610-290 and 9VAC25-610-130 G

2. If a Permittee files a request for permit modification or revocation, or files a notification of planned changes, or anticipated noncompliance, the permit terms and conditions shall remain effective until the Department makes a final case decision. This provision shall not be used to extend the expiration date of the effective permit. 9VAC25-610-130 G

3. Permits may be modified or revoked upon the request of the Permittee, or upon Department initiative, to reflect the requirements of any changes in the statutes or regulations. 9VAC25-610-130 G

4. The Permittee shall schedule a meeting with the Department prior to submitting a new, expanded or modified permit application. 9VAC25-610-85

5. A new complete permit application shall be submitted at least 270 days prior to the expiration date of this permit, unless permission for a later date has been granted by the Department, to continue a withdrawal greater than or equal to 300,000 gallons in any month while an application for a renewal is being processed. 9VAC25-610-96

6. A new complete permit application shall be submitted at least 270 days prior to any proposed modification to this permit that will (i) result in an increase of withdrawal above permitted limits; or (ii) violate the terms and conditions of this permit. 9VAC25-610-96

7. The applicant shall provide all information described in 9VAC25-610-94 for any reapplication. 9VAC25-610-96 C

8. The Permittee must notify the Department in writing of any changes to owner and facility contact information within 30 days of the change. 9VAC25-610-140 C

I. Metering and Equipment Requirements

1. Each well and/or impoundment or impoundment system shall have an in-line totalizing flow meter to

read gallons, cubic feet, or cubic meters installed prior to beginning the permitted use. Meters shall produce volume determinations within plus or minus 10% of actual flows. An alternative method for determining flow may be approved by the Department on a case-by-case basis. 9VAC25-610-140 A 7 b

a. A defective meter or other device must be repaired or replaced within 30 days.

b. A defective meter is not grounds for not reporting withdrawals. During any period when a meter is defective, generally accepted engineering methods shall be used to estimate withdrawals. The period during which the meter was defective must be clearly identified in the groundwater withdrawal report required by Part I, Subsection D of this permit.

2. Each well shall be equipped in a manner such that water levels can be measured during pumping and non-pumping periods without dismantling any equipment. Any opening for tape measurement of water levels shall have an inside diameter of at least 0.5 inches and be sealed by a removable plug or cap. The Permittee shall provide a tap for taking raw water samples from each permitted well. 9VAC25-610-140 A 7 e

J. Minor Modifications

1. A minor modification to this permit must be made to replace an existing well(s) or add an additional well(s) provided that the well(s) is screened in the same aquifer(s) as the existing well(s), and is in the near vicinity of the existing well(s), the total groundwater withdrawal does not increase, the area of impact does not increase, and the well has been approved by the Department prior to construction. 9VAC25-610-330 B 4 and B 5

2. A minor modification to this permit must be made to combine withdrawals governed by multiple permits when the systems are physically connected as long as interconnection will not result in additional groundwater withdrawal and the area of impact will not increase. 9VAC25-610-330 B 6

3. Minor modifications to this permit must also be made to:

a. Change an interim compliance date up to 120 days from the original compliance date, as long as the change does not interfere with the final compliance date. 9VAC25-610-330 B 7

b. Allow for change in ownership when the Department determines no other change in the permit is necessary and the appropriate written agreements are provided in accordance with the transferability of permits and special exceptions. 9VAC25-610-320 and 9VAC25-610-330 B 8

c. Revise a Water Conservation and Management Plan to update conservation measures being implemented by the Permittee that increase the amount of groundwater conserved. 9VAC25-610-330 B 9

K. Well Construction

At least two weeks prior to the scheduled construction of any well(s), the Permittee shall notify the Department of the construction timetable and receive prior approval of the well(s) location(s) and

acquire the Department Well number (DEQ Well #). All wells shall be constructed in accordance with the following requirements.

1. A well site approval letter or well construction permit must be obtained from the Virginia Department of Health prior to construction of the well. 9VAC25-610-130 A

2. A complete suite of geophysical logs (16"/64" Normal, Single Point, Self-Potential, Lateral, and Natural Gamma) shall be completed for the well and submitted to the Department along with the corresponding completion report. 9VAC25-610-140 C

3. The Permittee shall evaluate the geophysical log and driller's log information to estimate the top of the target aquifer and; therefore, a depth below which the pump shall not be set. The Permittee's determination of the top of the target aquifer shall be submitted to the Department for review and approval, or approved on site by the Department's Groundwater Characterization staff, prior to installation of any pump. 9VAC25-610-140 A 6

4. The Permittee shall install gravel packs and grout in a manner that prevents leakance between aquifers. Gravel pack shall be terminated close to the top of the well screen(s) and shall not extend above the top of the target aquifer. 9VAC25-610-140 C

5. A completed GW-2 Form and any additional water well construction documents shall be submitted to the Department within 30 days of the completion of any well and prior to the initiation of any withdrawal from the well. The assigned Department Well number shall be included on all well documents. 9VAC25-610-140 C

6. In addition to the above requirements, if required by the permit, construction of a Water Level Monitoring State Observation Well (SOW) requires:

    a. The Permittee shall coordinate activities with the Department's Groundwater Characterization Program (GWCP) to determine the appropriate observation well location and construction schedule, along with the needed screen interval(s), and other completion details following review of geophysical logging. 9VAC25-610-140 C

    b. Prior to preparation of bid documents for construction of the observation well, the Permittee shall notify the Department and shall include any GWCP requirements in the bid documents. At a minimum, the Department will require a pre-bid meeting with interested drilling contractors and a pre-construction meeting with the successful bidder. 9VAC25-610-140 C

    c. Instrumentation to meet the requirements for real-time data transmission consistent with the State Observation Well Network shall be purchased by the Permittee. The Permittee shall submit a purchase order based on the Department's equipment specifications for review and approval prior to purchase of the equipment. The Permittee shall install the real-time equipment infrastructure with Department oversight. The Department will conduct the installation of the transducer and final hook-up of the equipment. 9VAC25-610-140 C

7. In addition to the above requirements, if required by the permit, construction of a Chloride Monitoring SOW requires:

a. The Permittee shall coordinate activities with the Department's Groundwater Characterization Program (GWCP) to determine the appropriate observation well location and construction schedule, along with the needed screen interval(s), and other completion details following review of geophysical logging. 9VAC25-610-140 C

b. Prior to preparation of bid documents for construction of the observation well, the Permittee shall notify the Department and shall include any GWCP requirements in the bid documents. At a minimum, the Department will require a pre-bid meeting with interested drilling contractors and a pre-construction meeting with the successful bidder. 9VAC25-610-140 C

c. Instrumentation to meet the requirements for real-time data transmission consistent with the State Observation Well Network shall be purchased by the Permittee. The Permittee shall submit a purchase order based on the Department's equipment specifications for review and approval prior to purchase of the equipment. The Permittee shall install the real-time equipment infrastructure with Department oversight. The Department will conduct final hook-up of the equipment. 9VAC25-610-140 C

d. Instrumentation to meet the requirements for continuous measurement of specific conductance from multiple levels within the well screen shall be purchased by the Permittee. The Permittee shall submit a purchase order based on the Department's equipment specifications for review and approval prior to purchase of the equipment. The Permittee shall install the real-time equipment infrastructure with Department oversight. The Department will conduct the final hook-up of the equipment. 9VAC25-610-140 C

L. Permit Reopening

This permit may be reopened for the purpose of modifying the conditions of the permit as follows:

1. To meet new regulatory standards duly adopted by the Board. 9VAC25-610-140 A 11

2. When new information becomes available about the permitted withdrawal, or the impact of the withdrawal, which had not been available at permit issuance and would have justified the application of different conditions at the time of issuance. 9VAC25-610-310 B 1

3. When the reported withdrawal is less than 60% of the permitted withdrawal amount for a five year period. 9VAC25-610-310 B 2

4. If monitoring information indicates the potential for adverse impacts to groundwater quality or level due to this withdrawal. 9VAC25-610-140 C

COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT ISSUANCE FACT SHEET

Groundwater Withdrawal Permit Number: GWI000360
Application Date: February 26, 2025

The Department of Environmental Quality (Department or DEQ) has reviewed the application for a Groundwater Withdrawal Permit. This document provides the pertinent information concerning the legal basis, scientific rationale, and justification for the reissuance of the Groundwater Withdrawal Permit listed below. Based on the information provided in the application and subsequent revisions, the Department has determined that there is a reasonable assurance that the activity authorized by the permit is a beneficial use as defined by the regulations. Groundwater impacts have been minimized to the maximum extent practicable. The following details the application review process and summarizes relevant information for developing the Permit and applicable conditions.

Permittee / Legal Responsible Party

Name & Address: Fern Point Limited Partnership
Curtis Jones
6158 Fern Point Rd.
Franktown, VA 23354
Phone: (757) 442-7734

Facility Name and Address

Name & Address: Jones 2 Farm
Bayford Rd., Tax Parcels 20-A-52, 20-1-B, 20-A-104, 20-1-C1 and 20-1-C2
Franktown, VA 23354
Phone: (757) 948-0368

Contact Information:

Name: Aarin Nottingham, Farm Manager for Kuzzens, Inc. (lessee)
E-mail: aarin.nottingham@lipmonfamilyfarms.com
Phone: (757) 948-0368

Proposed Beneficial Use: Groundwater is used to fill an on-site irrigation pond to be used for crop irrigation, to dilute substances for spray application, and to wash farm equipment at Jones 2 Farm.

Staff Findings and Recommendations

Based on review of the permit application, staff provides the following findings.

- The proposed activity is consistent with the provisions of the Ground Water Management Act of 1992, and will protect other beneficial uses.
- The proposed permit addresses minimization of the amount of groundwater needed to provide the intended beneficial use.
- The effect of the impact will not cause or contribute to significant impairment of state waters.
- This permit includes a plan to mitigate adverse impacts on existing groundwater users.

Staff recommends Groundwater Withdrawal Permit Number GWI000360 be issued as proposed.

Approved: _____
Bryant Thomas
Interim Director, Water Division

Date: _____

Processing Dates

Processing Action	Date Occurred/Received
Pre-Application Meeting:	1/17/2025
Application Received by DEQ:	2/26/2025
Permit Fee Deposited by Accounting:	Not Applicable
Local Government Ordinance Form Received by DEQ:	1/17/2025
Application Review Conducted:	3/11/2025
Request for Additional Information Sent:	3/11/2025
Response to Request for Additional Information Received:	3/28/2025
Request for Additional Information Sent:	3/28/2025
Response to Request for Additional Information Received:	3/31/2025
Application Complete:	2/26/2025
Submit Request for Technical Evaluation:	6/2/2025
Technical Evaluation Received by DEQ:	6/6/2025
Draft Permit Package Sent:	8/5/2025
Public Notice Published:	9/5/2025
End of 30-Day Public Comment Period:	10/6/2025
Response to Public Comment:	
Public Meeting or Hearing:	
Permit Issued:	

Application

Application Information

Description:

Background / Purpose of Facility:
The facility consists of property parcels 20-A-52, 20-1-B, 20-A-104, 20-1-C1 and 20-1-C2 located in Northampton County. The property is owned by Fern Point Limited Partnership and leased by Kuzzens, Inc.

Groundwater is withdrawn from Well #1 (DEQ Well #165-00541) screened in the Upper Yorktown-Eastover aquifer. The previous permit GW0071400 had a ten-year permit term withdrawal limit of 65,210,000 gallons, an annual withdrawal limit of 10,600,000 gallons and a monthly withdrawal limit of 8,490,000 gallons. Permit GW0071400 has an expiration date of May 31, 2026.

Location of Facility/Withdrawal:

Previous Local or Regional Water Supply Planning Unit according to 2013 Water Supply Plans:
Northampton County and Towns Regional Water Supply Plan

New Regional Water Supply Planning Region:
Eastern Shore Regional Water Supply Plan due 2029 subject to change pursuant to 9VAC25-780-45 C

County: Northampton

GWMA/Aquifer: Eastern Shore GWMA/Upper Yorktown-Eastover Aquifer

Conjunctive Use Source: Unnamed irrigation pond that is within the drainage basin of Church Creek.

Withdrawal Use, Current Need, and Projected Demand:

Basis of Need:
Groundwater withdrawals are used primarily to fill an on-site irrigation pond used for tomato crop irrigation, to dilute substances for spray application on the farm and to wash farm equipment. Irrigation occurs through plasticulture low flow drip emitters using water withdrawn directly from the irrigation pond. The drip emitters are placed within raised earthen beds covered by plastic mulch that reduces water loss by controlling soil temperature, minimizing weed growth, and capturing potential evaporation from the soil. Tomato plants require a precise amount of water. The tomato crops are automatically irrigated on a schedule set daily by the Farm Manager utilizing Motorola ICC software that integrates data from electronic soil moisture probes, weather data and plant stages. To ensure that no over watering or under watering occurs, the irrigation system is operated remotely by computer, using telemetric valves and timers.

The property consists of 282.6 acres with 188.4 acres available for cultivation. Since 2016 between 83 and 88.49 acres were farmed. The Farm Manager plans to farm all 188.4 available acres starting in 2026 until the end of the upcoming permit term.

Water Demand and Projections:
A monthly withdrawal limit of 4,191,000 gallons was requested. This was calculated by dividing the historical maximum monthly water usage between 2016 and 2024 (1,958,000 gallons in May 2021) by the acreage farmed that year (88 acres). This figure was multiplied by the maximum farmable acreage and rounded down.

An annual withdrawal limit of 13,014,000 gallons was initially requested. This was calculated by dividing the historical maximum annual water usage since 2016 (6,079,000 gallons in 2021) by the acreage farmed that year (88 acres). This figure was multiplied by the maximum farmable acreage and rounded down. However, the applicant decided to keep the annual permitted withdrawal limit of 10,600,000 gallons.

A fifteen-year permit-term limit of 93,933,000 gallons was requested. This was calculated as the sum of five years of historical average annual gallons per net acre multiplied by maximum farmable acreage, five years of historical low annual gallons per net acre multiplied by maximum farmable acreage, and five years of historical high annual gallons per net acre multiplied by maximum farmable acreage.

Withdrawal Volumes Requested:
The applicant requested the following withdrawal volumes based upon the projected groundwater demand.

Table 1. Withdrawal Volumes Requested

Period of Withdrawal	Total Volume (gallons)	Volume in gallons per day
Maximum Fifteen Year:	93,933,000	17,157
Maximum Annual:	10,600,000	29,041
Maximum Monthly:	4,191,000	135,194

Department Evaluation

Historic Withdrawals:
Since the previous permit was issued in 2016, annual withdrawals have ranged from 321,000 gallons in 2020 to 6,079,000 gallons in 2021. Monthly withdrawals ranged from zero gallons during winter months to 1,958,000 gallons in May 2021. The applicant stated that no leaks were noticed during the previous permit term.

Analysis of Alternative Water Supplies:
The closest Public Water Supply is The Town of Eastville which is approximately 2 miles from the Farm. The Town has no plans to extend service to the Farm. The Town holds a groundwater withdrawal permit from the Department (GW0045401).

The facility currently uses runoff captured from storm events to naturally recharge the onsite pond. Some ditches within the fields are graded in a manner that facilitates the collection of runoff water back to the irrigation pond. Because this water is not metered, it is unknown how much runoff is captured by the on-site pond.

Tidal creeks in the vicinity of the farm are not acceptable sources of irrigation water because of their salinity.

Since the permitted withdrawals are not for an increase to an existing permitted facility, a site-specific investigation of the Surficial aquifer is recommended but not required during this permit term.

Public Water Supply:
The proposed beneficial use does not contain a public water supply component.

Water Supply Plan Review:
Jones 2 Farm is not included in the Northampton County Water Supply Plan (2011). Water Supply Plan demand projections for the facility were not included in the Plan, and could not be considered in the evaluation of the permit request. The Water Supply Plan states that given the current and projected demands, there is sufficient water supply to meet the overall needs of Northampton County through the 2040 planning horizon (PDF pg. 119).

Department Recommended Withdrawal Limits:
The Department concurs with the requested monthly and annual limits.

With agreement from the applicant, the Department recommends a permit term limit of 87,100,000 gallons (after rounding up). Because historical data does not show five years of maximum water usage (representing drought years), this calculation is based on the following:
3 years of maximum usage per acre: 69,000 gal/ac x 188.4 ac x 3 yrs = 38,998,800 gal

3 years of minimum usage per acre: 4,000 gal/ac x 188.4 ac x 3 yrs = 2,260,800 gal
9 years of average usage per acre: 27,000 gal/ac x 188.4 ac x 9 yrs = 45,781,200 gal

The Department recommends the following withdrawal volumes based upon evaluation of the groundwater withdrawal permit application.

Table 2. Department Recommended Withdrawal Limits

Period of Withdrawal	Total Volume (gallons)	Volume in gallons per day
Maximum Fifteen Year:	87,100,000	15,909
Maximum Annual:	10,600,000	29,041
Maximum Monthly:	4,191,000	135,194

Technical Evaluation:
Aquaveo, LLC performed a technical evaluation of the application for the Department based on the VAHydro Groundwater Eastern Shore model (VAHydro-GW-ES). The objectives of this evaluation were to determine the areas of any aquifers that will experience at least one foot of water level decline due to the proposed withdrawal (the Area of Impact or AOI), to determine the potential for the proposed withdrawal to cause salt-water intrusion, and to determine if the proposed withdrawal meets the 80% drawdown criteria as required by 9VAC25-610-110 D 3 h. Aquaveo, LLC also evaluated water levels in the Eastern Shore model compared to measured field values.

The Department concluded that the proposed withdrawal satisfies the technical evaluation criteria for permit issuance. A summary of the results of the evaluation and the AOI for the Upper Yorktown-Eastover aquifer is provided in the Technical Evaluation (Attachment 1).

The EPA National Secondary Drinking Water Regulations specify the limit on chloride as 250 mg/L. The VAHydro-GW-ES model results simulated chloride concentration increases of greater than 50 mg/L within 50 years in two model cells representing the Upper Yorktown-Eastover confining unit. The model results also indicate the potential for upconing of the potentially more brackish Middle and Lower Yorktown-Eastover aquifers into the Upper Yorktown-Eastover aquifer. However, the simulated increases are offshore and residential supply wells would not likely be screened in the confining units. The results of these simulations can be reviewed in Attachment 1.

Part I
Operating Conditions

Authorized Withdrawals:

Table 3. Wells Authorized for Groundwater Withdrawals

Owner Well Name	DEQ Well #	Type	Well Depth (ft. bls)	Screen Intervals (ft. bls)	Aquifer
Well #1	165-00541	Production	144.6 infilled	88.2-144.6 infilled	Upper Yorktown-Eastover

Apportionment:
Apportionment is not required as there is only one production well.

Additional Wells:

Observation Wells: No observation wells.

Abandoned Wells: No abandoned wells.

Out of Service Wells: No out of service wells.

Groundwater Characterization Program Recommendations:
A Department staff geologist has reviewed available information and made the following determinations regarding the location of the aquifer tops for Well #1 (DEQ Well #165-00541). Information reviewed in this process included driller's logs, geophysical logs from the well and a nearby geophysical borehole, GW-2 form and the Hydrogeologic Framework of the Virginia Eastern Shore (USGS Scientific Investigations Report 2019-5093).

Table 4. Groundwater Characterization Program Recommendations

Unit	Well #1 (ft. bls)
Top Upper Yorktown-Eastover aquifer	90
Bottom Upper Yorktown-Eastover aquifer	150

Pump Intake Settings:

Table 5. Maximum Pump Intake Settings

Owner Well Name	DEQ Well #	Maximum Pump Setting (feet below land surface)
Well #1	165-00541	90

The Well #1 pump is set at 85.58 feet below land surface (ft. bls) and is correctly positioned in accordance with 9VAC25-610-140 A 6.

Withdrawal Reporting:
Groundwater withdrawals are to be recorded monthly and reported quarterly. Groundwater withdrawal reports may be submitted electronically through the myDEQ portal at https://portal.deq.virginia.gov/ or via email to withdrawal.permitting@deq.virginia.gov. Groundwater withdrawal reports may also be mailed to the office address stated below. All other required notifications and submittals shall include facility name and permit number and be submitted via email to withdrawal.permitting@deq.virginia.gov or mailed to the office stated below, unless otherwise directed in writing by the Department subsequent to the issuance of this permit: Virginia Department of Environmental Quality, Attn: Groundwater Withdrawal Compliance, P.O. Box 1105, Richmond VA 23218.

Water Conservation and Management Plan:
A Water Conservation and Management Plan (WCMP) meeting the requirements of 9VAC25-610-100 B was submitted and reviewed as part of the application process. The accepted Plan is to be followed by the permittee as an operational Plan for the facility/water system, is incorporated by reference into this permit, and shall have the same effect as any condition contained in this permit and may be enforced as such (Attachment 2). In addition, the Permit includes conditions requiring the following:

- Documentation that the leak detection and repair program defined in the WCMP has been

initiated is due by the end of the first year of the permit term.

- A result of an audit of the total amount of groundwater used in the distribution system and operational processes is due by the end of the second year of the permit term.
- A report on the plan's effectiveness in reducing water use, including revisions to those elements of the WCMP that can be improved and addition of other elements found to be effective based on operations to date shall be submitted by the end of years five [*date*] and ten [*date*] of the permit term.

Mitigation Plan:
The predicted AOI resulting from the Technical Evaluation extends beyond the property boundaries in the Upper Yorktown-Eastover aquifer. Given this prediction, a Mitigation Plan to address potential claims from existing well owners within the predicted area of impact is incorporated by reference in the permit and shall have the same effect as any condition contained in this permit and may be enforced as such (Attachment 3).

Well Tags:
Well tags will be transmitted by the Department as needed after issuance of the final permit.

Part II
Special Conditions

Impoundment Water Level Control:
The Permittee shall install and maintain a device to measure impoundment water levels within three (3) months of permit issuance (by *date*), and provide to the Department a summary of procedures implemented to monitor impoundment water levels during pumping to ensure that groundwater pumping does not result in overfilling the impoundment.

Part III
General Conditions

General Conditions are applied to all Groundwater Withdrawal Permits, as stated in the Groundwater Withdrawal Regulations, 9VAC25-610.

Public Comment

The following sections will be completed after close of the public comment period.

Relevant Regulatory Agency Comments:

Summary of VDH Comments and Actions:
This facility is not a public water supply so soliciting comments from VDH was not required.

Public Involvement during Application Process:

Local and Area wide Planning Requirements:
The Northampton County Administrator certified on January 13, 2025 that no local ordinances are in effect. The Department received this certification on February 26, 2025.

Public Comment/Meetings:
The public notice was published in the *Eastern Shore Post* on September 5, 2025. The public comment period ran from September 5, 2025 to October 6, 2025.

Changes in Permit Part II Due to Public Comments

Changes in Permit Part III Due to Public Comments

Attachments

1. **Technical Evaluation**
2. **Water Conservation and Management Plan**
3. **Mitigation Plan**
4. **Public Comment Sheet *(if warranted)***

COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

TECHNICAL EVALUATION FOR PROPOSED GROUNDWATER WITHDRAWAL

Date: June 6, 2025

Application /Permit Number: GWI000360

Owner / Applicant Name: Fern Point Limited Partnership (lessor) and Kuzzens, Inc. (lessee)

Facility / System Name: Jones 2 Farm

Facility Type: Agricultural

Facility / System Location: Northampton County

The Commonwealth of Virginia's Groundwater Withdrawal Regulations (9VAC25-610) provide that, for a permit to be issued for a new withdrawal, to expand an existing withdrawal, or reapply for a current withdrawal, a technical evaluation shall be conducted. This report documents the results of the technical evaluation conducted to meet the requirements for the issuance of a permit to withdraw groundwater within a Designated Groundwater Management Area (9VAC25-600).

This evaluation determines the:

(1) The Area of Impact (AOI): The AOI for an aquifer is the areal extent of each aquifer where one foot or more of drawdown is predicted to occur as a result of the proposed withdrawal.
(2) Water Quality: The potential for the proposed withdrawal to cause salt water intrusion into any portion of any aquifers or the movement of waters of lower quality into areas where such movement would result in adverse impacts on existing groundwater users or the groundwater resource.
(3) The Eighty Percent Drawdown (80% Drawdown): The proposed withdrawal in combination with all existing lawful withdrawals will not lower water levels, in any confined aquifer that the withdrawal impacts, below a point that represents 80% of the distance between the land surface and the top of the aquifer at the points where the one-foot drawdown contour is predicted for the proposed withdrawal.

Requested withdrawal amount:

	Requested Withdrawal Amount
Fifteen (15) Year Value	87,100,000 gallons
Annual Value	10,600,000 gallons (29,041 average gpd)
Monthly Value	4,191,000 gallons (135,194 average gpd)

Summary of Requested Withdrawal:
Groundwater withdrawals are used primarily to fill an on-site irrigation pond used for tomato crop irrigation, and also to dilute substances for spray application on the farm and to wash farm equipment. Irrigation occurs through plasticulture low flow drip emitters using water withdrawn directly from the irrigation pond.

While the property consists of 282.6 acres, 188.4 acres are available for cultivation. Since 2016 between 83 and 88.49 acres were farmed. The Farm Manager plans to farm all 188.4 acres starting in 2026 until the end of the upcoming permit term.

Requested Apportionment of Withdrawal:

DEQ Well #	Owner Well #	Aquifer	Percent of Withdrawal
Well #1	165-00541	Upper Yorktown-Eastover	100

Production Wells:

Identification	Elevation	Construction	Pump Intake	Source Aquifer
Owner Well Name: Well #1 DEQ Well Number: 165-00541 CEDS ID: 871000001455 Hydro ID: 221469	Elevation: 15 ft. (from topo)	Completion Date: Unknown Screens (ft/bls): 88.2-144.6 infilled Total Depth (ft/bls): 144.6 infilled	85.58 ft/bls	Upper Yorktown-Eastover

Geologic Setting:
The Jones 2 Farm (applicant well) is located in Northampton County. The production well is screened in the Upper Yorktown-Eastover aquifer.

The upper portion of the Yorktown-Eastover aquifer (described in the 2006 Virginia Coastal Plain Hydrologic Framework[1] (VCPHF) as a combination of the Upper, Middle, and Lower Yorktown-Eastover aquifers) is composed primarily of estuarine to marine quartz sands of the Yorktown Formation of Pliocene age.

The nearest USGS geologic cross section found in the USGS Scientific Investigations Report 2019-5093 is cross-section A-A' (see attached figure at the end of the report) [2].

Virginia Eastern Shore Model data:
The following table lists the location of the applicant production well within the Virginia Eastern Shore Model[3] (VAHydroGW-ES).

VAHydroGW-ES Model Grid					
Well	**CEDS ID**	**Hydro ID**	**Well Number**	**Row**	**Column**
Well #1	871000001455	221469	165-00541	246	33

Hydrologic Framework:
Data from the VCPHF is reported in this technical report to illustrate the hydrogeologic characteristics of the aquifers in the Virginia Eastern Shore near the applicant wells and identify major discrepancies between regional hydrogeology and site logs interpreted by the DEQ.

The following aquifer elevations were estimated from the VAHydroGW-ES at the model cell containing the applicant production well.

[1] McFarland, E.R., and Bruce, T.S., 2006, The Virginia Coastal Plain Hydrogeologic Framework: U.S. Geological Survey Professional Paper 1731, 118 p., 25 pls.
[2] McFarland, E.R., and Beach, T.A., 2019, Hydrogeologic framework of the Virginia Eastern Shore: U.S. Geological Survey Scientific Investigations Report 2019-5093, 26 p., 13 pl., https://doi.org/10.3133/sir20195093.
[3] Sanford, W.E., Pope, J.P., and Nelms, D.L., 2009, Simulation of groundwater-level and salinity changes in the Eastern Shore, Virginia: U.S. Geological Survey Scientific Investigations Report 2009–5066, 125 p.

VAHydroGW-ES Average Hydrologic Unit Information		
Aquifer	**Elevation (feet msl)**	**Depth (feet bls)**
Surface	6	0
Columbia aquifer (bottom)	-17	23
Upper Yorktown-Eastover aquifer (top)	-82	88
Upper Yorktown-Eastover aquifer (bottom)	-135	141
Middle Yorktown-Eastover aquifer (top)	-182	188
Middle Yorktown-Eastover aquifer (bottom)	-230	236
Lower Yorktown-Eastover aquifer (top)	-250	256
Lower Yorktown-Eastover aquifer (bottom)	-311	317

Groundwater Characterization Program Recommendations:
DEQ staff reviewed available information and made the following determinations regarding the location of the aquifer tops for Well #1 (DEQ Well #165-00541. Information reviewed in this process included driller's logs, geophysical logs from the well and a nearby geophysical borehole, GW-2 form and the Hydrogeologic Framework of the Virginia Eastern Shore (USGS Scientific Investigations Report 2019-5093).

Unit	Well #1 (ft. bls)
Top Upper Yorktown-Eastover	90
Bottom Upper Yorktown-Eastover	150

Comparison of the Hydrogeologic Framework and Groundwater Characterization Program Recommendations:
The top elevation of the Upper Yorktown-Eastover aquifer obtained from the VAHydroGW-ES framework of 88 ft-bls is 2 feet higher than the value provided by the DEQ of 90 ft-bls indicating good agreement. The bottom elevation of the Upper Yorktown-Eastover aquifer obtained from the VAHydroGW-ES framework of 141 ft-bls is 9 feet higher than the value provided by the DEQ of 150 ft-bls indicating general agreement.

Water Level Comparison:
Below water levels retrieved from the USGS regional observation network wells are compared to the simulated water levels reported in the *Virginia Eastern Shore Model (VAHydroGW-ES) 2023-2024 Simulation of Potentiometric Groundwater Surface Elevations of Reported and Total Permitted Use* report (the 2023-2024 report).[4] This comparison is made in order to evaluate the performance of the regional model in the vicinity of the applicant wells and assess historical groundwater trends.

The 2023-2024 report provides two sets of simulated potentiometric water surface elevations. The VAHydroGW-ES model is divided into three parts. The first portion of the model simulates water levels within the Eastern Shore aquifers from 1900 through 2023 based upon historically reported pumping amounts (the "*Historic Use Simulation*"). This portion of the model has been calibrated to match water levels observed in USGS regional observation network wells situated throughout the peninsula. The water levels reported in the 2023-2024 report are based upon two separate simulations, each simulation running

[4] Refer to "*Virginia Eastern Shore Model (VAHydroGW-ES) 2023-2024 Simulation of Potentiometric Groundwater Surface Elevations of Reported and Total Permitted Use"* at https://www.deq.virginia.gov/home/showpublisheddocument/27228/638702936863430000.

from 2023 through 2073. The simulated pumping amount in these two simulations are based upon, 1) the average 2019-2023 reported withdrawal amount of wells in the VAHydroGW-ES model (the "R*eported Use Simulation*") and, 2) the current (2023) maximum withdrawal amount allowed under their current permit for wells in the VAHydroGW-ES model (the "*Total Permitted Simulation*"). Both these simulations are an extension of the *Historic Use Simulation* and the water levels reported in the 2023-2024 report are the final water levels simulated at the end of the simulations (2073).

The "VAHydroGW-ES 2073 Reported Use Water Level," reported in the tables below, is the simulated water level – 50 years from present – if all permitted pumping continued at the average 2019-2023 reported withdrawal amount for the next 50 years. The "VAHydroGW-ES 2073 Total Permitted Water Level," reported in the tables below, is the simulated water level – 50 years from present – if all Eastern Shore permitted wells were to pump at the maximum permitted amount allowed under their current permit for the next 50 years. Finally, the "VAHydroGW-ES 2023 Historic Use Water Level," reported in the tables below, is the water level simulated for the year 2023 in the *Historic Use Simulation*.

The nearest USGS regional observation network wells to the applicant wells, completed in the Upper Yorktown-Eastover aquifer, are listed in the following table and shown in Figure 1. For the USGS regional observation network wells, average 2023 reported water levels are shown in the following table. Simulated water levels for the VAHydroGW-ES cells containing the USGS regional observation network wells are also shown in the following table.

Comparing the VAHydroGW-ES 2023 Historic Use Water Level with the USGS Network Well 2023 Water Level provides a method for judging the accuracy of the VAHydroGW-ES. Figures 2 and 3 show graphs of the recorded water levels from the USGS observation wells listed in the following table. These figures also show the simulated VAHydroGW-ES *Historic Use Simulation* water levels for the model cell containing each USGS well. Observing the simulated and observed water elevations together provides a second method for assessing the accuracy of the VAHydroGW-ES in the vicinity of the applicant wells.

Figure 1. Nearest USGS regional observation network wells.

The Upper Yorktown-Eastover VAHydroGW-ES 2023 Reported Use water levels are in general agreement with the USGS Network Well water levels observed in both Well 63H 5 SOW 103B and Well 63J 1 SOW 113A. The observed water levels for both of these wells fluctuate 1 to 15 feet on a yearly basis. The VAHydroGW-ES 2023 Reported Use water levels for Well 63H 5 SOW 103B are within 5 feet of the USGS observed water level for the duration of the available observed water level data and are therefore also in general agreement. The VAHydroGW-ES 2023 Reported Use water levels for USGS Network Well 63J 1 SOW 113A are generally within 1 to 10 feet of the USGS observed water level for the duration of the available observed water level data and are therefore in general agreement.

Water levels simulated by the VAHydroGW-ES do not fluctuate in the same manner because the pumping and recharge simulated in the model for any given year are averaged over the year and entered in the model as the average value for the year.

Upper Yorktown-Eastover Measurements	Well 63H 5 SOW 103B	Well 63J 1 SOW 113A
Distance from applicant wells (miles)	1.8	5.7
VAHydroGW-ES Row	251	219
VAHydroGW-ES Column	25	19
VAHydroGW-ES Land Surface Elevation (ft-msl)	15.0	21.0
USGS Well Land Surface Elevation (ft-msl)	17.0	22.0
USGS Network Well 2023 Water Level (ft-msl)	6.2	-3.9
VAHydroGW-ES 2023 Reported Use Water Level (ft-msl)	5.9	-4.2
VAHydroGW-ES 2073 Reported Use Water Level (ft-msl)	5.8	-4.4
VAHydroGW-ES 2073 Total Permitted Water Level (ft-msl)	5.2	-7.1

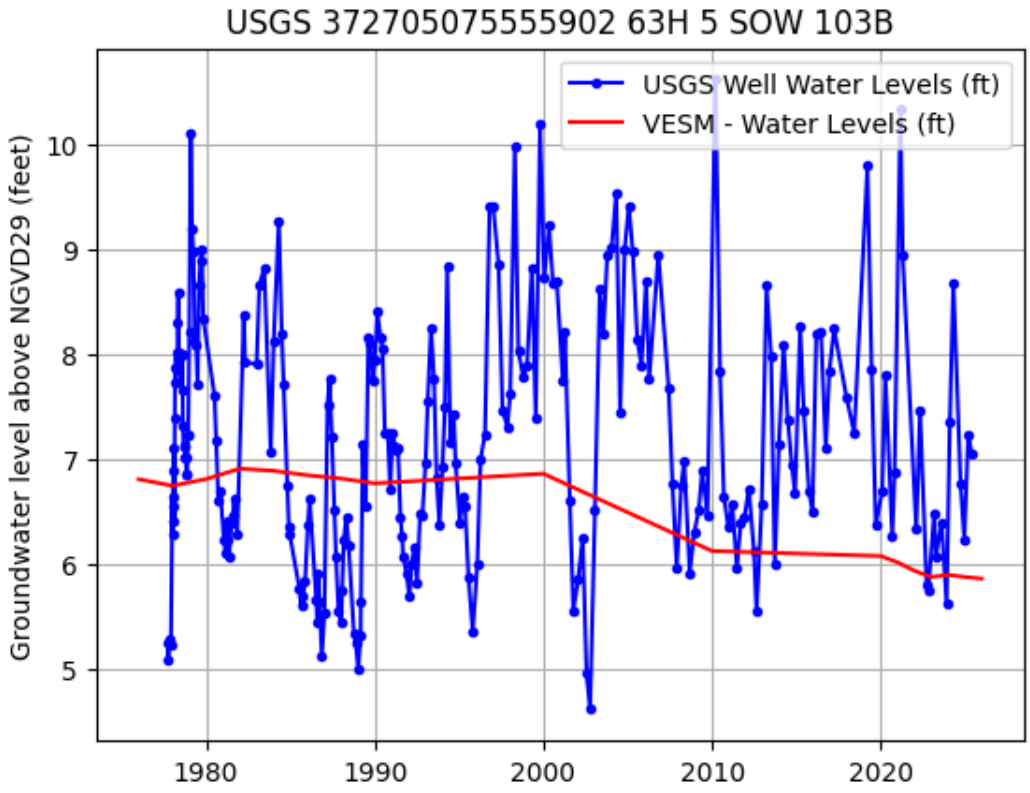


Figure 2. USGS Regional Observation Well 63H 5 SOW 103B, Upper Yorktown-Eastover aquifer water levels recorded from 1977 to present (well depth 132.0 ft bls, land surface 17.0 ft msl) and VAHydroGW-VESM reported use water levels.

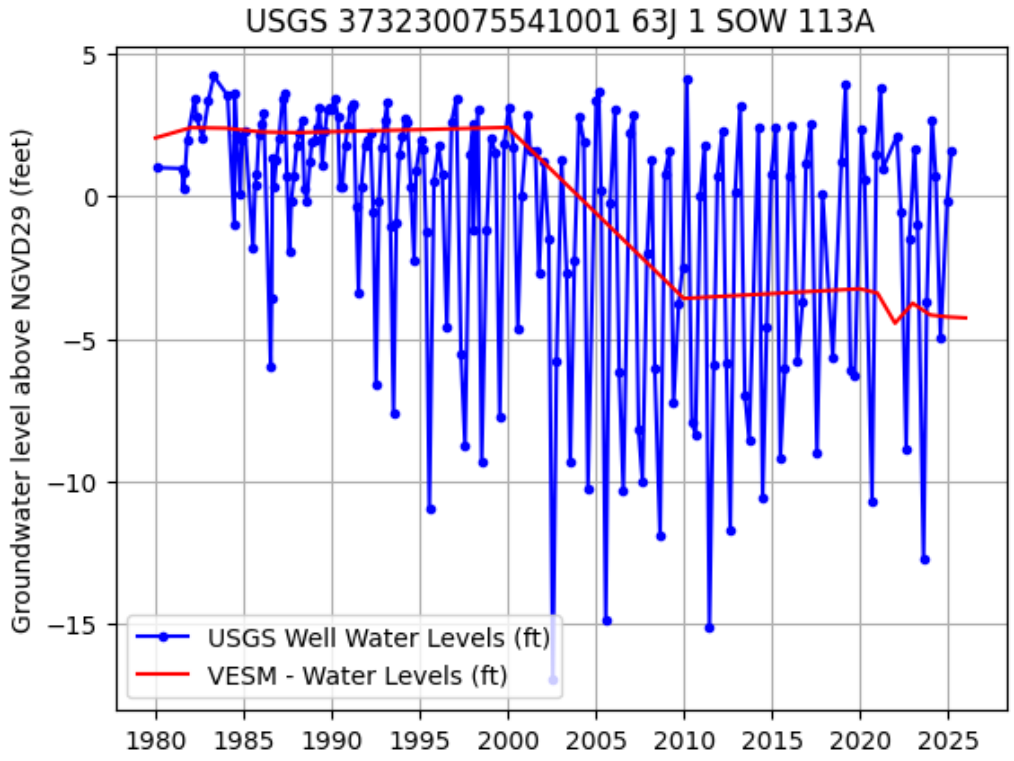


Figure 3. USGS Regional Observation Well 63J 1 SOW 113A, Upper Yorktown-Eastover aquifer water levels recorded from 1980 to present (well depth 120.0 ft bls, land surface 22.0 ft msl) and VAHydroGW-VESM reported use water levels.

Aquifer Test(s):
The 2014 Technical Evaluation referred to the aquifer tests performed at the Machipongo Farm located 3.8 miles southwest of Jones 2 Farm Well #1 that were performed in the Surficial and Upper Yorktown-Eastover aquifers.

The following table provides the hydrogeologic properties assigned to the VAHydroGW-ES cell containing the applicant well.

Virginia Eastern Shore Model Hydrogeologic Properties							
Aquifer	**Top Elevation (feet msl)**	**Top Elevation (feet bls)**	**Aquifer Thickness (feet)**	**Horizontal Conductivity (feet/day)**	**Vertical Conductivity (feet/day)**	**Specific Storage (1/feet)**	**Specific Yield**
Columbia	6	0	23	40	0.5	0.00001	0.15
Upper Yorktown-Eastover	-82	88	53	2	1.1	0.000004	N/A
Middle Yorktown-Eastover	-182	188	48	3	1.6	0.000004	N/A
Lower Yorktown-Eastover	-250	256	61	36	48.0	0.000004	N/A

Model Results

Evaluation of Withdrawal Impacts:
The VAHydroGW-ES model was used to simulate the effects resulting from the proposed withdrawal due to the multi-aquifer impacts. The stabilized effects resulting from the proposed withdrawal were simulated using an annual withdrawal rate of 5,806,667 gallons per year (15,898 average gpd), which was determined by dividing the 15-year value (87,100,000 gallons) by the term duration of 15 years. The stabilized effects were simulated by replacing the reported use amounts in the 2023 VAHydroGW-ES Reported Use Simulation with the current maximum annual withdrawal limit allowed under the terms of

their permit for all Ground Water Management Area (GWMA) permit holders. That same simulation was executed twice, once with the proposed withdrawal removed (the *baseline simulation*), and once with the proposed withdrawal added (the *proposed withdrawal simulation*). The stabilized effects of the proposed withdrawal were considered by simulating both simulations for 50 years and observing the difference in water potentiometric levels at the end of the simulations.

Area of Impact:
The area of impact (AOI) for an aquifer is the area where the additional drawdown due to the proposed withdrawal exceeds one foot. The results of the VAHydroGW-ES simulations, outlined in the preceding section, predict an area of impact in the Upper Yorktown-Eastover aquifer. The AOI extends a maximum distance of approximately 0.6 miles from the production center for the Upper Yorktown-Eastover aquifers. This area is shown in the accompanying map at the end of this report. There are no existing permitted wells located within the applicant's AOIs.

80 % Drawdown:
The 80% drawdown criterion was evaluated for all impacted, confined aquifers in the Virginia Eastern Shore using the VAHydroGW-ES *proposed withdrawal simulation*.

The elevation of the top of the Upper Yorktown-Eastover aquifer at the VAHydroGW-ES cell simulating the greatest drawdown (row 246, column 33) is -82 feet msl. Based on the results of the *proposed withdrawal simulation*, the predicted potentiometric water level at the same VAHydroGW-ES cell is -8.7 feet msl for the Upper Yorktown-Eastover aquifer. The 80% drawdown criterion allows the potentiometric water level (based on the critical surface elevation calculated from the VAHydroGW-ES data) to be reduced to -64.4 feet msl in the Upper Yorktown-Eastover aquifer.

Therefore, the water level in the VAHydroGW-ES cell containing the applicant wells for the Upper Yorktown-Eastover aquifer is not simulated to fall below the critical surface. Additionally, no new VAHydroGW-ES cells are simulated to have water levels fall below the critical surface. Therefore, this withdrawal is within the limits set by the 80% drawdown criterion.

Water Quality:
The EPA has established the National Secondary Drinking Water Regulations (NSDWRs) which are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic (such as taste, odor, or color) effects in drinking water. The EPA recommends the secondary standards to water systems – states may choose to adopt them as enforceable standards. The EPA NSDWRs specify the limit on chloride as 250 mg/L.

The VAHydroGW-ES was created "to help the Commonwealth and local water managers better plan water use and estimate future changes in water and salinity levels in response to changes in water use."[5] Use of the model to predict future chloride concentrations results in a "general useful understanding of system behavior, but water-resource managers must be careful in trusting the accuracy of predictions at individual wells from a regional model."[6] Further, chloride concentrations at individual wells, predicted using the regional model, should not be relied upon to predict actual concentrations at those locations.

The potential for adverse changes to water quality due to the requested withdrawal was evaluated using transient, density-dependent, SEAWAT simulations using the VAHydroGW-ES. Two simulations were

[5] Sanford, W.E., Pope, J.P., and Nelms, D.L., 2009, Simulation of groundwater-level and salinity changes in the Eastern Shore, Virginia: U.S. Geological Survey Scientific Investigations Report 2009–5066, 125 p.
[6] Sanford, W.E. and Pope, J.P., 2009, Current challenges using models to forecast seawater intrusion: lessons from the Eastern Shore of Virginia, USA. Hydrogeology Journal (2009), Volume: 18, Issue: 1, p: 73-93

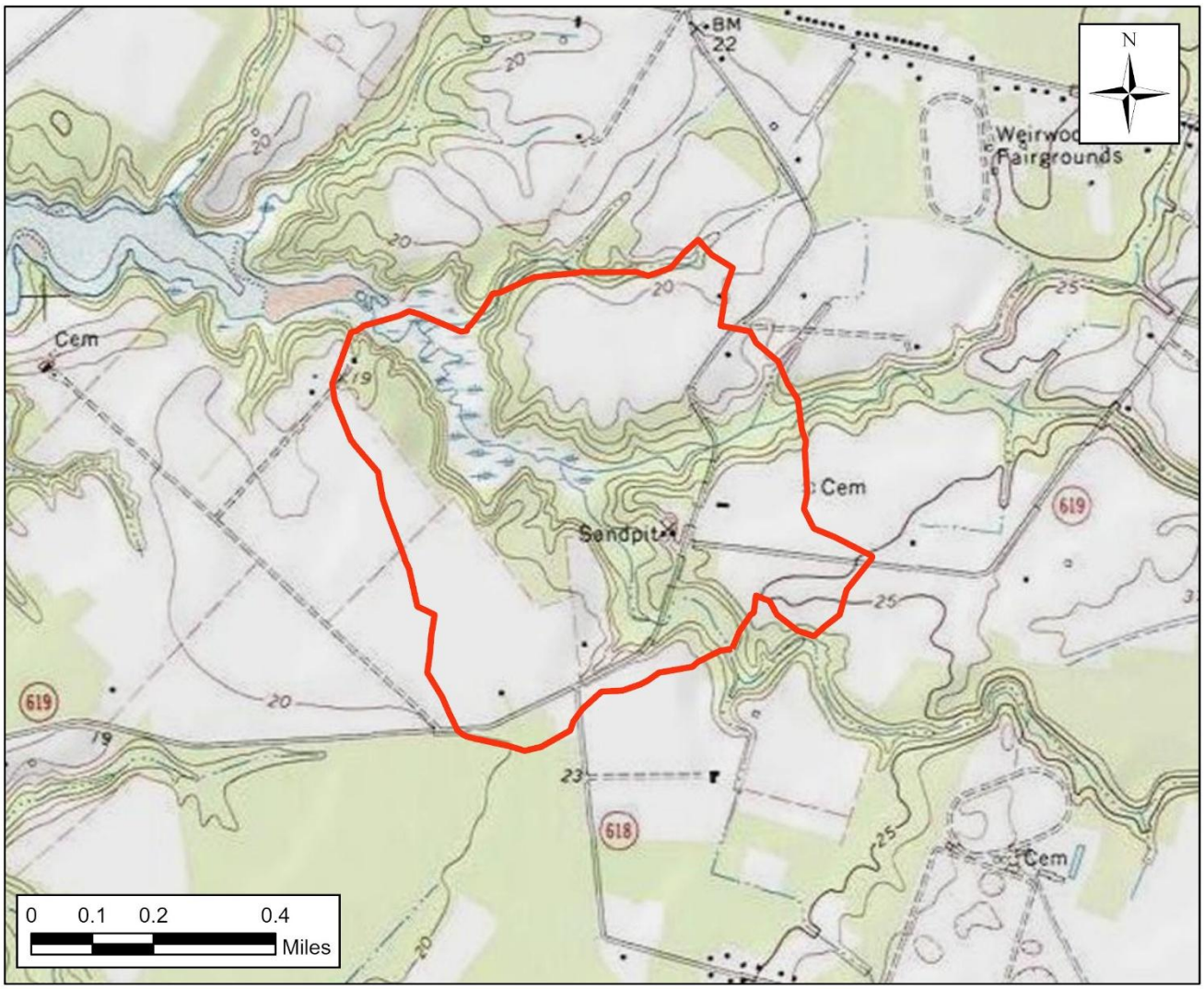
executed – one simulation without the proposed withdrawal included and a second with the proposed withdrawal included. Both simulations were executed for 50 years. Both used the 2024 total permitted stresses, concentrations, and heads as starting conditions. In an effort to simulate the long-term effects on water quality due to the proposed withdrawal, the total annual amount of 5,806,667 gallons per year (15,898 average gpd) was used for the duration of the second simulation. The two simulations were compared to evaluate the potential for adverse changes to water quality. The results indicated that there were two cells in the Upper Yorktown-Eastover Confining Unit which simulate an increase in chloride concentrations greater than 50 mg/L due to the proposed withdrawal (see figure at the end of this report. As a result, the VAHydroGW-ES model results establish a very slight potential for adverse changes to water quality as a result of the proposed withdrawal.

Simulated chloride concentration increase was below 50 mg/L in all aquifers.

Upconing:
The reversal of vertical flow between two confined aquifers so that the underlying aquifer begins to flow upward into the layer above is called upconing. Upconing is predicted when the modeled head in the upper layer drops below the head in the lower layer directly beneath the referenced head. Upconing has the potential to degrade water quality when the contributing area of the lower aquifer is of a poorer quality than that in the receiving aquifer. The predicted water level in the Upper Yorktown-Eastover aquifer for the VAHydroGW-ES cell simulating the maximum drawdown is simulated to fall below the simulated water level for the Middle and Lower Yorktown-Eastover aquifers. This indicates, based upon VAHydroGW-ES results, the potential for upconing of the potentially more brackish Middle and Lower Yorktown-Eastover waters into the overlying Upper Yorktown-Eastover source aquifer. Consequently, the model results do establish a potential for adverse changes to water quality due to an influx of more saline waters in the general vicinity of the withdrawal as a result of the proposed pumping.

Conclusion:
The withdrawal requested by Fern Point Limited Partnership (lessor) and Kuzzens, Inc. (lessee) for Jones 2 Farm satisfies the technical evaluation criteria for permit issuance. The AOI for the Upper Yorktown-Eastover aquifer is shown in the following map. Modeling results do establish a very slight potential for adverse changes to water quality due to simulated chloride concentration increases as a result of the proposed pumping. Additionally, the VAHydroGW-ES model results establish potential for upconing of the potentially more saline waters of the Middle and Lower Yorktown-Eastover aquifers into the Upper Yorktown-Eastover aquifer.

Jones 2 Farm
Area of Impact - Upper Yorktown-Eastover Aquifer



Upper Yorktown-Eastover Area of Impact

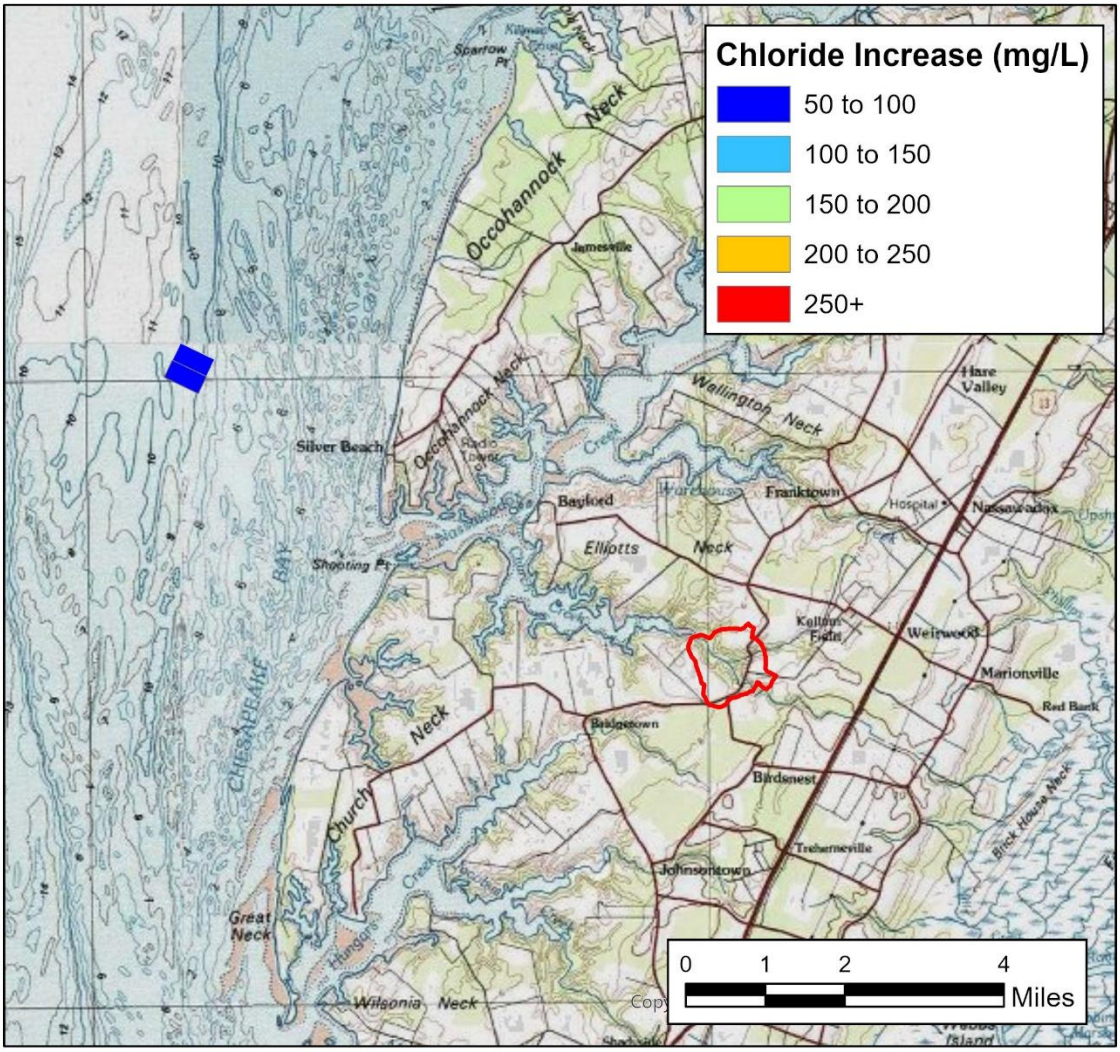
Simulated drawdown at or exceeding one foot in the Upper Yorktown Eastover (UYE) aquifer resulting from a 5,806,667 gpy, 50 year withdrawal from the Upper Yorktown-Eastover aquifer using the VAHydroGW-ES.

Maximum radius of one foot drawdown (Area of Impact) extends approximately 0.6 miles from the pumping center.

Technical evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply
June 5, 2025

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Jones 2 Farm - Upper Yorktown-Eastover Confining Unit - Simulated VESM Chloride Concentration Increase



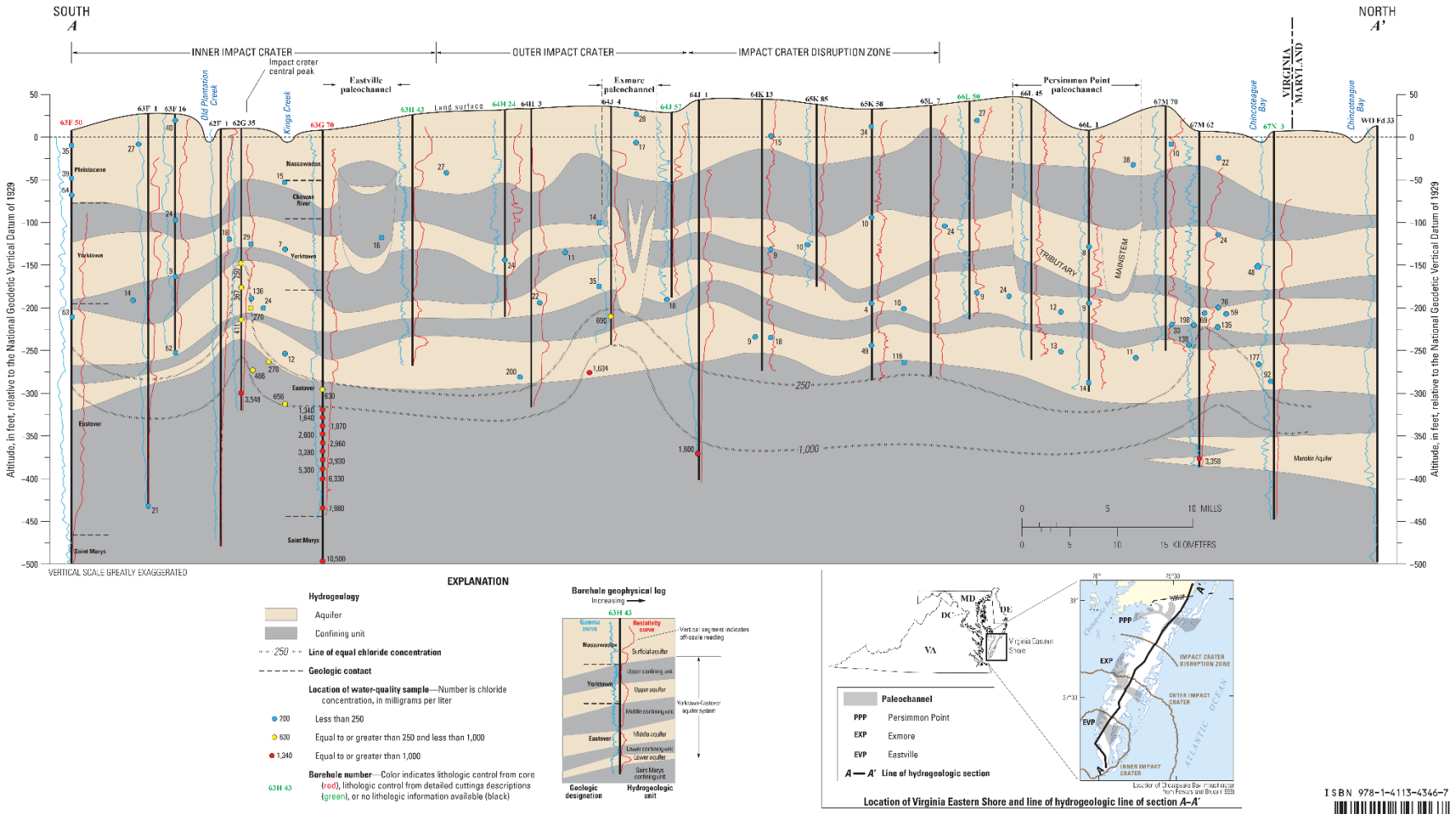
UYE AOI

Simulated chloride concentration increase in the Upper Yorktown-Eastover confining unit resulting from a 50-year simulation of 5,806,667 gallons per year from the Upper Yorktown-Eastover aquifer.

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply
June 5, 2025

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Approximate location of applicant well, which is west of this cross-section



Cross-Section A-A' from USGS Scientific Investigations Report 2019-5093 (2019).

Section 13. Groundwater Conservation and Management Plan

Kuzzen's Jones 2 Farm
Franktown, Northampton County Virginia
Tax Map IDs: {20-A-52, 20-1-B, 20-A-104, 20-1-C1, 20-1-C2}
GWI000360

March 2025

1) Table of Contents

INTRODUCTION: GENERAL OVERVIEW AND SYSTEM INFORMATION

The Jones 2 Farm, herein referred to as the "Farm", is an agricultural Farm used to grow tomatoes. This Farm is located within the town of Franktown, Northampton County Virginia. The Farm utilizes drip irrigation.

Typical consumption at the Farm requires varying amounts of groundwater from its one-well system located on the Farm property. This Farm is located within Virginia's Eastern Shore Groundwater Management Area – as defined by the Virginia Department of Environmental Quality [VDEQ] – a Water Conservation and Management Plan has been prepared in accordance with the Groundwater Management Act of 1992, Chapter 25 (§62.1-254 et seq.) of Title 62.1 of the Code of Virginia. The purpose of this document is to analyze water supply and demand issues facing the Farm and develop a reasoned and justifiable response for water conservation and management. This document is intended to help guide the Facilities' management, who are responsible for the operation and policy management decisions of the potable water facilities. Lastly, this document will meet the Groundwater Withdrawal Permit requirement for a water conservation and management plan.

As there are no other municipal supply pipelines located within two miles of the facilities property boundaries, irrigation and potable water is directly withdrawn and distributed at the Farm. Due to the nature of the facility, the majority of groundwater used at the farm is used to refill the on-site pond and with pond water is then withdrawn for irrigation.

Water withdrawal data was assessed, and no patterns had emerged suggesting that the water usage at the Farm is evenly distributed. The withdrawal is seasonal in nature with heavier use in the summer and lesser use in the winter.

1.0 WATER SAVINGS EQUIPMENT AND PROCESSES

To ensure the most efficient use of groundwater and decrease water demand, this plan requires the use of water-saving equipment, procedures, and improvements wherever practical. As a Farm, there are no residents who could have their water use regulated through ordinances, as would be the case in a town or city.

The Farm will be subject to the following:

Staff will be required to install fixtures per The Uniform Statewide Building Code 13VAC5-63 when renovating or installing new plumbing within the Farm.

The pond overflow will be equipped to ensure that it is not overfilled by groundwater.

The well cut-offs will remain locked in the “off” position while the Farm is not in operation. The Farm Manager will have the only set of keys.

The tomato crops are automatically irrigated on a schedule set daily by the Farm Manager utilizing Motorola ICC software that integrates data from electronic soil moisture probes, weather data, and plant stages. To ensure that no overwatering or underwatering occurs the irrigation system is operated remotely by computer, using telemetric valves and timers.

Stormwater will be allowed to naturally flow into the on-site pond in order to capture runoff for use in crop irrigation.

2.0 *WATER LOSS REDUCTION PROGRAM*

The following revised Water Loss Reduction Plan will be implemented by the Farm upon issuance of the new Groundwater Withdrawal Permit.

1) The production well meters will be read once a month by a consultant and the withdrawal amounts evaluated monthly within the first 10 days of the following month to ensure withdrawals are reasonable and within expectations for the permit and seasonal use. The consultant maintains an electronic database of these readings to allow for immediate identification of unusual water use amounts. Variations greater than twice the average of that month's historical usage will be reported to the owner within the first 10 days of the month following each meter reading. Operations staff will attempt to correlate any significant variations to changes in system operation and other events that may have occurred during the month.

2) In order to ensure the accuracy of the production meters, accuracy testing for all well meters will occur once per permit term (every 15 years). Should any meter accuracy report show greater than +/-10% inaccuracy, that meter will be replaced. These reports will be kept on file by the operator for the duration of the permit term. More frequent well meter verification may be undertaken if the annual audit or unusual monthly data indicate that there may be an issue. Existing meters were factory tested for accuracy prior to installation.

3) Water lines are walked once per month by Farm staff while the Farm is in production to check for obvious signs of leaks. Pump stations are checked daily for leaks by the Farm Manager. Any leaks or relevant circumstances will be recorded on the Leak Detection & Repair (LDR) Report, including photographs if available. Should a leak occur, the size of the leak and where it is located will dictate the course of action taken to move towards repair, but in all cases, attempts will be made to bypass the leak as soon as possible in order to avoid further loss of water.

Larger leaks will make their location known by the sheer volume of water present. Smaller leaks may be identified by the annual water audits. When a major leak is located, The Farm Manager will assess if the leak can be fixed by Farm Staff. If the assessment determines that the leak can be fixed by the Farm itself, the leak will be fixed within 48 hours.

If a leak is suspected, or cannot be fixed by the Farm staff, the following companies can be contacted to investigate, locate and/or fix the leak, which will be repaired within 7 days of the suspicion:

a. Bundick Well and Pump Co. – 35162 Lankford Hwy, Painter VA 23420 - 757-442-5555
b. Boggs Water and Sewage – 28367 Railroad Ave, Melfa, VA, 23410 - 757-787-4000
c. Somerset Well Drilling Co. Inc. – 30170 Ritzel Rd. Westover, MD 21871 – 410-651-3721

4) LDR report will be completed once per season, being updated throughout the season to indicate any changes or unusual circumstances. Attached to this plan is an example Leak Detection and Repair (LDR) Report which can be used to implement the leak detection and repair program and it will be used to inform the annual groundwater audit. This reporting form is only an example

template and can be fully altered in order to suit the permittee's needs for documentation. Additional details regarding the LDR are as follows:

a) The LDR Report will be filled out twice per year by the Farm Manager or consultant and this report will include, but not be limited to, the well water used during the months assessed compared to the same month during previous years, seasonal changes, events etc., leak inspection/detection, leak repair schedules, relevant photographs, water use area/device inspections and any high volume water consumption reported by the Farm.

b) This plan will act as a scheduling tool and report form for the Farm to refer to in order to properly document leaks and have them repaired in a timely fashion. This tool will be formally filed each season but will be updated as leaks and repairs occur. The inspection report may comment on the previous report's findings and set dates, deadlines and schedules for repairing leaks. Following leak repair, the latest report will be updated to indicate the repair.

5) A groundwater audit will be conducted annually by owner's consultant during the month of permit issuance to evaluate the prior year. Generally, this will consist of the comparison of the groundwater withdrawn over time and compared with the crops grown, fumigation events, population served etc.

The annual audit will provide a review of the following:

a) The Production well meter data.
b) Comparison of current use to prior use.
c) Review of seasonal/climatological fluctuations and potential impact on water use.
d) Crops grown versus water use.
e) Estimation of system water loss and corrective actions needed.

3.0 WATER USE EDUCATION PROGRAMS

Paper notices will be dispatched annually at the start of the summer season, notifying employees and staff that use water that the Facilities' wells are located within Virginia's Eastern Shore Ground Water Management Area. This notice will explain the obligation the Farm has to obtain and preserve a groundwater withdrawal permit with the Virginia Department of Environmental Quality. These notices will also include highlights on how each individual can assist in water conservation efforts at the Farm and implementing water reductions and restrictions (detailed in Section 5 below), the water loss reduction program detailed herein, and the local water supply plan that governs water use during normal and drought conditions.

Farm personnel that deal with the operation and monitoring of the system will be required to review this Plan annually.

4.0 EVALUATION OF POTENTIAL WATER REUSE OPTIONS

No water used at this Farm can be reused or recycled because it is either pumped into a pond and then used to irrigate crops or is mixed with pesticide and sprayed on the fields/plants.

5.0 WATER USE REDUCTIONS, RESTRICTIONS & PENALTIES FOR NON-COMPLIANCE DURING DROUGHT OR WATER USE EMERGENCIES

Mandatory water use restrictions will be implemented during water shortage emergencies declared by the local governing body, the Director of DEQ, or the Governor. Depending on the Stage of Drought, Non-essential uses of water will be restricted, water use reduced, and penalties will be put in place for non-compliance. Farm personnel will be subject to all of the following requirements as well. The Farm will comply with penalties for demonstrated failure to comply with mandatory water use restrictions.

According to the Northampton County Water Supply Plan, drought stages are identified by Drought Response and Contingency Plan (DRCP) stages. There are 4 stages: (Stage I) Normal Conditions, (Stage II) Drought Watch, (Stage III) Drought Warning and (Stage IV) Drought Emergency. Stage I places no mandatory restrictions on water users. The three latter stages place restrictions on non-essential water uses by public water supply systems. Given that the Farm is not a public water supply, the Farm will not be required to comply with all restrictions outlined in the Northampton County Water Supply Plan if and when a drought stage is declared. The relevant portion of the Northampton County Water Supply Plan is attached. The Farm will take the following actions or place the following reductions or restrictions on all consumers when particular stages of drought are declared as follows:

Stage II Drought Watch:

The Farm will review existing drought water conservation and contingency plans.

The Farm will make reasonable efforts to pursue leak detection and repair programs.

The Farm will encourage the following water use reductions as a result of a Stage II Drought Warning. All employees will be notified following the declaration of a Stage II Drought Watch and any subsequent increase in these stages. This notification will include encouragement of the voluntary reduction or elimination of non-essential water uses. According to the Accomack County Water Supply Plan, “Voluntary water conservation activities are identified with the goal of reducing water use by 5-10%”. The Farm Manager will voluntarily attempt to reduce water use by 5% during a Stage II Drought Watch. However, because all water use at the facility is essential for crop production, there are no practical operational procedures can be employed on the farm to reduce water use without impacting crop production.

Stage III Drought Warning:

The Farm Manager will voluntarily attempt to reduce water use by 10% during a Stage III Drought Warning. However, because all water use at the facility is essential for crop production, there are no practical operational procedures can be employed on the farm to reduce water use without impacting crop production. Any person found to have violated any of the Stage III provisions shall be warned in writing of their specific transgressions of this plan.

Stage IV Drought Emergency:

In addition to the items described above, all relevant items from Section 7.4.4 of the attached Northampton County WSP will also be enforced. Any person found to have violated any of the Stage IV provisions or provisions of Section 7.4.4 of the WSP shall be warned in writing of their specific transgressions of this plan. A second violation of these provisions within a given year would be grounds for consideration of termination of employment.

CONCLUSION

This concludes the Water Conservation and Management Plan for the Farm, all requirements are addressed in the sections above.

Groundwater Withdrawal Operational Plan Inspection Report

Date:

Facility: Jones 2 Farm
Permit # GWI
Inspection Date:
Inspection Time:
Inspector:

Groundwater Audit Summary

YTD Water Usage:
YTD Last Year:

Audit Notes: Is the above water use consistent with previous year's usage and/or current operations on site?

Leak Detection and Repair

	Satisfactory	*Not Satisfactory*	*Repair Required? Repair date/schedule*
Wells	X		Are these wells and their associated lines in good shape?
Sand Filters	X		Is this tank in good shape to prevent leaks?
Drip Lines	X		Are any of the feed lines leaking?
Buried Lines	X		Is there any sign of pooling water (not from precipitation) on the grounds at the facility?

Water Using Devices and Areas

	Satisfactory	*Not Satisfactory*	*Devices inspected? Operating Properly? If not, schedule for repairs*
Water Treatment System			
Meters			

Water Reuse Evaluation

Were any opportunities for water reuse found? If so, detail the change in operation which allows for water to be reused.

Inspection summary and Additional Comments

-

Photographs of areas of concern

7. Drought Response and Contingency Plan (9 VAC 25-780-120)

In accordance with Water Supply Planning Regulations, Section 9 VAC 25-780-120, the following discussion presents a Drought Response and Contingency Plan (DRCP) as a component of the WSP.

A drought is a period of unusually dry weather, including lower than normal levels of precipitation, which persists long enough to cause serious problems such as water supply shortages and/or crop damage. The present DRCP is focused on identifying drought conditions and implementing appropriate responses in order to maintain adequate water supplies in Northampton County. The successful response to drought conditions in the Planning Region largely depends upon public education and involvement.

The DRCP outlines a regional approach to responding to drought, while recognizing that drought conditions will vary across the County, and specific response and contingency actions will be made based on local conditions. The plan recognizes the unique characteristics of water sources within the region, as well as the beneficial uses of the water.

The DRCP includes four graduated stages of responses to the onset of drought conditions within the Planning Area:

DRCP STAGE	VDEQ DROUGHT MONITOR CONDITIONS	CONDITIONS	MAJOR RESPONSE
Normal Conditions	--	Normal Conditions	--
	D0	Abnormally dry (short-term)	
Drought Watch	D1	Moderate Drought	Public awareness campaign
Drought Warning	D2	Severe Drought	Voluntary restrictions
Drought Emergency	D3	Extreme Drought	Mandatory restrictions
	D4	Exceptional Drought	

The plan is based on procedures for the implementation and enforcement of the plan, in accordance with 9 VAC 25-780-120.3. Furthermore, the DRCP acknowledges the role of the Commonwealth in monitoring and responding to drought conditions as outlined in the Virginia Drought Assessment and Response Plan, dated March 28, 2003 (Appendix D),

while reserving the right to respond to those conditions and enforce the actions presented in this plan based on local conditions and local procedures.

7.1. Purpose

The purpose of this DRCP is to provide a contingency plan to:

- Manage the use of water resources in Northampton County in the event of drought conditions or other water supply emergencies,
- Establish an enforceable programmed response for each drought stage that will reduce water consumption with the least adverse impact on the residents and businesses of Northampton County
- Respond to non-climate related water supply emergencies, such as contamination or equipment failure, which may result in the need to restrict water use until water service can be restored.

7.2. Drought Indicators

The process of determining the presence or severity of a drought is complex and can be based on numerous indicators. In the Commonwealth of Virginia, drought evaluations are made by the Virginia Drought Monitoring Task Force (VDMTF), an interagency group of technical representatives from state and federal agencies responsible for monitoring natural resource conditions and the effects of drought on various segments of society. During periods of normal moisture conditions, the VDEQ monitors the NOAA U.S. Drought Monitor and prepares a monthly report and drought map specific to Virginia. The VDMTF is activated following an occurrence of moderate drought conditions (D1) as reported by the U.S. Drought Monitor program. The VDMTF may also active following the occurrence of smaller scale drought conditions that occur below the resolution of the Drought Monitor. The VDMTF monitors the progression of drought conditions (using typical drought indicators including precipitation deficits, groundwater levels, streamflows, and reservoir storage) and their effects on various sectors of society including water supply, agriculture, forestry and recreation. The VDMTF remains active until drought conditions have receded to unusually dry levels (D0) as reported by the U.S. Drought Monitor on a state wide level and may remain active longer if small areas beneath the resolution of the Drought Monitor continue to experience drought impacts. The VDMTF also provides recommendations for the declaration of the various drought stages. Virginia is currently divided into thirteen drought evaluation regions, including the Eastern Shore Drought Evaluation Region to which Northampton County belongs.

7.2.1. Precipitation Deficits

Precipitation deficits are monitored by the VDMTF which compares current local precipitation amounts (compiled by the Office of the State Climatologist) with 30-year local precipitation normals (developed by NOAA). Deficits are evaluated as running averages from the start of a water year (which begins on October 1), or on a trailing 12-month average for more extended events (Table 7-1 and Figure 7-1).

Figure 7-1: Seasonal drought triggers relative to precipitation normals

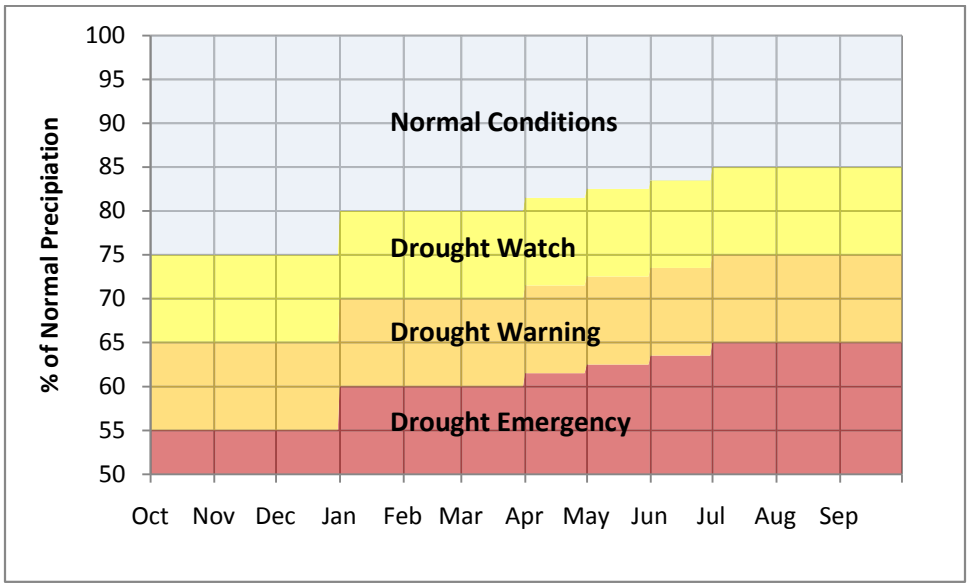


Table 7-1:
Seasonal drought triggers relative to precipitation normals

	DROUGHT STAGE			
Months Analyzed	**Normal Conditions**	**Drought Watch**	**Drought Warning**	**Drought Emergency**
	(% of Normal Precipitation)			
October-December	>75.0	<75.0	<65.0	<55.0
October-January	>80.0	<80.0	<70.0	<60.0
October-February	>80.0	<80.0	<70.0	<60.0
October-March	>80.0	<80.0	<70.0	<60.0
October-April	>81.5	<81.5	<71.5	<61.5
October-May	>82.5	<82.5	<72.5	<62.5
October-June	>83.5	<83.5	<73.5	<63.5
October-July	>85.0	<85.0	<75.0	<65.0
October-August	>85.0	<85.0	<75.0	<65.0
October – September (and previous 12 months)	>85.0	<85.0	<75.0	<65.0

7.2.2. Groundwater Levels

Groundwater monitoring wells located in the water table aquifer representing drought evaluation regions are used by the VDMTF to monitor shallow groundwater responses to drought conditions. Measured water levels are compared to the historic water level statistics for the entire period of record of a given monitoring well. Measured groundwater levels within the ranges shown in Table 7-2 have been recommended by the Drought Response Technical Advisory Committee to be indicative one of the four drought conditions.

Table 7-2:
Measured groundwater level relative to statistical occurrence

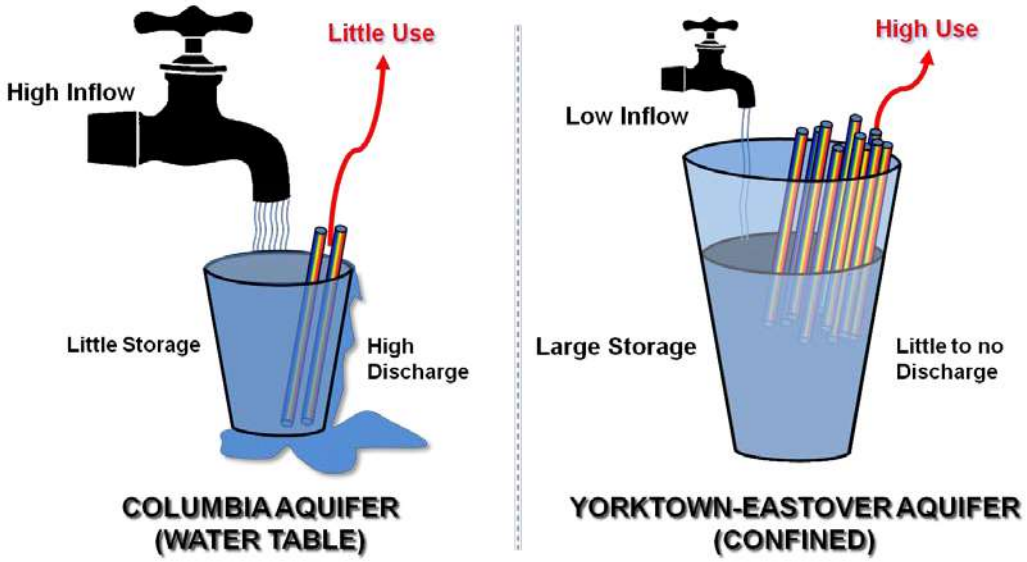
	DROUGHT STAGE			
	Normal Conditions	Drought Watch	Drought Warning	Drought Emergency
	(% occurrence relative to all historical measured groundwater levels)			
Measured Groundwater Level	>25 %	10-25 %	5-10 %	<5 %

Representative monitoring wells were selected by the Drought Response Technical Advisory Committee as part of the Drought Assessment and Response Plan process on the basis of period of record and relative location within the drought evaluation region. The P.C. Kellam Observation Well (USGS local number 63H 6 SOW 103A) was selected as the monitoring well most representative of conditions in Northampton County.

Information from the USGS well wells will be used only to provide general insights into regional conditions, which will then be shared with the public, but will not represent a primary criterion for drought evaluation in Northampton County. This is because despite the Northampton County's nearly complete reliance on groundwater, at current usage rates, the effects of droughts occurring over time frames of less than a few years have little *direct* impact on the availability of water, provided water usage does not significantly increase during the drought. In the water table aquifer, the average recharge rate typically far exceeds water usage (625 MGD vs. less than 1 MGD, respectively) and the large majority of recharge is returned to the hypergean environment through evapotranspiration and discharge to surface water bodies. In the confined aquifers, the recharge rate is much lower and is on the same order of magnitude as withdrawals (9 MGD, vs. approximately 10 MGD) with little discharge to overlying aquifers and surface water bodies; however the storage in the confined aquifers is far greater than in the water table aquifer and temporary recharge deficits have a small impact on the total storage. Furthermore, increased usage in the confined aquifer(s) will be somewhat offset by a

lesser yet proportional increase in leakage from the overlying aquifer(s). A conceptual representation of the relative differences in water budgets between the water table and confined aquifers is shown in Figure 7-2. Furthermore, variations in water availability occur on a scale that can be fairly localized and measured water levels in a single well are not likely to be representative may not representative of conditions across the entire County.

Figure 7-2: Conceptual differences in water budgets between the water table and confined aquifers on the Eastern Shore of Virginia



However, significant drought events are typically associated with increased water demands, particularly for agricultural and landscaping irrigation and other seasonal water uses. *Indirect* impacts to groundwater availability during drought events on the Eastern Shore are typically associated with local water level declines due to increased usage. Therefore, for a given drought to be based on groundwater indicators alone, it may be preferable to provide the flexibility to discrete water supply systems (community, agricultural and other self-supplied systems) such that local groundwater water levels may be used as indicators of local drought conditions and severity for each system or portions of the County. The recommended indicator of a drought emergency for a (community or individual) groundwater water supply system is either a water level less than 5 ft above the intake or 80 percent of available drawdown in a production well. For systems where production well water level measurements are impracticable, a nearby observation well may also be used.

7.2.3. Streamflow and Reservoir Storage

As discussed in previous sections of the present WSP, Northampton County does not have any significant fresh surface water features and derives all of its water supply from groundwater, with the exception of a few irrigation ponds. Therefore, the use of streamflow and reservoir storage as an indicator of drought is not particularly pertinent in Northampton County.

7.2.4. Other Indicators

The DMTF also evaluates other available indicators including the VDOF Cumulative Severity and Keech-Byrum Drought Indeces and other data for forest impacts and information compiled by the Virginia Agricultural Statistics Service and the Virginia Cooperative Extension Service to assess the impacts of drought on agricultural interests, in addition to the number of requests for federal drought disaster designation reported by the Virginia Department of Agriculture and Consumer Services. Furthermore, the VDMTF also considers operating conditions at public waterworks in the determination of drought recommendations.

7.3. Drought Stage Declarations

The DMTF and individual water system managers may use the indicators described above to assess drought conditions across the County and at individual systems, respectively. The following general descriptions will be used to guide drought stage declarations locally and to make recommendations to the Virginia Drought Coordinator for County-wide declarations:

- **Normal Conditions**
  - Precipitation exceeds the percent of normal precipitation threshold specified for normal conditions and the relevant time period shown in Table 7-1 and
  - Groundwater levels are above the 25th percentile for all historic levels

- **Drought Watch**

- Precipitation at or below the percent of normal precipitation threshold specified for drought watch conditions and the relevant time period shown in Table 7-1 or
- Groundwater levels are between the 25th and 10th percentile for all historic levels

Drought Warning

- Precipitation at or below the percent of normal precipitation threshold specified for drought warning conditions and the relevant time period or
- Groundwater levels are between the 25th and 10th percentile for all historic levels

Drought Emergency

- Precipitation at or below the percent of normal precipitation threshold specified for drought emergency conditions and the relevant time period,
- Groundwater levels measured in production wells levels are less than 5 ft above the pump intake, or
- Groundwater level measured in production or nearby observation wells show drawdown greater than 80 percent relative to non-pumping water levels.

The process of determining the presence or severity of a drought is complex and requires a certain level of professional judgment, therefore, the preceding descriptions should not be viewed as absolute requirements for drought designation, but rather as a mechanism to be used to reach consensus on the appropriate drought recommendations at the County-wide and local levels.

Drought Stages conditions may be declared for the entire county or portions of the county by the Virginia Drought Coordinator and for individual community and self-supplied water supply systems by their respective management. The more stringent of differing declarations should apply in the case of a discrepancy, subject to spatial jurisdiction.

7.4. Drought Stage Responses

As discussed above, the DRCP includes the use of four graduated drought stages: normal conditions, drought watch, drought warning, and drought emergency. Normal conditions represent status quo operating conditions.

The drought watch stage responses are generally responses intended to raise awareness of water users in the jurisdiction to climatic conditions that are likely to precede the occurrence of a significant drought event. Public outreach activities to raise this

awareness are identified as well as conservation activities that may be used to reduce demand.

Drought warning stage responses are generally responses that are required when the onset of a significant drought event is imminent. Voluntary water conservation activities are identified with the goal of reducing water use by 5 – 10%, in accordance with 9 VAC 25-780-120.A.2.b.

Drought emergency stage responses are generally responses that are required during the height of a significant drought event. Mandatory water conservation activities are identified with the goal of reducing water use by 10 – 15%, in accordance with 9 VAC 25-780-120.A.2.c.

The subsections below represent guidelines and language that may be used to develop local or county wide Drought Management and Contingency Planning ordinances.

7.4.1. Normal Operation

Community water supply systems servicing incorporated towns in Northampton County shall be operated by a qualified operator and division supervisor under the purview of the director of public works and town manager. The supply system operator and/or supervisor shall report routine operations and monthly water usage to the director of public works and town manager. The town manager shall further advise the town council and the mayor. Other community water supply systems shall be operated by a qualified operator coordinating with relevant County and State agencies. Normal operation of community water systems will include at least monthly water level measurements in production wells or nearby observation wells and the collection or review of local precipitation data to monitor the potential for drought conditions to occur. More frequent data collection may be required during dry conditions.

7.4.2. Drought Watch

Following the declaration of a countywide, regional or local drought watch, the town manager, system operator/supervisor, and/or director of public works for affected individual public water supply systems and the administrators of affected large self-supplied water withdrawals exceeding 10,000 gpd will:

- Review existing drought water conservation and contingency plans and
- Make reasonable efforts to pursue leak detection and repair programs.

Furthermore, where an individual public water supply system unilaterally declares a drought watch for their service area, the system operator/supervisor will:

- Inform the VDH of their self-declared drought watch and
- Issue a press release indicating the reasons for the declaration.

If a major water leak or water supply equipment failure occurs in a community water supply system, repairs shall be immediately initiated by the relevant department and the town manager shall be immediately notified of such. In conjunction with the town manager, the waterworks supervisor/operator and director of public works shall determine if a water shortage will occur as a result of the leak or equipment failure.

7.4.3. Drought Warning

Following the declaration of a Countywide, regional or local drought warning or serious water shortage due to a major leak, equipment failure non-climate related water supply disruption, the town manager, system operator/supervisor, and/or director of public works for affected public water supply systems will:

- Issue public announcements encouraging the voluntary reduction or elimination of non-essential water uses including car washing, lawn watering, garden watering, and water usage by swimming pools and other recreational facilities after consultations with the mayor and public works committee chair and
- Voluntarily reduce or eliminate non-essential flushing of water lines and other operational water uses.

The goal of the voluntary water use restrictions shall be to reduce total water consumption by 5 to 10 percent. If the drought warning is self-declared, the town manager, system operator/supervisor, and/or director of public works for individual community water supply systems will also notify the VDH.

Following the declaration of a Countywide or regional the administrators of large self-supplied water withdrawals exceeding 10,000 gpd will voluntarily reduce or eliminate non-essential flushing of water lines and other operational water uses.

7.4.4. Drought Emergency

Following the declaration of a Statewide, Countywide, or regional drought emergency by the Governor by executive order, the town manager, system operator/supervisor, and/or director of public works for affected public water supply systems will:

- Issue public announcements declaring the mandatory reduction or elimination of non-essential water uses including car washing, lawn and garden watering, and water usage by swimming pools and other recreational facilities. The following specific prohibitions will apply:

  Unrestricted irrigation of lawns, gardens and other landscaped areas is prohibited

  - Newly sodded and seeded areas may be irrigated to establish cover on bare ground at the minimum rate necessary for no more than a period of 60 days, irrigation rate may not exceed a total of one inch of applied water in any seven day period.
  - Gardens, bedding plants, trees, shrubs and other landscape materials may be water with hand held containers, hand-held hoses equipped with an automatic shutoff device, sprinklers, or other automated water devices at the minimum rate necessary but in no case more frequently than twice per week.
  - All allowed lawn irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.
  - Irrigation systems may be tested after installation, routine maintenance or repair for no more than ten minutes per zone.

  Unrestricted irrigation of golf courses is prohibited

  - Tees and greens may be irrigated between the hours of 9:00PM and 10 AM a the minimum rate necessary
  - Localized dry areas may be irrigated with a hand held container or hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
  - Greens may be cooled by syringing or by the application of water with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
  - Fairways may be irrigated between the hours of 9:00 PM and 10:00 AM at the minimum rate necessary not to exceed one inch of applied water in any ten-day period.
  - Fairways, tees and greens may be irrigated during necessary overseeding or resodding operations in September and October at the minimum rate necessary. Irrigation rates during this restorations period may not exceed one inch of applied water in any seven-day period.

- Newly constructed fairways, tees and greens and areas that are re-established by sprigging or sodding may be irrigated at the minimum rate necessary not to exceed one inch of applied water in any seven-day period for a total period that does not exceed 60 days.
- Fairways, tees and greens may be irrigated without regard to the restrictions listed above so long as:
  - The only water sources utilized are water features whose primary purpose is stormwater management,
  - Any water features utilized do not impound permanent streams,
  - During declared Drought Emergencies these water features receive no recharge from other water sources such as ground water wells, surface water intakes, or sources of public water supply, and,
  - All irrigation occurs between 9:00 p.m. and 10:00 a.m.
- All allowed golf course irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.
- Rough areas may not be irrigated.

Unrestricted irrigation of athletic fields is prohibited.

- Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at a rate not to exceed one inch per application or more than a total of one inch in multiple applications during any ten-day period. All irrigation water must fall on playing surfaces with no outlying areas receiving irrigation water directly from irrigation heads.
- Localized dry areas that show signs of drought stress and wilt (curled leaves, foot-printing, purpling) may be syringed by the application of water for a cumulative time not to exceed fifteen minutes during any twenty four hour period. Syringing may be accomplished with an automated irrigation system or with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
- Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. during necessary overseeding, sprigging or resodding operations at the minimum rate necessary for a period that does not exceed 60 days. Irrigation rates during this restoration period may not exceed one inch of applied water in any seven-day period. Syringing is permitted during signs of drought stress and wilt (curled leaves, foot-printing, purpling).
- All allowed athletic field irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.

- Irrigation is prohibited on athletic fields that are not scheduled for use within the next 120-day period.
- Water may be used for the daily maintenance of pitching mounds, home plate areas and base areas with the use of hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary.
- Skinned infield areas may utilize water to control dust and improve playing surface conditions utilizing hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary no earlier than two hours prior to official game time.

Washing paved surfaces such as streets, roads, sidewalks, driveways, garages, parking areas, tennis courts, and patios is prohibited.

- Driveways and roadways may be pre-washed in preparation for recoating and sealing.
- Tennis courts composed of clay or similar materials may be wetted by means of a hand-held hose equipped with an automatic shutoff device at the minimum rate necessary for maintenance. Automatic wetting systems may be used between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.
- Public eating and drinking areas may be washed using the minimum amount of water required to assure sanitation and public health.
- Water may be used at the minimum rate necessary to maintain effective dust control during the construction of highways and roads.

Use of water for washing or cleaning of mobile equipment including automobiles, trucks, trailers and boats is prohibited.

- Mobile equipment may be washed using hand held containers or hand held hoses equipped with automatic shutoff devices provided that no mobile equipment is washed more than once per calendar month and the minimum amount of water is utilized.
- Construction, emergency or public transportation vehicles may be washed as necessary to preserve the proper functioning and safe operation of the vehicle.
- Mobile equipment may be washed at car washes that utilize reclaimed water as part of the wash process or reduce water consumption by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Automobile dealers may wash cars that are in inventory no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash

process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.

- Automobile rental agencies may wash cars no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Marine engines may be flushed with water for a period that does not exceed 5 minutes after each use.

Use of water for the operation of ornamental fountains, artificial waterfalls, misting machines, and reflecting pools is prohibited.

- Fountains and other means of aeration necessary to support aquatic life are permitted.
- Use of water to fill and top off outdoor swimming pools is prohibited.
- Newly built or repaired pools may be filled to protect their structural integrity.
- Outdoor pools operated by commercial ventures, community associations, recreation associations, and similar institutions open to the public may be refilled as long as:
  - Levels are maintained at mid-skimmer depth or lower,
  - Any visible leaks are immediately repaired
  - Backwashing occurs only when necessary to assure proper filter operation,
  - Deck areas are washed no more than once per calendar month (except where chemical spills or other health hazards occur),
  - All water features (other than slides) that increase losses due to evaporation are eliminated, and
  - Slides are turned off when the pool is not in operation.
- Swimming pools operated by health care facilities used in relation to patient care and rehabilitation may be filled or topped off.
- Indoor pools may be filled or topped off.
- Residential swimming pools may be filled only to protect structural integrity, public welfare, safety and health and may not be filled to allow the continued operation of such pools.

- Declare mandatory water use restrictions for hotels, motels, tourist homes, campgrounds, trailer parks, and all other commercial establishments. Such establishments shall be required to notify their patrons and restrict water usage for bathing and other purposes to a bare minimum. Restaurants and food service establishments will provide water to customers only when requested, and
- Place a moratorium on all new water service connections.
- Coordinate with law enforcement officials who shall issue tickets to violators of mandatory use restrictions. Upon conviction, a violator shall be guilty of a class 4 misdemeanor, and each incident shall be considered a separate offence.

The goal of the water use restrictions shall be to reduce total water consumption between 10 and 15 percent, or higher depending on the severity of the drought or critical water supply emergency. All residential, business and industrial water users; whether supplied by public water supplies, self-supplied sources, or private water wells; who do not normally utilize water for any of the listed prohibited uses are requested to voluntarily reduce water consumption by at least 10%. This reduction may be the result of elimination of other non-essential water uses, application of water conservation practices, or reduction in essential water uses.

If the drought emergency or water supply emergency is self-declared, the town manager, system operator/supervisor, and/or director of public works for individual community water supply systems will also notify the VDH and the Virginia Emergency Operations Center.

Water Rationing

In some cases, the mandatory non-essential water use restrictions may not be sufficient to protect the supplies of an individual public waterworks. When an individual waterworks' sources are so depleted as to threaten public health and safety, it may become necessary to ration water within that system in order to assure that water is available to support essential uses. Rationing water is a more severe measure than merely banning nonessential uses of water. Under rationing, each customer is allotted a given amount of water, based on a method of allotment developed by the waterworks or local government. Generally, it will be based on a percentage of previous usage or on a specific daily quantity per household. Rationing is more likely to have some effect on welfare than mandatory non-essential use restrictions, because industrial and commercial water uses may be curtailed or eliminated to assure an adequate supply is available for human consumptive uses.

The decision to ration water will typically be made by the local government or waterworks operator. The Virginia Drought Coordinator will work closely with any entity where water rationing is required to assure that all available State resources are effectively used to support these highly stressed water supply systems. The Virginia Department of Emergency Management (VDEM) is the first point of contact for waterworks or local governments who decide to ration water. VDEM will coordinate the Commonwealth's response and assistance to such entities.

MITIGATION PLAN

DEQ GROUNDWATER WITHDRAWAL PERMIT NO. GWI000360

OWNER NAME: Fern Point Limited Partnership

FACILITY NAME: Jones 2 Farm

LOCATION: Bayford Rd, Tax Parcel ID: {20-A-52, 20-1-B, 20-A-104, 20-1C1, 20-1-C2}

INTRODUCTION

On February 26, 2025, Fern Point Limited Partnership submitted a Groundwater Withdrawal Permit Application to the Virginia Department of Environmental Quality (DEQ) to withdraw groundwater. Groundwater withdrawals associated with this permit will be utilized to fill an on-site irrigation pond to be used for crop irrigation, dilute substances for spray application on the associated farm, and to wash farm equipment.

The purpose of this Mitigation Plan is to provide existing groundwater users a method to resolve claims that may arise due to the impact of the withdrawal from Jones 2 Farm well field. Predicted drawdown of water levels due to the withdrawal from the Upper Yorktown-Eastover aquifer is shown in the attached map(s).

Modeled impacts, as shown on the attached maps, extend beyond the boundary of the Jones 2 Farm facility. Due to these findings, Fern Point Limited Partnership recognizes that there will be a rebuttable presumption that water level declines that cause adverse impacts to existing groundwater users within the area of impact are due to this withdrawal. Claims may be made by groundwater users outside this area; however, there is a rebuttable presumption that Fern Point Limited Partnership / Jones 2 Farm has not caused the adverse impact. Fern Point Limited Partnership proposes this plan to mitigate impacts to existing users and excludes impacts to wells constructed after the effective date of this permit.

CLAIMANT REQUIREMENTS

To initiate a claim, the claimant must provide written notification of the claim to the following address:

Contact Name:	Aarin Nottingham
Title:	Farm Manager
Permittee Name:	Fern Point Limited Partnership
Address:	3769 Grapeland Circle
City, State Zip Code	Exmore, VA 2335

The claim must include the following information: (a) a deed or other available evidence that the claimant is the owner of the well and the well was constructed and operated prior to the effective date of the permit; (b) all available information related to well construction, water levels, historic yield, water quality, and the exact location of the well sufficient to allow Fern Point Limited Partnership to locate the well on the claimant's property; (c) the reasons the claimant believes that the Jones 2 Farm withdrawal has caused an adverse impact on the claimants well(s).

CLAIM RESOLUTION

Fern Point Limited Partnership will review any claim within **five (5) business days**. If Fern Point Limited Partnership determines that no rebuttal will be made and accepts the claim as valid, Fern Point Limited Partnership will so notify the claimant and will implement mitigation within **thirty (30) business days**. If the claim is not accepted as valid, Fern Point Limited Partnership will notify the claimant that (a) the claim is denied **or** (b) that additional documentation from the claimant is required in order to evaluate the claim. Within **fifteen (15) business days** of receiving additional documentation from the claimant, Fern Point Limited Partnership will notify the claimant (a) that Fern Point Limited Partnership agrees to mitigate adverse impacts or (b) the claim is denied. If the claim is denied, the claimant will be notified that the claimant may request the claim be evaluated by a three (3) member committee. This committee will consist of one (1) representative selected by Fern Point Limited Partnership, one (1) representative selected by the claimant, and one (1) representative mutually agreed upon by the claimant and Fern Point Limited Partnership .

Any claimant requesting that a claim be evaluated by the committee should provide the name and address of their representative to Fern Point Limited Partnership . Within **five (5) business days** of receipt of such notification, Fern Point Limited Partnership will notify the claimant and claimant's representative of the identity of Fern Point Limited Partnership representative and instruct the representatives to select a third representative within **ten (10) business days**. Representatives should be a professional engineer or hydrogeologist with experience in the field of groundwater hydrology. Fern Point Limited Partnership agrees to reimburse the members of the committee for reasonable time spent, at a rate prevailing in the

area for experts in the above listed fields, and for direct costs incurred in administering the plan. The claimant may, at his or her option, choose to provide the reimbursement for the member of the committee selected by the claimant and up to half of the reimbursement for the mutual representative.

Within **ten (10) business days** of selection of the third representative, the committee will establish a **reasonable deadline** for submission of all documentation it needs to evaluate the claim. Both the claimant and Fern Point Limited Partnership will abide by this deadline.

Within **fifteen (15) business days** of receipt of documentation, the committee will evaluate the claim and reach a decision by majority vote. The committee will notify the claimant regarding its decision to (a) deny or (b) approve the claim. If the claim is approved, Fern Point Limited Partnership will mitigate the adverse impacts within **thirty (30) business days** of making the decision or as soon as practical. If the claim is denied by the committee, Fern Point Limited Partnership may seek reimbursement from the claimant for the claimant's committee representative and one half of the 3rd representative on the committee.

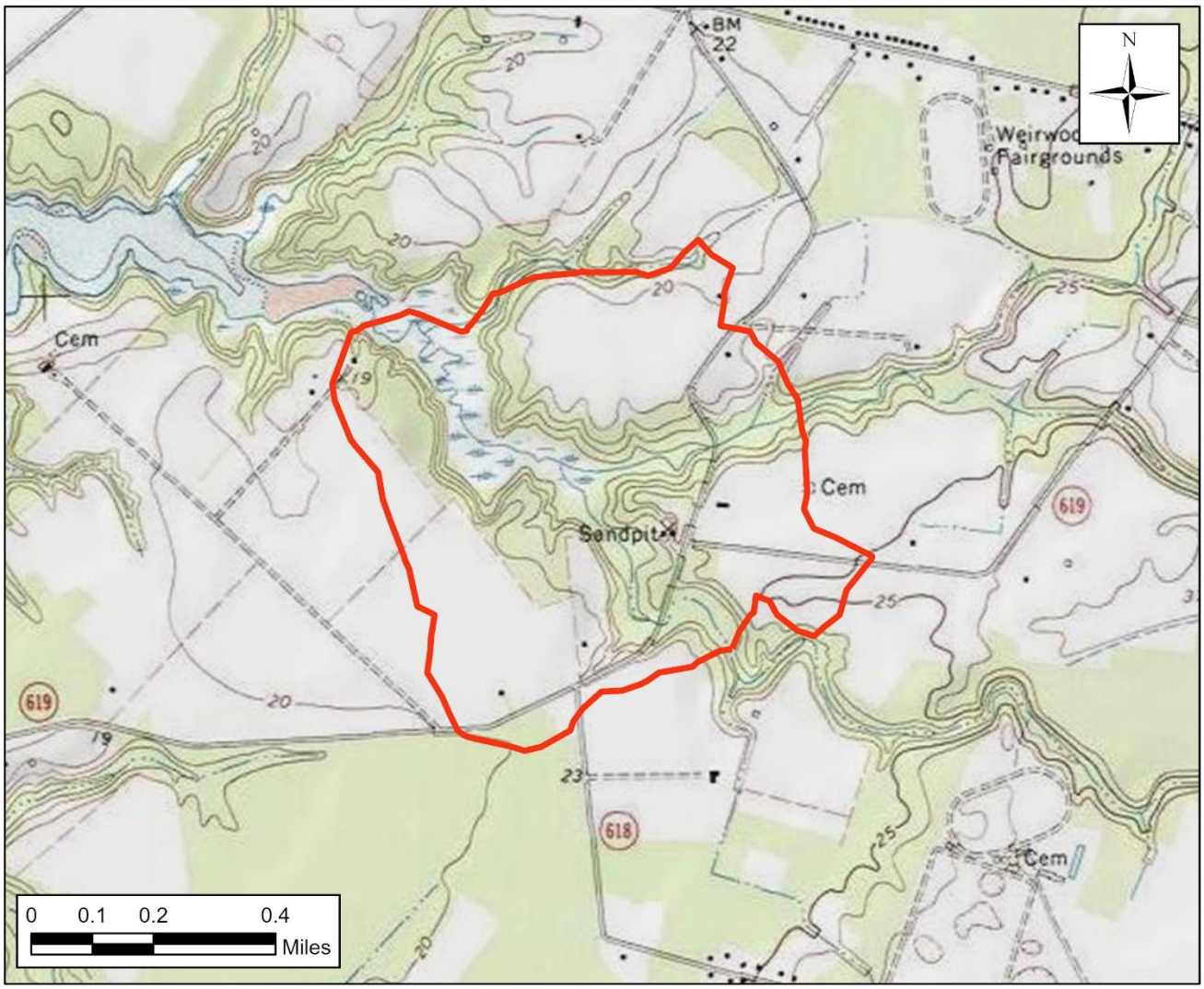
If a claimant within the indicated area of impact indicates that they are out of water, Fern Point Limited Partnership will accept the responsibility of providing water for human consumptive needs within **seventy-two (72) hours** and to cover the claim review period. Fern Point Limited Partnership reserves the right to recover the cost of such emergency supply if the claim is denied by Fern Point Limited Partnership or found to be fraudulent or frivolous. If Fern Point Limited Partnership denies a claim and the claimant elects to proceed with the three (3) member committee, Fern Point Limited Partnership will continue the emergency water supply at the claimant’s request during the committee's deliberations, but reserves the right to recover the total costs of emergency water supply in the case that the committee upholds the denial of the claim. Similarly, Fern Point Limited Partnership reserves the right to recover costs associated with the claim process if a claim is found to be fraudulent or frivolous.

If it is determined by the committee or shown to the committee's satisfaction that a well operating under a mitigation plan similar to Fern Point Limited Partnership / Jones 2 Farm Plan other than those owned and operated by Fern Point Limited Partnership has contributed to the claimed adverse impact, Fern Point Limited Partnership’s share of the costs associated with mitigation will be allocated in proportion to its share of the impact. Such a determination shall be made by the committee after notification of the third party well owner, giving the third party well owner opportunity to participate in the proceedings of the committee.

PLAN ADMINISTRATION

Nothing in the Plan shall be construed to prevent the Department of Environmental Quality Staff from providing information needed for resolution of claims by the committee.

Jones 2 Farm
Area of Impact - Upper Yorktown-Eastover Aquifer



Upper Yorktown-Eastover Area of Impact

Simulated drawdown at or exceeding one foot in the Upper Yorktown Eastover (UYE) aquifer resulting from a 5,806,667 gpy, 50 year withdrawal from the Upper Yorktown-Eastover aquifer using the VAHydroGW-ES.

Maximum radius of one foot drawdown (Area of Impact) extends approximately 0.6 miles from the pumping center.

Technical evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply
June 5, 2025

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY