Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

VWP Individual Permit Number 25-0041
Effective Date: Month DD, YYYY
Expiration Date: Month DD, YYYY

VIRGINIA WATER PROTECTION PERMIT ISSUED PURSUANT TO THE STATE WATER CONTROL LAW AND SECTION 401 OF THE CLEAN WATER ACT

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341) and the State Water Control Law and regulations adopted pursuant thereto, the department has determined that there is a reasonable assurance that this VWP permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of state waters or fish and wildlife resources. In issuing this VWP permit, the department has not taken into consideration the structural stability of any proposed activities.

Permittee: Paramont Contura LLC

Facility: Deep Mine 41

Facility Address: 269 Lonnies Lane, McClure, VA 24269

Activity Location: The intake is located at (37.092916, -82.373625) on the McClure River

Activity Description: The permit authorizes the withdrawal of surface water from the McClure River as needed. Permitted activities shall be conducted as described in the Joint Permit Application dated January 21st, 2025 received on January 21st, 2025, and supplemental materials, revisions and clarifications received through February 24th, 2025.

The Permittee's authorized water withdrawal shall not exceed:

____1,006.2 million__ gallons for the permit term,
_____67.08 million__ gallons per year,
_____6.665 million_ gallons per month,
_____0.215 million_ gallons per day

The permitted withdrawal will be used to provide operational support and dust mitigation within Deep Mine 41. Other uses are not authorized by this permit.

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions, and Part II - General Conditions.

_____ _____

Bryant Thomas Date
Interim Director, Water Division

Part I – Special Conditions

A. Authorized Activities

1. This permit authorizes Paramont Contura LLC to withdraw a maximum of 0.215 million gallons per day (Mgal/day), 6.665 million gallons per month (Mgal/month), and 67.08 million gallons per year (Mgal/year) from the intake in the McClure River, located within Dickenson County, for the purposes of coal dust mitigation and mining operation support within Deep Mine 41.

2. The Permittee shall conduct authorized activities as described in the Joint Permit Application, supplemental materials, revisions, and clarifications. Any changes to the authorized activities or impacts map that affect permitted areas shall be submitted to the Department immediately upon determination that changes are necessary, and Department approval shall be required prior to implementing the changes.

3. The Permittee shall notify the Department of any changes in authorized impacts to surface waters, of any modifications of the intake structure, or any changes to the design or type of construction activities in surface waters authorized by this permit. Department approval shall be required prior to implementing the changes. Any additional impacts, modifications, or changes shall be subject to individual permit review or modification of this permit.

B. Permit Term

1. This permit is valid for fifteen (15) years from the date of issuance. A new permit may be necessary for the continuance of the authorized activities, including water withdrawals, or any permit requirement that has not been completed, including compensation provisions.

2. The Permittee shall submit a new permit application at least 270 calendar days prior to the expiration of this permit if reissuance will be requested.

C. Standard Project Conditions

1. This permit does not constitute, convey, or imply authority to any Permittee to unlawfully or incidentally take any threatened or endangered species that is protected by Virginia laws or regulations, pursuant to § 3.2-1000 through -1011; § 29.1-563 through -570; and 4VAC15-20 *et seq*.

2. The activities authorized by this permit shall be executed in such a manner that any impacts to beneficial uses are minimized. As defined in § 62.1-44.3 of the Code of Virginia, "beneficial use" means both instream and offstream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. The preservation of instream flows for purposes of the protection of navigation, maintenance of waste assimilation capacity, the protection of fish and wildlife resources and habitat, recreation, cultural and aesthetic values is an instream beneficial use of Virginia's waters. Offstream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural uses, electric power generation, commercial, and industrial uses.

3. No activity shall substantially disrupt the movement of aquatic life indigenous to the water body, including those species which normally migrate through the area, unless the primary purpose of the activity is to impound water.

4. Flows downstream of the project area shall be maintained to protect all uses.

5. No activity shall cause more than minimal adverse effect on navigation, and no activity shall block more than half of the width of the stream at any given time.

6. The activity shall not impede the passage of normal or expected high flows, and any associated structure shall withstand expected high flows.

7. All required notifications, reports, and submittals shall include project name and permit number and be submitted electronically to **withdrawal.permitting@deq.virginia.gov**. Alternatively, they can be mailed to the office stated below, unless otherwise directed in writing by the Department subsequent to the issuance of this permit: Department of Environmental Quality, Attn: Compliance Program Manager, Office of Water Permitting, P.O. Box 1105, Richmond VA 23218.

8. All reports required by this permit and other information requested by the Department shall be signed by the Permittee or a person acting in the Permittee's behalf, with the authority to bind the Permittee. A person is a duly authorized representative only if *both* criteria below are met. If a representative authorization is no longer valid because of a change in responsibility for the overall operation of the facility, a new authorization shall be immediately submitted to the Department.

   a. The authorization is made in writing by the Permittee.

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

9. All submittals shall contain the following signed certification statement:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

10. Any fish kills or spills of fuels or oils shall be reported to the Department immediately upon discovery at swroprep@deq.virginia.gov, (276) 676-4800 or https://portal.deq.virginia.gov/v2/prep/search. If the Department cannot be reached, the spill or fish kill shall be reported to the Virginia Department of Emergency Management (VDEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802. Any spill of oil as defined in § 62.1-44.34:14 of the Code of Virginia that is less than 25 gallons and that reaches, or that is

expected to reach, land only is not reportable, if recorded per § 62.1-44.34:19.2 of the Code of Virginia and if properly cleaned up.

11. The Department shall be notified in writing within 24 hours or as soon as possible on the next business day when potential environmentally threatening conditions are encountered which require debris removal or involve potentially toxic substances. Measures to remove the obstruction, material, or toxic substance or to change the location of any structure are prohibited until approved by the Department.

12. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities pursuant to 9VAC25-260.

D. Surface Water Withdrawals

1. Surface water withdrawn from the McClure River and authorized under this permit is to be used for coal dust mitigation and mining operational support within Deep Mine 41

2. The withdrawal of water from the McClure River shall not exceed the following:

    a. A maximum daily withdrawal of 0.215 Mgal/day;

    b. A maximum monthly withdrawal of 6.665 Mgal/month; and

    c. A maximum annual withdrawal of 67.08 Mgal/year.

3. At no time shall the volume of water withdrawn from the McClure River be greater than 10% of the previous day's provisional streamflow as measured by the procedures outlined in Part I D 5.

4. The Permittee shall estimate the previous days streamflow in units of Mgal/day on a daily basis by monitoring the stream flow gages detailed herein and by applying the equation:

    "Qintake = Q_{Gage} x 0.782 x 0.646", where:

    a. Qintake = estimated streamflow at the intake;
    b. $Q_{03208950}$ = the previous day's provisional mean daily flow at the Stream Gaging Station No. 03208950 (Cranes Nest River); and
    c. 0.782 = is the adjustment factor for drainage area; drainage area at the intake divided by the drainage area at the gaging station [52 sq.mi./66.5 sq.mi. = 0.782]
    d. 0.646 is the conversion factor for cubic feet per second (cfs) to Mgal/day.

5. The Permittee shall submit a Drought Management Plan to the Department for review within 180 days (DATE) of permit issuance. Any revisions to the approved plan shall be submitted to the Department for review prior to implementing the change. The plan shall include, at a minimum, the following:

    a. Development of drought stages including when and how each stage will be implemented.

    b. Description of the conservation measures to be implemented during each drought stage.

6. When a drought emergency is declared by the Commonwealth of Virginia in Big Sandy Drought Evaluation Region or by Dickenson County in accordance with the County's Drought Management Ordinance, the Permittee shall implement either the provisions directed by the Commonwealth, the Drought Management Ordinance or the mandatory conservation measures as detailed in *Attachment B* of this permit, whichever is the most restrictive. The Permittee shall be responsible for determining when drought emergencies are declared. The Permittee shall retain records documenting that mandatory conservation measures were implemented during declared drought emergencies.

E. Water Withdrawal Monitoring, Recordation and Reporting Conditions

1. Within 120 days (DATE) of the issuance of this permit, the Permittee shall submit a Monitoring and Operations Plan for Department review. The Plan should specifically address the following:

   a. Procedures for operating the intake to ensure compliance with all water withdrawal conditions of this permit;

   b. Procedures for estimating streamflow in accordance with Part I D 5 including the time of day that the estimate will be made;

   c. A procedure for estimating the previous day's flow at the intake location in the event that Gage No. 03208950 (Cranes Nest River) is damaged, disabled, or discontinued;

   d. Procedures for recording withdrawals as well as all other monitoring and reporting requirements in Part I, including a sample of the reporting form or table that will be used.

2. On each day that pumping occurs, the Permittee must monitor and record the following, for each pump:

   a. Date and time;
   b. Total amount of water withdrawn each day, and
   c. The provisional stream flow in cfs as measured at the Stream Gaging Station No. 03208950 (Cranes Nest River) and the required flow-by as measured in cfs and Mgal/day.

3. The Permittee shall monitor withdrawals from the McClure River on a daily basis using flow totalizer technology to confirm that the withdrawals are in compliance with this permit. Such meters shall produce volume determinations within plus or minus 10% of actual flows. A defective meter or other device must be repaired or replaced within 60 days. A defective meter is not grounds for not reporting the withdrawals. During any period when a meter is defective, generally accepted engineering practice shall be used to estimate withdrawals and the period during which the meter was defective must be clearly identified in the report.

4. The Permittee shall report any withdrawal not in compliance with Parts I D 2 or I D 4 or not in compliance with Parts I D 6 or I D 7 by the fifth (5th) day of the month following the month in which the withdrawal or release occurred. Failure to report may result in compliance or enforcement activities.

5. The Permittee shall submit a water withdrawal monitoring report to the Department semi-annually. The semi-annual monitoring period shall be as follows: January through June and July through December. The daily records shall be tabulated by month. The report shall be submitted to the Department by February 10th and August 10th of every year within the permit term. Submittal of the report may be reported electronically reporting, or another form determined to be acceptable by the Department. The report shall include the following information:

   a. The Permittee's name and address;
   b. The permit number (25-0041);
   c. The source(s) from which water is withdrawn;
   d. The location (latitude and longitude) of each point of water withdrawal;
   e. Information listed in Part I E 2;
   f. The volume of water withdrawn each day (million gallons);
   g. The cumulative volume (million gallons) of water withdrawn each month and for the calendar year;
   h. The maximum daily volume (million gallons per day) of water withdrawn as calculated on the last day of the monitoring period;
   i. In the last report for the calendar year, the largest single day withdrawal volume (million gallons) that occurred in the year and the month in which it occurred;
   j. The method of measuring each withdrawal;
   k. A summary of the dates on which the flow in the McClure River did not meet the required volumes as determined in accordance with Part I D 4; and
   l. If during a semi-annual reporting period a drought emergency is declared, the report shall include a summary of mandatory conservation measures implemented during the drought event.
   m. A report detailing the reason the McClure River withdrawal was utilized in lieu of the other primary water sources onsite.

6. Water withdrawal monitoring and reporting activities shall comply with this section, Part I C, and Part II. All records and information that result from the monitoring and reporting activities required by this permit, including any records of maintenance activities to the withdrawal system, shall be retained for the life of the permit. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or as requested by the Department.

Part II – General Conditions

A. Duty to Comply

The permittee shall comply with all conditions and limitations of the VWP permit. Nothing in this chapter shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, toxic standards, and prohibitions. Any VWP permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for enforcement action, VWP permit termination, VWP permit revocation, VWP permit modification, or denial of an application for a VWP permit extension or reissuance.

Nothing in this VWP permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

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 VWP permit has been granted in order to maintain compliance with the conditions of the VWP permit.

C. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any impacts in violation of the VWP permit that may have a reasonable likelihood of adversely affecting human health or the environment.

D. VWP Permit Actions

A VWP permit may be modified in whole or in part, revoked and reissued, extended, transferred, or terminated in accordance with 9VAC25-210-180 of the Virginia Administrative Code.

1. During the drafting and authorization of a permit modification, only those conditions to be modified shall be addressed with preparing a draft modified permit. VWP permit terms and conditions of the existing permit shall remain in full force and effect during the modification of the permit.

2. This VWP permit may be modified upon the request of the permittee or upon department initiative when any of the following developments occur:

    a. When new information becomes available about the project or activity covered by the VWP permit, including project additions or alterations, that was not available at VWP permit issuance and would have justified the application of different VWP permit conditions at the time of VWP permit issuance;

    b. When a change is made in the promulgated standards or regulations on which the VWP permit was based;

c. When changes occur that are subject to "reopener clauses" in the VWP permit; or

d. When developments applicable to surface water withdrawals occur as specified in 9VAC25-210-380 of the Virginia Administrative Code.

3. When this VWP permit authorizes surface water withdrawals, it may be modified when any of the following developments occur:

a. When the department determines that minimum instream flow levels resulting directly from the permittee's withdrawal of surface water are detrimental to the instream beneficial use, existing at the time of permit issuance, and the withdrawal of surface water should be subject to further net limitations or when an area is declared a surface water management area pursuant to §§ 62.1-242 through 62.1-253 of the Code of Virginia, during the term of the VWP permit.

b. Significant changes to the location of the surface water withdrawal system are proposed such that the Department of Environmental Quality determines a new review is warranted due to the potential effect of the surface water withdrawal to existing beneficial uses of the new location.

c. Changes to the permitted project or the surface water withdrawal, including increasing the storage capacity for the surface water withdrawal, that propose an increase in the maximum permitted withdrawal volumes or rate of withdrawal or that cause more than a minimal change to the instream flow requirements with potential to result in a detrimental effect to existing beneficial uses.

d. A revision to the purpose of the surface water withdrawal that proposes to include a new use or uses that were not identified in the permit application or a modification of the existing authorized use or uses such that the use description in the permit application and permit is no longer applicable. Examples of uses include, but are not limited to agricultural irrigation, golf course irrigation, public water supply, manufacturing, and electricity generation.

4. When the permittee has submitted a timely and complete application for reissuance of an existing VWP individual permit, but through no fault of the permittee, the department does not reissue or reissue with conditions a VWP individual permit or the department does not provide notice of its tentative decision to deny the application before an existing VWP individual permit expires, the conditions of the expiring VWP individual permit shall be administratively continued in full force and effect until the effective date of a reissued permit or the date on which the department denies the application. Timely application shall be a minimum of 180 days for an individual permit or a minimum of 270 days for an individual permit for a surface water withdrawal, unless otherwise specified in the existing permit.

5. Any permittee desiring to continue a previously permitted activity after the expiration date of this VWP permit shall apply for and obtain a new permit or, if applicable, shall request an extension in accordance with 9VAC25-210-180 of the Virginia Administrative Code. Any permittee with an effective VWP permit for an activity that is expected to continue after the expiration date of the

VWP permit, without any change in the activity authorized by the VWP permit other than as may be allowed under 9VAC25-210-180, shall submit written notification requesting an extension. The permittee must file the request 90 days prior to the expiration date of the VWP permit. VWP permit modifications shall not be used to extend the term of a VWP permit beyond 15 years from the date of original issuance. When a permit term, other than that of an Emergency Virginia Water Protection Permit, is less than 15 years, an extension of the permit terms and conditions may be granted in accordance with 9VAC25-210-180. Emergency Virginia Water Protection Permits shall not exceed a duration of one year or shall expire upon the issuance of a regular Virginia Water Protection Permit, whichever comes first.

6. This VWP permit may be transferred to a new permittee only by modification to reflect the transfer, by revoking and reissuing the permit, or by automatic transfer. Automatic transfer to a new permittee shall occur if the current permittee: a) Notifies the department of the proposed transfer of the permit and provides a written agreement between the current and proposed permittees containing the date of transfer of VWP permit responsibility, authorization, and liability to the new permittee; and b) the department does not within 15 days notify the existing permittee of its intent to modify the VWP permit.

7. After notice and opportunity for a formal hearing pursuant to § 62.1-44.15:02 of the Code of Virginia, a VWP permit can be terminated for cause. Reasons for termination for cause are as follows:

   a. Noncompliance by the permittee with any condition of the VWP permit;

   b. The permittee's failure in the application or during the VWP permit process to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

   c. The permittee's violation of a special or judicial order;

   d. A determination by the department that the permitted activity endangers human health or the environment and can be regulated to acceptable levels by VWP permit modification or termination;

   e. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP permit; and

   f. A determination that the permitted activity has ceased and that the compensation for unavoidable adverse impacts has been successfully completed.

8. The department may terminate this permit without cause when the permittee is no longer a legal entity due to death, dissolution, or when a company is no longer authorized to conduct business in the Commonwealth. The termination shall be effective 30 days after notice of the proposed termination is sent to the last known address of the permittee or registered agent, unless the permittee objects within that time. If the permittee does object during that period, the department shall follow the applicable procedures for termination under § 62.1-44.15:25 of the Code of Virginia and 9VAC25-230 of the Virginia Administrative Code.

9. This VWP permit may be terminated by consent, as initiated by the permittee. The permittee shall submit a request for termination by consent within 30 days of completing or canceling all permitted activities and all required compensatory mitigation requirements. When submitted for project completion, the request for termination by consent shall constitute a notice of project completion. The director may accept this termination on behalf of the department. The permittee shall submit the following information:

    a. Name, mailing address, and telephone number;

    b. Name and location of the activity;

    c. The VWP permit number; and

    d. One of the following certifications:

        i. For project completion: "I certify under penalty of law that all activities and any required compensatory mitigation authorized by a VWP permit have been completed. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit."

        ii. For project cancellation: "I certify under penalty of law that the activities and any required compensatory mitigation authorized by this VWP permit will not occur. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit, nor does it allow me to resume the permitted activities without reapplication and issuance of another permit."

        iii. For events beyond permittee control, the permittee shall provide a detailed explanation of the events, to be approved by DEQ, and the following certification statement: "I certify under penalty of law that the activities or the required compensatory mitigation authorized by this VWP permit have changed as the result of events beyond my control (see attached). I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit, nor does it allow me to resume the permitted activities without reapplication and issuance of another permit.

E. Inspection and Entry

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 conduct the actions listed in this section. 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.

1. Enter upon any permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the VWP permit conditions;

2. Inspect any facilities, operations or practices (including monitoring and control equipment) regulated or required under the VWP permit; and

3. Sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP permit or as otherwise authorized by law.

F. Duty to Provide Information

The department may request (i) such plans, specifications, and other pertinent information as may be necessary to determine the effect of an applicant's discharge on the quality of state waters or (ii) such other information as may be necessary to accomplish the purposes of this chapter. Any owner, permittee, or person applying for a VWP permit or general permit coverage shall provide the information requested by the department.

G. Monitoring and Records Requirements

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 (2017), Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. 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 VWP permit, and records of all data used to complete the application for the VWP permit, for a period of at least three years from the date of permit expiration. This period may be extended by request of the department at any time.

4. Records of monitoring information shall include:

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

b. The name of the individuals who performed the sampling or measurements;

c. The date and time the analyses were performed;

d. The name of the individuals 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.

H. Property rights

The issuance of a VWP permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize injury to private property or any invasion of personal rights or any infringement of federal, state or local laws or regulations.

I. Reopener

This VWP permit may be reopened for the purpose of modifying the conditions of the VWP permit to meet new regulatory standards duly adopted by the board. Cause for reopening VWP permits includes, but is not limited to when the circumstances on which the previous VWP permit was based have materially and substantially changed, or special studies conducted by the board or the permittee show material and substantial change, since the time the VWP permit was issued and thereby constitute cause for VWP permit modification or revocation and reissuance.

J. Compliance with State and Federal Law

As to the permitted activity(ies), compliance with a VWP permit constitutes compliance with the VWP permit requirements of the Law and regulations.

K. Severability

The provisions of this VWP permit are severable.

L. Oil and Hazardous Substance Liability

Nothing in this VWP permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

M. Unauthorized Discharge of Pollutants

Except in compliance with a VWP permit, unless the activity is otherwise exempted or excluded, no person shall dredge, fill, or discharge any pollutant into, or adjacent to surface waters; withdraw surface water; otherwise alter the physical, chemical, or biological properties of state waters regulated under this chapter and make them detrimental to the public health, to animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses; excavate in wetlands; or on or after October 1, 2001, conduct the following activities in a wetland:

1. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;

2. Filling or dumping; or

3. Permanent flooding or impounding.

PERMIT DECISION RATIONALE
Virginia Water Protection Individual Permit No. 25-0041
Deep Mine 41, Dickenson County, Virginia

This document provides the pertinent information concerning the legal basis, scientific rationale, and justification for the reissuance of the VWP permit listed below. The Department of Environmental Quality (Department or DEQ) has reviewed the application for the Virginia Water Protection (VWP) Individual Permit Number 25-0041 and has determined that the project qualifies for an individual permit. Based on the information provided in the application and in compliance with (§ 401 of the Clean Water Act as amended (33 USC 1341 et seq.)) the State Water Control Law and regulations, the Department has determined that there is a reasonable assurance that the activity authorized by this permit will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to significant impairment of state waters or fish and wildlife resources, provided the Permittee complies with all permit conditions. Surface water impacts have been avoided and minimized to the maximum extent practicable.

Approved:

_____
Bryant Thomas
Interim Director, Water Division

_____
Date

The following details the application review process and summarizes relevant information for developing the Part I - Special Conditions for permit issuance.

1. Contact Information:

Permittee / Legal Responsible Party

Tressa Glass
Paramont Contura LLC
5703 Crutchfield Drive
Norton, VA 24273
(276) 679-7050
TGlass@alphametresources.com

Facility Name and Address

Deep Mine 41
269 Lonnies Lane
McClure, VA 24269
Dickenson County

Agent Legal Name and Address:

Lance DeBord
Artemis Consulting Services
PO Box 1085
Abingdon, VA 24212
(276) 791-9697
ldebord@artemisllc.com

2. JPA Processing Dates:

Pre-Application Meeting Held:	06/21/2024
DEQ Received Application from VMRC:	02/05/2025
Request for Additional Information Sent:	02/20/2025
Response to Request for Additional Information Received:	02/24/2025
Permit Fee Marked Paid:	02/24/2025
Coordination with State and Federal Agencies:	02/25/2025
Application Deemed Complete:	02/25/2025
Notice of Application sent to Local Government(s):	02.25/2025
Notice of Application sent to Tribal Nations:	02/25/2025
Draft Permit Package Issued:	Date
Public Notice Published:	Date
Received Verification of Publication:	Date
End of 30-Day Public Comment Period:	Date
Date of Public Meeting or Hearing [If applicable]:	Date

3. Project Location:

The site is located on the McClure River floodplain north of St. Paul, Virginia off County Road 643. Site coordinates and locational information is provided below.

City/County: McClure/Dickenson
Waterbody: McClure River
Basin: Big Sandy
Subbasin: Upper Levisa Fork
Section: 4
Class: IV
Special Standards: None
HUC: 05070202
Latitude & Longitude: Intake: 37.09286328, -82.37377797 | Project: 37.092916, -82.373625
U.S.G.S. Quadrangle: Caney Ridge

4. Project Description:

Project Purpose/Description

The Applicant, Paramont Contura LLC, currently owns and operates a mining site in Dickenson County designated as Deep Mine 41. The Applicant is seeking a renewal and modification of their surface water withdrawal permit, VWP Permit No. 09-0883, which authorized a maximum withdrawal of 0.25 million gallons (Mgal) per day and 91.25 Mgal/year from the McClure River. In this application, VWP No. 25-0041, the Applicant is seeking to reduce the amount of water withdrawn from the McClure River and change it from the primary water source to a backup source. The requested maximum withdrawal is 0.215 Mgal/day, 6.665 Mgal/month, 67.08 Mgal/year, at up to 220 gallons per minute (gpm). This water will serve as a backup source of water in an emergency situation or if access to groundwater from the mine no longer provides the necessary amount to support operation.

Groundwater pumped from the mine has been able to support underground operations resulting in less need to rely on withdrawals from the McClure River. Currently, Deep Mine 41 utilizes approximately 0.43 Mgal/day and 134.16 Mgal/year of groundwater to support dust control within the mine. In the event that this water becomes unavailable or inadequate to support the activity, the mine would operate at a limited capacity by limiting withdrawals to 50% of full operational demand at 0.215 Mgal/day and 67.08 Mgal/year. The Applicant calculated the requested withdrawal limits to meet demand for six months to provide time for remediation of any loss of the groundwater source. No changes are expected for the current water supply system and no construction is requested or authorized.

Existing Water Supply System

The existing water supply system consists of an intake on the McClure River where water is pumped up to 220gpm through an intake screen with 1 millimeter (mm) mesh and a maximum approach velocity, measured across the entire intake screen as six inches or closer, of 0.25 feet per second (fps) meeting current intake standards protective of aquatic species recommended by the Department of Wildlife Resources (DWR). The water from the McClure River is pumped directly into the mine where it is sprayed through continuous miner heads to control dust within the mine, mitigating coal dust and human health hazards.

Permit History

DEQ issued VWP Permit 09-0833 on December 7th, 2009, authorizing surface water withdrawals from the McClure River located in Dickenson County. The withdrawal limitations were set at 0.25Mgal/day and 91.25Mgal/year, with the instantaneous withdrawal rate not to exceed 220 gallons per minute. Authorized impacts of this permit were 590 square feet of temporary impacts and 53 square feet of permanent impacts to jurisdictional waters of the McClure River for the purposes of constructing a containment structure for a submersible intake. All construction has been completed, and no additional impacts are proposed in the application for reissuance.

5. Project Purpose & Need:

Purpose of Water Uses and Basis of Need

Pursuant to 9VAC25-210-360, the Applicant shall demonstrate to the satisfaction of DEQ that the project meets an established need for water to meet the project purpose. As described by the Applicant in the revised Joint Permit Application submitted on February 5th, 2025, the surface water withdrawal in the upcoming permit term will continue to serve as coal dust mitigation within Deep Mine 41. Deep Mine 41 primarily meets water demands through groundwater pumped from the mine, the Mclure River intake is a backup water source, and no surface water has been withdrawn since 2022. The Applicant proposes to maintain the surface water withdrawal for emergency precautions. The Applicant provided examples of emergency scenarios when surface water withdrawal would be required in the Joint Permit Application that include but are not limited to:

- With other mining projects and abandoned deep mines in the nearby vicinity of Deep Mine 41, a fracture between the works could cause dewatering within Deep Mine 41. This would result in the need to withdraw surface water from the McClure River intake.

- Should the underground structure change to an up-dip direction, or the floor seam changes to a more porous material during project progression, water from within the mine could become unavailable or inadequate to fully support dust control operations. This would require the mining operations to partially, or fully, rely on surface water withdrawals to maintain coal dust mitigation.

- Mine Safety and Health Administration (MSHA) may require dewatering of the mine for the purposes of safety, ventilation, or a combination of the two; resulting in the need for water withdrawal from the McClure River.

- In the event that underground water quality changes and begins to clog miner spray heads, surface water will need to be used to adequately mitigate coal dust and prevent complications.

Water Need: Demand Projection

The Department permits water withdrawals to meet the justified water demands over the 15 year permit term. DEQ evaluated the Applicant's demand projections from the JPA and supplemental information

provided during the application process. Paramont Contura LLC is proposing a reduction in permitted surface water withdrawal limits for Deep Mine 41, which are displayed in the table below:

	VWP Permit No. 09-0833 Withdrawal Limitations	VWP Permit No. 25-0041 Withdrawal Limitations
Maximum Day Volume (Mgal/d)	0.25	0.215
Maximum Monthly Volume (Mgal)	7.75	6.665
Maximum Annual Volume (Mgal)	91.25	67.08
Maximum Instantaneous Withdrawal (Gallons Per Minute)	220	220

As reported by the Applicant and stated in the Joint Permit Application, Deep Mine 41 utilizes a maximum of 0.43 Mgal/day. During standard operation of six days per week, this maximum daily usage equates to 134.16 Mgal/year. Groundwater is the primary water source supporting mining operations, and the Applicant projects that there will be limited need for withdrawal from the McClure River over the permit term. However, due to the nature of operation, groundwater within Deep Mine 41 may not be a reliable water supply source to meet mining operation demands if conditions within the mine change. Should groundwater become an unreliable water source, the Applicant would operate the mine at 50% capacity utilizing surface water withdrawals from the McClure River to support limited operation until normal operation can resume. Hence, the Applicant requests a maximum withdrawal from the McClure River of 0.215 Mgal/day, 6.665 Mgal/month, and 67.08 Mgal/year.

6. Alternatives for Surface Water Withdrawals Evaluated to Meet the Water Need (Establishing the Least Environmentally Damaging Practicable Alternative):

Pursuant to 9VAC25-210-360 3 c, the Applicant is required to evaluate each alternative to surface water withdrawals for the purpose of establishing the least environmentally damaging practicable alternative. The Applicant considered multiple alternatives as part of their application. All proposed alternative water sources for Deep Mine 41 are discussed below:

- Groundwater from Deep Mine 41: Currently, groundwater pumped from within Deep Mine 41 is used as the primary source of water for coal dust mitigation. This has resulted in no surface water withdrawals from the McClure River since 2022. However, surface water withdrawals remain the primary backup to groundwater. In the event that groundwater pumped from the mine becomes inadequate, surface water withdrawals will be used to supplement, or fully replace, the water used for dust mitigation. During the upcoming permit term groundwater will continue to be used as the primary source of water for dust mitigation, and the primary alternative to surface water withdrawals.

- Surface Water Withdrawal from a Nearby Waterway: The Applicant analyzed the potential of using a nearby waterway to supplement, or fully replace, water withdrawals from the McClure River. This alternative was found to be infeasible by the Applicant due to the inability of nearby waterways to provide the necessary volume of water. In addition, these nearby waterways are subject to higher flow variation and seasonal flow reductions, meaning withdrawals from these systems would have a greater impact than withdrawals from the McClure River. This alternative would also require construction of a new instream surface water withdrawal system, leading to associated financial costs and environmental impacts.

- Ponds and Storage Tanks: Pond No. 3 is currently onsite for the purposes of runoff control and to allow for sedimentation. Additionally, there are above ground and underground water storage tanks with a capacity of 10,000 gallon (gal) and 7,000gal respectively. Assuming Pond No. 3 is at full capacity, the combined storage of the pond and storage tanks is 85,430 gallons. This equates to less than 20% of the daily water demand within the mine. To make this an effective water source new ponds would need to be constructed to meet water demand. These additional ponds would require an application to, and approval from, the Virginia Department of Energy due to sedimentation requirements of water pumped from the disturbed mining area. Construction of these ponds would result in associated environmental impacts and fiscal costs. Additionally, the ponds would need a water source to maintain capacity.

- Municipal Water Purchases: Based on the Cumberland Plateau District Commission Regional Water Supply Plan, Dickenson County Public Service Authority (DCPSA) would provide Deep Mine 41 with municipal water. DCPSA has an annual demand of approximately 310.1 Mgal after system loss. The requested 67.1 Mgal/year would be a significant increase on existing municipal demand, would not account for system loss, and construction of appropriate infrastructure to deliver the water would have significant fiscal costs with associated environmental impacts. The cost to purchase the water from the DCPSA would be approximately $18,700 monthly, equating to an annual cost of $224,000 making this alternative fiscally impractical.

- Groundwater Wells: Due to the location of the mine, a well with a reliable groundwater source would need to be drilled an estimated 200+ vertical feet. This would result in an estimated fiscal cost of $8,000 for the drilling of the well. In addition, a single ten horsepower pump capable of 70 gallons per minute with the appropriate head would cost an estimated $5,500. One of these systems would provide approximately 15% of the required volume, resulting in the need for multiple pumps to make this alternative feasible. The water would then need to be treated to mitigate potential clogging of miner spray heads, due to the high level of metals in groundwater in this region. This would bring an additional chemical cost estimated by the Applicant to be $3,000 per month, making this alternative also fiscally impractical.

7. Evaluating Water Withdrawal Volumes Based on Beneficial Use Impacts and Flow-by/Release Requirements:

§ 62.1- 11 E establishes that the "right to the use of water or to the flow of water in or from any natural stream, lake or other watercourse in this Commonwealth is and shall be limited to such water as may reasonably be required for the beneficial use of the public to be served." The Department is directed by § 62.1-44.15:22 to establish limits that preserve instream flow "to the volume of water that may be withdrawn as a part of the permitted activity and conditions necessary to protect beneficial uses."

Pursuant to 9VAC25-210-370 B 3, the Department shall take into consideration the combined effect on the hydrologic regime of the surface water within an affected stream reach due to consumptive water uses in the development of instream flow conditions for new withdrawals. Further, 9VAC25-210-370 D 1 requires a determination that the amount of the surface water withdrawal is limited to the amount of water that can be put to beneficial use.

<u>Department Recommended Withdrawal Limitations</u>

VWP Permit No. 25-0041 limits surface water withdrawals to the volume justified based upon the application materials submitted and modeling analyses. DEQ concluded that the water demand and statement of need is reasonable and has been adequately justified by the application through the information submitted in the VWP permit application process. Based upon this information, the permit proposes the following limits on the withdrawal volumes:

- Maximum Instantaneous: 220 gpm
- Maximum Daily: 0.215 Mgal
- Maximum Monthly: 6.665 Mgal
- Maximum Annual: 67.08 Mgal

Based on the material provided in the JPA, as supplemented by the Applicant, and the applicable permit term for the proposed withdrawal to be put to beneficial use, DEQ has determined the proposed withdrawal volumes for the project, as limited in the permit, complies with applicable standards identified in 9VAC25-210-370 D 1.

Return Flow / Consumptive Use

Water withdrawn from the McClure River for dust mitigation within Deep Mine 41 is utilized underground. Therefore, the utilized water remains underground and is not directly returned to the watershed which it was withdrawn from, resulting in 100% consumptive use.

Cumulative Impact Analysis

A cumulative impact analysis (CIA) was conducted by DEQ using the withdrawal volumes requested, maintaining a 90% flowby, the current water supply system, and cumulative impacts to existing beneficial uses and existing water users. Based upon the results of the analysis, DEQ determined the proposed project as limited in the permit, will protect existing beneficial uses while meeting the Applicant's purpose and need. The CIA is attached to this permit as Attachment A and a summary of the analysis is below.

The CIA analyzed the ability of the McClure River, at the intake location, to provide 0.215 Mgal/day, 6.665 Mgal/month, and 67.08 Mgal/year of surface water while maintaining the 90% flowby requirement where only 10% of the instantaneous flow at the intake location can be withdrawn. This assessment concluded that 99% of days in the historical period used (1984-2014) could provide the requested daily withdrawal limit while maintaining a 90% flowby. Per the CIA, the maximum 30-day unmet demand from the annual maximum withdrawal of 64.6 Mgal/year was only 0.1 Mgal. The 0.215 Mgal/day withdrawal exceeded 10% of the streamflow in the simulation only during periods of extreme drought. Notably, peak unmet demand was simulated during a historical period in which the model under-simulates baseflow and could be a conservative estimate of water availability. In addition, no impacts are anticipated to downstream beneficial uses or aquatic life at the requested withdrawal amounts. Therefore, the requested amounts have been determined as viable by DEQ.

Flow-by and Inflow Release Requirements

Through the analysis conducted by DEQ and in coordination with the Virginia Department of Wildlife Resources (DWR), a 90% flowby of the instantaneous flow was recommended for the intake on the McClure River. See Section 10 for more information regarding coordination with DWR.

8. Water Supply Plan Review:

The Department is required by § 62.1-44.15:20 C to give full consideration to any relevant information contained in the state water supply plan described in Subsection A of § 62.1-44.38:1. The Southwestern Virginia Regional Water Supply Plan 2011, submitted for Dickenson County, was developed in accordance with the Water Supply Planning Regulation 9VAC25-780. These plans provided the basis of review for the proposed project.

Paramont Contura LLC – Deep Mine 41 was not included in the regional water supply plan demand projections and could not be considered in the evaluation of this permit request.

9. Impacts to State Waters:

There are no proposed impacts to state waters for the reissuance of this permit. VWP Permit No. 25-0041 does not authorize any impacts to state waters over the 15-year permit term. Should this change and the Applicant requires construction beyond routine maintenance that does impact state waters, the Applicant will be required to go through a permit modification process with the Department of Environmental Quality.

10. Relevant Regulatory Agency Comments:

As required by § 62.1-44.15:20 C and the joint permit application review process, DEQ consulted the appropriate state regulatory agencies and coordinated with various federal regulatory agencies, including the Department of Wildlife Resources, the Department of Conservation and Recreation, the Virginia Marine Resources Commission, the Department of Health, and the U.S. Army Corps of Engineers (USACE). Agencies had 45 days to submit written comments on the proposed permit application after notification by the Department. All written agency comments received were given full consideration and addressed in the VWP individual permit Part I - Special Conditions.

<u>Summary of State Agency Comments and Actions</u>

Comments were requested from the following state agencies on February 25th, 2025: Virginia Department of Wildlife Resources, Virginia Department of Conservation and Recreation (DCR), Virginia Marine Resources Commission (VMRC) and the Virginia Department of Health (VDH). Failure to provide comments within 45 calendar days of the DEQ request for comments infers that the agency has no comments on the project activities. Comments received by agencies are summarized below.

<u>Virginia Department of Health</u>

VDH provided comments on March 4th, 2025, their comments include no issue with the withdrawal volume requested, as no public raw water intakes were found downstream of the intake at Deep Mine 41 for over 20 miles. VDH would like to receive a record of the final permit for record keeping purposes.

These comments were forwarded to the Applicant by DEQ. No conditions were changed or included in the permit as a result of the comments. DEQ will forward a copy of the final permit to VDH upon issuance.

Virginia Marine Resources Commission

VMRC did not provide comments for VWP Application No. 25-0041. DEQ and VMRC received the revised Joint Permit Application for this project from the Applicant on February 5th, 2025, VMRC does not require a permit for this project.

These comments were forwarded to the Applicant by DEQ. No conditions were changed or included in the permit as a result of the comments.

Virginia Department of Wildlife Resources

DWR provided comments on April 21st, 2025, their comments include:

- The McClure River in which the intake pump for Deep Mine 41 is located is designated as Threatened and Endangered Species Water due to the presence of Big Sandy Crayfish. To protect this resource, DWR recommends the intake adheres to a 1mm mesh size, and a 0.25fps maximum approach velocity. In addition, no withdrawal shall exceed 10% of instantaneous streamflow.

- DWR notes the project location is in an area where the federally and state endangered Northern Long-Eared Bat, and the federally proposed, state endangered, Tri-Color Bat species are present.

- DWR recommends coordination with US Fish and Wildlife Service due to the presence of endangered species.

These comments were forwarded to the Applicant by DEQ. As a result of these comments, and to maintain DEQ permitting requirements, a permit condition limiting withdrawals to 10% of instantaneous flow at the intake location was included in the permit.

Virginia Department of Conservation and Recreation

DCR provided comments on April 10th, 2025, their comments include:

- The McClure River - Crooked Branch Stream Conservation Site (SCS) is within the project area. This SCS has been given a B-rank of B3, indicating high significance due to the presence of the Big Sandy Crayfish and the potential presence of the Spiny Scale Crayfish.

- Threats to the species listed above include degradation of water quality due to mining activity which may lead to increased sediment, water temperatures, and/or pollutant loads. Due to this, DCR recommends that any onsite disinfection use UV/Ozone technologies instead of chlorination treatments, and the utilization of the least environmentally damaging procedures as new technology becomes available.

- In addition, DCR recommends coordination with US Fish and Wildlife Service and Virginia Department of Wildlife Resources.

- Should the project scope change, updated information must be submitted to DCR for re-evaluation.

- Deep Mine 41 does not fall within any State Natural Area Preserves.

These comments were forwarded to the Applicant by DEQ. No conditions were changed or included in the permit as a result of the comments.

Summary of Federal Agency Comments and Actions

No comments were provided by federal agencies for VWP Permit No. 25-0041.

Summary of Tribal Nations Comments:

The Department issued a Notice of Proposed Project Letter on February 25th, 2025, to the following recognized Tribal Nations: Chickahominy Tribal Nation Eastern Division, Chickahominy Tribal Nation, Monacan Tribal Nation, Nansemond Tribal Nation, Pamunkey Tribal Nation, Rappahannock Tribal Nation, and the Upper Mattaponi Tribal Nation. No comments from Tribal Nations were received by the Department of Environmental Quality.

11. Public Involvement during Application Process:

Pre-Application

In accordance with 9VAC25-210-320 B of the VWP Permit Program regulations, Applicants proposing new or expanded surface water withdrawals requiring an individual VWP permit to withdraw 90 million gallons a month or greater shall provide information on the project, an opportunity for public comment on the proposed project, and shall assist in identifying public concerns or issues prior to filing a VWP individual permit application unless the Applicant has held a public meeting within two years prior to the submittal of an application for a VWP permit on a local or regional water supply plan, which includes the proposed project.

The Applicant is not proposing new or expanding surface water withdrawals greater than 90 million gallons per month. Therefore, preapplication public notice was not required.

Riparian/Adjacent Landowner Notification and Local Government

Riparian or adjacent landowner notification was not required in accordance with § 62.1-44.15:4. The Dickenson County administrator and Board of Supervisors were notified of the reissuance via a letter dated February 25th, 2025.

Public Meetings

Summarize any public meetings held during the JPA process.

12. Public Comments received during Comment Period: AND/OR

13. Changes in Permit Part I - Special Conditions Due to Public Comments:

The public notice was published in Name of Newspaper on DATE. The public comment period ran from DATE (*day of publication*) through DATE.

OR

[No public comments were received during the public comment period. Therefore, no changes have been made to the permit conditions.]

If comments are received, summarize. See 10-2001(fact sheet in template folder) for an example.

14. General Conditions:

General Conditions are applied to all VWP individual permits, as stated in the VWP Permit Program regulation 9VAC25-210-90.

15. General Standard:

This project may result in minimal, temporary impacts to beneficial uses related to the propagation and growth of aquatic life as defined in the General Standard. Provided the Permittee abides by the conditions of the permit, no substances shall enter state waters in concentrations, amounts or combinations that would contravene established standards or interfere with beneficial uses or are inimical or harmful to human, animal, plant, or aquatic life.

16. DEQ Finds That:

- The proposed activity is consistent with the provisions of the Clean Water Act and State Water Control Law and will protect beneficial uses.
- The amount of the surface water withdrawal is limited to the amount of water that can be put to beneficial use.
- The permit addresses avoidance and minimization of surface water impacts to the maximum extent practicable.
- Based on the size and location of the surface water withdrawal, the withdrawal is not likely to have a detrimental impact on existing instream or off stream uses.
- The effect of the impact will not cause or contribute to a significant impairment of state waters or fish and wildlife resources; adverse impacts on other existing beneficial users; or a violation of water quality standards.
- The proposed permit conditions address no net loss of wetland acreage and function through compensatory mitigation.
- This permit is intended to prevent unpermitted impacts.
- The permit reflects the required consultation with and full consideration of the written recommendations of VMRC, VDH, VDACS, DCR and DWR.

DEQ recommends VWP Individual Permit Number 25-0041 be issued as proposed.

Attachment A - Cumulative Impact Analysis for Full Permit Run - Paramont Deep Mine 41, McClure

06/05/2025

1. Project Introduction

Paramont Contura LLC owns and operates an intake on the McClure River within Dickenson County for the purposes of supporting mining operations and dust control on their Deep Mine 41 project. The project is located at 269 Lonnies Lane, McClure, VA 24669.

1.1. Location Map

No location map available for this facility model

2. Model Overview and Scenario Descriptions

River Model Description This modeled segment (CBP model segment BS3_8580_8440) simulates the McClure River . The total drainage area at this location is approximately 107.6 square miles. In the simulation period from 1984-2014, the model provides good fit for mean flow conditions and moderate drought conitions, but under-simulates flow during extreme drought periods in 1999 and 2007. The result of the model low-flow error in this location provides for a conservative estimate of available water, so, actual unmet demand will likely be less than that simulated providing a margin of safety against future, more severe droughts. However, given that the USGS gage used to assess model calibration is far downstream from this river segment, it is considered prudent to evaluate the modeled water availability as-is, without an attempt at bias correction. Future modeling work will endeavor to improve low-flows at the downstream gage, which should result in better simulation at this upstream location as well.

Facility & Intake Model Description Deep Mine 41:McClure River is simulated as a direct intake from McClure River (CBP model segment BS3_8580_8440). The drainage area at the intake is estimated to estiated to be 52.9 square miles(sqmi). While the project does have a small impoundment for stored water, the amount is less than 13% of the maximum day demand, and is therefore omitted from this simulation.

The following model scenarios were simulated in order to determine the most effective means of meeting the project need and all other in-stream beneficial uses:

- **Current Permit VWP VWP 09-0833** (VWP 09-0833) - This scenario simulates the existing permit with an average diversion of 0.2 million gallons per day(MGD) / 91 million gallons per year (MGY), and a 90% flowby at the intake, based on the previous days estimated flow.
- **Proposed Permit VWP 25-0041** (VWP 25-0041) - This scenario simulates the existing permit with an average diversion of 0.2 MGD / 65 MGY and a 90% flowby at the intake, based on the previous days estimated flow.

2.1. Table of Modeled Demand Limits:

Description	VWP 09-0833	VWP 25-0041
Average Daily Volume (MGD)	0.25	0.18
Peak Day Volume (MGD)	0.25	0.22
Maximum Annual Volume (MG)	91.25	67.08

Historical Intake Flows and Drought Flow Indicators

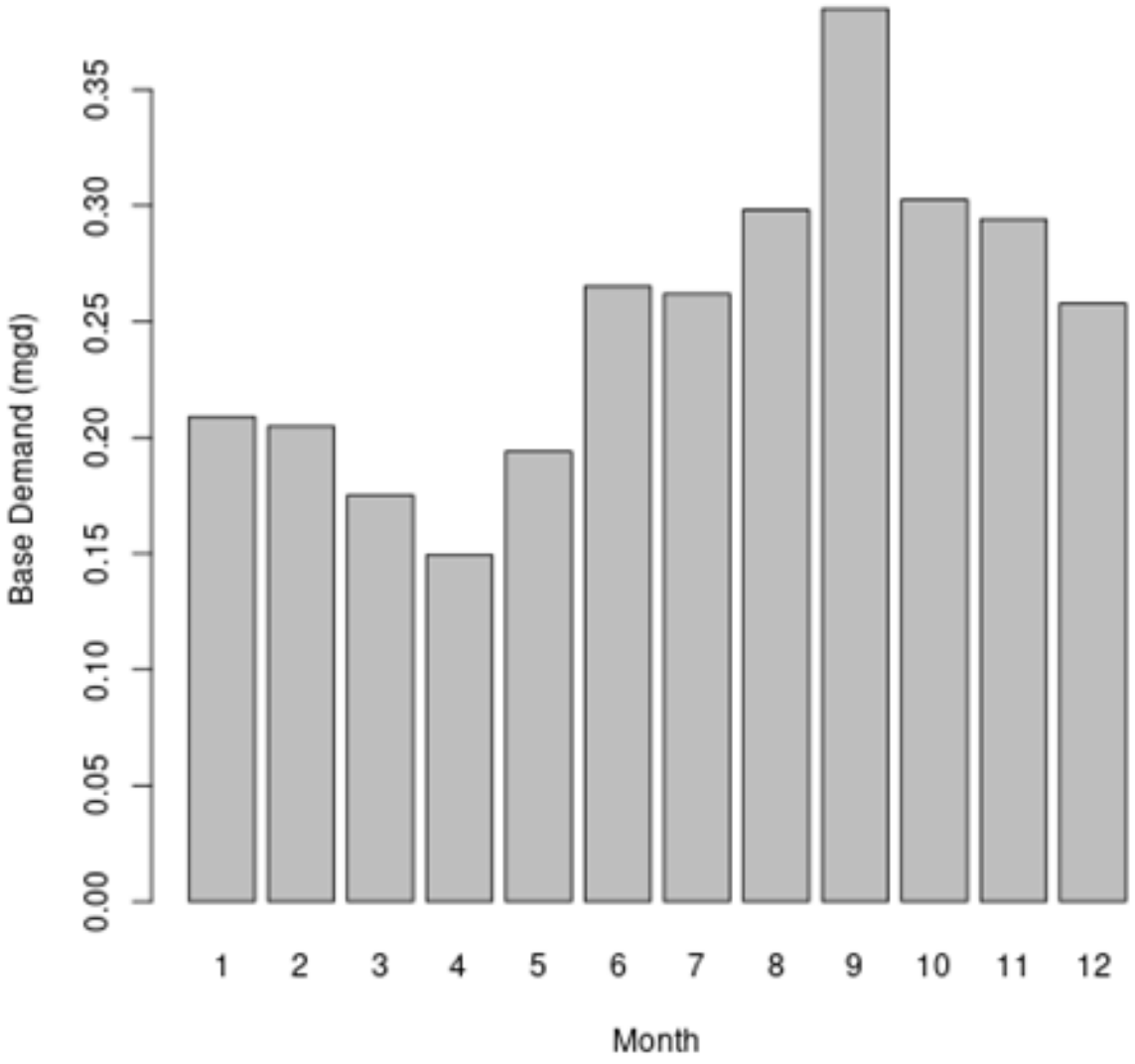
The VAHydro model is used to estimate flows at the project intake, including the impact of all cumulative withdrawals and discharges upstream of the intake location and are presented in Table 1. The Virginia Drought Assessment and Response Plan[1] employs non-exceedance flow percentiles as indicators of drought conditions at particular stream-gaging stations used to monitor drought conditions. Representative daily streamflows above the 25th percentile for return flow frequency represent normal conditions with respect to drought. Representative daily streamflows between the 10th and 25th percentiles represent drought watch conditions. Representative daily streamflows between the 5th and 10th percentiles represent drought warning conditions. Representative daily streamflows below the 5th percentile indicate drought emergency conditions.

Month	Min	5%	10%	25%	30%	50%	Mean
Jan	3.2	9.7	19.9	37.8	42.9	59.2	70.0
Feb	10.1	20.7	28.1	42.1	48.6	70.5	89.2
Mar	10.7	24.2	31.9	46.4	52.5	72.9	92.5
Apr	10.1	15.7	19.9	33.6	37.9	57.8	84.5
May	2.8	11.6	15.2	21.7	23.9	36.3	47.8
Jun	1.9	5.7	8.2	13.9	15.9	23.8	34.5
Jul	0.8	6.0	9.7	15.1	16.6	21.8	24.9
Aug	1.3	4.0	6.0	11.7	13.1	19.1	22.6
Sep	0.3	1.9	3.1	8.2	9.6	15.3	24.1
Oct	0.8	3.3	5.7	9.1	10.1	15.2	26.4
Nov	0.5	3.5	5.1	13.4	16.9	27.5	36.3
Dec	0.8	7.0	11.9	22.6	25.7	42.1	62.4

Table 1: Modeled monthly current flow statistics for McClure River in cubic feet per second (cfs). Columns show the minimum (Min) and average (Mean) modeled flow, and a range of non-exceedance flow percentiles, that is, the percent of flows that do *not* exceed the given value. For example, the "10%" states that only 10% of flows in the given month are expected to be less than the indicated value, and therefore, 90% of the flows in that month are expected to be greater than the given value. For example, in the table below the 10% column states that 10% of flows within the month of January would be less than 20 cfs.

[1] Virginia Drought Assessment and Response Plan, developed by the Drought Response Technical Advisory Committee in response to Executive Order #39, March 28, 2003.

2.2. Current Facility Base Demand Before Conservation: Current Permit VWP VWP 09-0833



3. Results

3.1. Summary

Presented below are 2 scenarios to examine the alternatives for this permit re-issuance. A summary of how permit rules affect available water for this permit, and how this operation may impact instream beneficial uses, and other downstream water withdrawals is presented.

- **Current Permit VWP VWP 09-0833** - This simulation estimates a maximum 30-day unmet demand of 0.2 from the simulated total annual demand of 91.18 MGY. The intake demand represents 100 % of the cumulative watershed withdrawal use at this point in the river.

- **Proposed Permit VWP 25-0041** - This simulation estimates a maximum 30-day unmet demand of 0.1 from the simulated total annual demand of 64.6 MGY. The intake demand represents 100 % of the cumulative watershed withdrawal at this location.

3.2. Conclusion

- **Proposed Permit VWP 25-0041** - This proposed scenario meets the requested maximum demands in over 99% of the days simulated. While some periods of unmet demand were projected, including a maximum 30-day unmet demand of 0.1 from the simulated total annual demand of 64.6 MGY, it is important to note that this peak unmet demand is during a historical period in which the model under-simulates baseflow, and thus this could be a conservative estimate of water availability. However, given that the USGS gage used to assess model calibration is far downstream from this intake, it is reasonable to assume that the modeled conservation reductions could be necessary in a future drought, and therefore, reliance on groundwater or stored water for a period of up to 30 days during extreme drought conditions could be necessary.

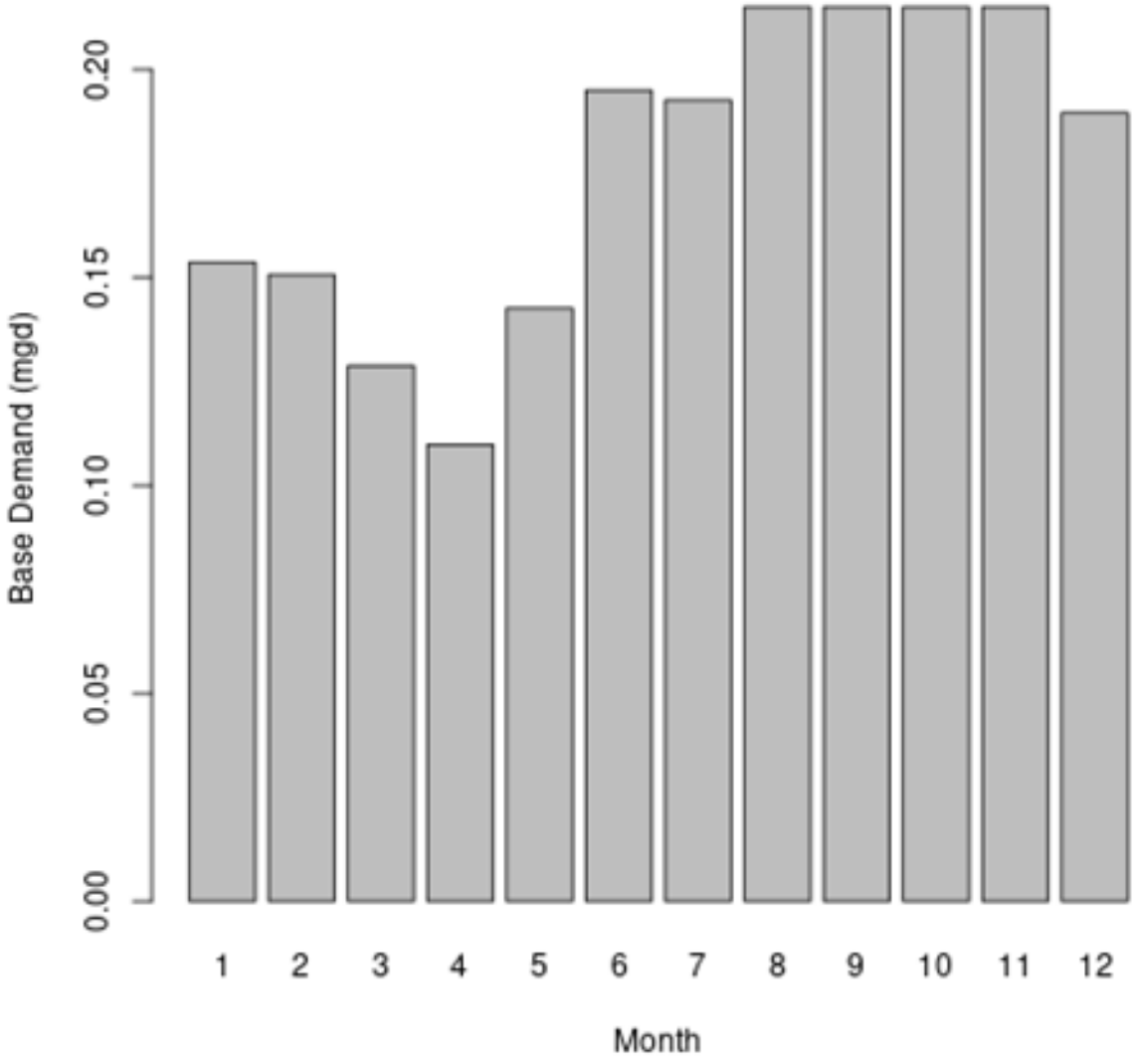
3.2.1. Consumptive Use Table for Proposed Scenario

Modeled monthly consumptive use statistics in the McClure River in cubic feet per second (cfs). Columns show the modeled non-exceedance flow percentiles and the net % flow change due to cumulative demands for Proposed Permit VWP 25-0041 . Simulated demands include all up-stream demands and demands at McClure River and all upstream point-source flows. Fields that are marked as 'n/a' indicate that the baseline flow for that time period/percentile was below the model accuracy threshold of 0.1 cfs.

Month	Min	5%	10%	25%	30%	50%	Mean
Jan (Jan%)	6.6 (-3%)	19.8 (-1%)	40.6 (-1%)	77 (-0%)	87.4 (-0%)	120.7 (-0%)	142.6 (-0%)
Feb (Feb%)	20.6 (-1%)	42.2 (-1%)	57.4 (+0%)	85.8 (+0%)	98.9 (+0%)	143.5 (+0%)	181.6 (+0%)
Mar (Mar%)	21.9 (-1%)	49.3 (+0%)	65 (+0%)	94.5 (+0%)	107 (+0%)	148.5 (+0%)	188.3 (+0%)
Apr (Apr%)	20.6 (-1%)	32 (-1%)	40.6 (+0%)	68.4 (+0%)	77.2 (+0%)	117.8 (+0%)	171.9 (+0%)
May (May%)	5.9 (-3%)	23.6 (-1%)	30.9 (-1%)	44.2 (+0%)	48.7 (+0%)	73.9 (+0%)	97.4 (+0%)
Jun (Jun%)	3.9 (-5%)	11.7 (-2%)	16.8 (-2%)	28.3 (-1%)	32.4 (-1%)	48.5 (-1%)	70.4 (+0%)
Jul (Jul%)	1.7 (-6%)	12.3 (-2%)	19.7 (-1%)	30.8 (-1%)	33.9 (-1%)	44.4 (-1%)	50.9 (-1%)
Aug (Aug%)	2.6 (-6%)	8.3 (-4%)	12.3 (-3%)	23.9 (-1%)	26.8 (-1%)	39.1 (-1%)	46.2 (-1%)
Sep (Sep%)	0.5 (-8%)	3.8 (-5%)	6.4 (-5%)	16.9 (-2%)	19.9 (-2%)	31.3 (-1%)	49.3 (-1%)
Oct (Oct%)	1.6 (-6%)	6.7 (-4%)	11.8 (-3%)	18.7 (-2%)	20.6 (-2%)	31 (-1%)	53.9 (-1%)
Nov (Nov%)	0.9 (-6%)	7.3 (-4%)	10.5 (-3%)	27.5 (-1%)	34.5 (-1%)	56.1 (-1%)	74 (+0%)

Month	Min	5%	10%	25%	30%	50%	Mean
Dec (Dec%)	1.6 (-6%)	14.4 (-2%)	24.2 (-1%)	46.1 (-1%)	52.4 (-1%)	85.7 (+0%)	127 (+0%)

3.2.2. Demand Chart for Preferred Scenario



3.3. Detailed Cumulative Impact Analysis

The following “Summary of Results” table summarizes the cumulative impacts to flows, aquatic life, and off-stream demand for the project. The section entitled “River Segment Model Statistics” contains mean flows (Flow Out), and drought flows (30 and 90 Day Low Flow), as well as an estimated Consumptive Use Fraction (See description below) as a result of all withdrawals (Cumulative Withdrawal) and discharges (Cumulative Point Source) in the watershed. Minimum Days of Storage Remaining describes the number of days of remaining storage available during the driest period of the model simulation (applicable to impoundment models only). Total Number of Days with Storage < 50% describes the number of days in the simulation in which reservoir levels fall below 50% of full storage. The section entitled “Facility Model Statistics” shows the withdrawals, return flows (Point Source), and the model estimate for potential conservation-required/unmet-demand due to demands exceeding the allowable withdrawal at the intake, or drought triggers based on the cumulative conditions in the watershed and the flow-by rules in effect. There will be one or more columns in this table representing each scenario considered for this analysis.

3.3.1. Summary of Results:

Description	VWP 09-0833	VWP 25-0041
River Segment Model Statistics:	McClure River	McClure River
Flow Out (cfs) - (i.e mean flow)	103.93	104.03
Minimum Days of Storage Remaining	NA	NA
30 Day Low Flow (cfs) (i.e drought flow)	3.09	3.09
90 Day Low Flow (cfs) (i.e drought flow)	6.5	6.54
Consumptive Use Fraction	0	0
Cumulative Withdrawal (MGD)	0.24	0.17
Cumulative Point Source (MGD)	0	0
Withdrawal (MGD)	0.24	0.17
Point Source (MGD)	0	0
Facility Model Statistics:	Deep Mine 41:McClure River	Deep Mine 41:McClure River
Base Demand (MGY)	91.18	64.6
Withdrawal (MGY)	89.11	63.81
Conservation/Unmet Demand (MGY)	2.08	0.79
Requested Demand (MGD)	0.25	0.18
Withdrawal Met (MGD)	0.24	0.17
Point Source (MGD)	0.06	0.04
Groundwater Demand (MGD)	0	0
Maximum 30 day conservation/unmet demand (MGD)	0.24	0.12

3.3.2. Cumulative Consumptive Use Plots:

3.3.2.1. Cumulative use for Current Permit VWP VWP 09-0833

Modeled monthly consumptive use statistics in the McClure River in cubic feet per second (cfs). Columns show the modeled non-exceedance flow percentiles and the net % flow change due to cumulative demands for Current Permit VWP VWP 09-0833 . Simulated demands include demands at McClure River , including all up-stream demands and all upstream point-source flows. Fields that are marked as 'n/a' indicate that the baseline flow for that time period/percentile was below the model accuracy threshold of 0.1 cfs.

Month	Min	5%	10%	25%	30%	50%	Mean
Jan (Jan%)	6.5 (-4%)	19.7 (-2%)	40.6 (-1%)	76.9 (-0%)	87.3 (-0%)	120.6 (-0%)	142.5 (-0%)
Feb (Feb%)	20.5 (-1%)	42.1 (-1%)	57.3 (-1%)	85.7 (+0%)	98.8 (+0%)	143.4 (+0%)	181.6 (+0%)
Mar (Mar%)	21.9 (-1%)	49.3 (-1%)	64.9 (+0%)	94.4 (+0%)	106.9 (+0%)	148.4 (+0%)	188.2 (+0%)
Apr (Apr%)	20.5 (-1%)	32 (-1%)	40.6 (-1%)	68.3 (+0%)	77.1 (+0%)	117.7 (+0%)	171.9 (+0%)
May (May%)	5.8 (-5%)	23.5 (-1%)	30.8 (-1%)	44.1 (-1%)	48.6 (-1%)	73.9 (+0%)	97.3 (+0%)
Jun (Jun%)	3.9 (-5%)	11.6 (-3%)	16.7 (-2%)	28.2 (-1%)	32.3 (-1%)	48.3 (-1%)	70.3 (-1%)
Jul (Jul%)	1.7 (-7%)	12.2 (-3%)	19.6 (-2%)	30.7 (-1%)	33.8 (-1%)	44.3 (-1%)	50.8 (-1%)
Aug (Aug%)	2.6 (-6%)	8.2 (-5%)	12.2 (-4%)	23.8 (-2%)	26.7 (-2%)	38.9 (-1%)	46.1 (-1%)
Sep (Sep%)	0.5 (-8%)	3.8 (-5%)	6.4 (-5%)	16.7 (-3%)	19.6 (-3%)	31.1 (-2%)	49.1 (-1%)
Oct (Oct%)	1.6 (-6%)	6.6 (-5%)	11.7 (-4%)	18.5 (-2%)	20.5 (-2%)	30.8 (-2%)	53.8 (-1%)
Nov (Nov%)	0.9 (-6%)	7.2 (-5%)	10.4 (-4%)	27.4 (-2%)	34.4 (-1%)	55.9 (-1%)	73.9 (-1%)
Dec (Dec%)	1.6 (-6%)	14.3 (-3%)	24.1 (-2%)	46 (-1%)	52.3 (-1%)	85.6 (-1%)	126.9 (+0%)

3.3.2.2. Cumulative use for Proposed Permit VWP 25-0041

Modeled monthly consumptive use statistics in the McClure River in cubic feet per second (cfs). Columns show the modeled non-exceedance flow percentiles and the net % flow change due to cumulative demands for Proposed Permit VWP 25-0041 . Simulated demands include demands at McClure River , including all up-stream demands and all upstream point-source flows. Fields that are marked as 'n/a' indicate that the baseline flow for that time period/percentile was below the model accuracy threshold of 0.1 cfs.

Month	Min	5%	10%	25%	30%	50%	Mean
Jan (Jan%)	6.6 (-3%)	19.8 (-1%)	40.6 (-1%)	77 (-0%)	87.4 (-0%)	120.7 (-0%)	142.6 (-0%)
Feb (Feb%)	20.6 (-1%)	42.2 (-1%)	57.4 (+0%)	85.8 (+0%)	98.9 (+0%)	143.5 (+0%)	181.6 (+0%)
Mar (Mar%)	21.9 (-1%)	49.3 (+0%)	65 (+0%)	94.5 (+0%)	107 (+0%)	148.5 (+0%)	188.3 (+0%)
Apr (Apr%)	20.6 (-1%)	32 (-1%)	40.6 (+0%)	68.4 (+0%)	77.2 (+0%)	117.8 (+0%)	171.9 (+0%)
May (May%)	5.9 (-3%)	23.6 (-1%)	30.9 (-1%)	44.2 (+0%)	48.7 (+0%)	73.9 (+0%)	97.4 (+0%)
Jun (Jun%)	3.9 (-5%)	11.7 (-2%)	16.8 (-2%)	28.3 (-1%)	32.4 (-1%)	48.5 (-1%)	70.4 (+0%)
Jul (Jul%)	1.7 (-6%)	12.3 (-2%)	19.7 (-1%)	30.8 (-1%)	33.9 (-1%)	44.4 (-1%)	50.9 (-1%)
Aug (Aug%)	2.6 (-6%)	8.3 (-4%)	12.3 (-3%)	23.9 (-1%)	26.8 (-1%)	39.1 (-1%)	46.2 (-1%)
Sep (Sep%)	0.5 (-8%)	3.8 (-5%)	6.4 (-5%)	16.9 (-2%)	19.9 (-2%)	31.3 (-1%)	49.3 (-1%)
Oct (Oct%)	1.6 (-6%)	6.7 (-4%)	11.8 (-3%)	18.7 (-2%)	20.6 (-2%)	31 (-1%)	53.9 (-1%)
Nov (Nov%)	0.9 (-6%)	7.3 (-4%)	10.5 (-3%)	27.5 (-1%)	34.5 (-1%)	56.1 (-1%)	74 (+0%)
Dec (Dec%)	1.6 (-6%)	14.4 (-2%)	24.2 (-1%)	46.1 (-1%)	52.4 (-1%)	85.7 (+0%)	127 (+0%)

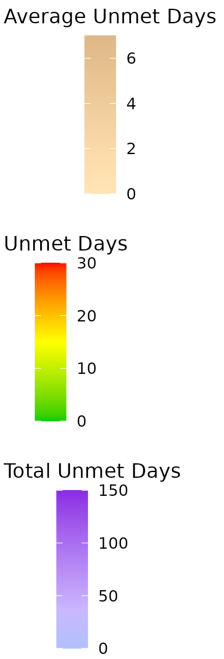
3.3.3. Analysis of Potential Conservation/Unmet Demand at the River Intake:

The following grids are data plotting tools that help visualize data as magnitudes of color intensity. These depict the number of days with required conservation demand reductions or unmet demands for each month of the simulation (due to drought triggers or demands exceeding allowable withdrawal at the intake based on the cumulative conditions in the watershed and the flow-by rules in effect). The cells show the amount of reductions/unmet demand for each month [Number of Unmet Days & Amount (MGD)]. Hydrographs are shown for the period of the simulation with greatest reduction/unmet demand.

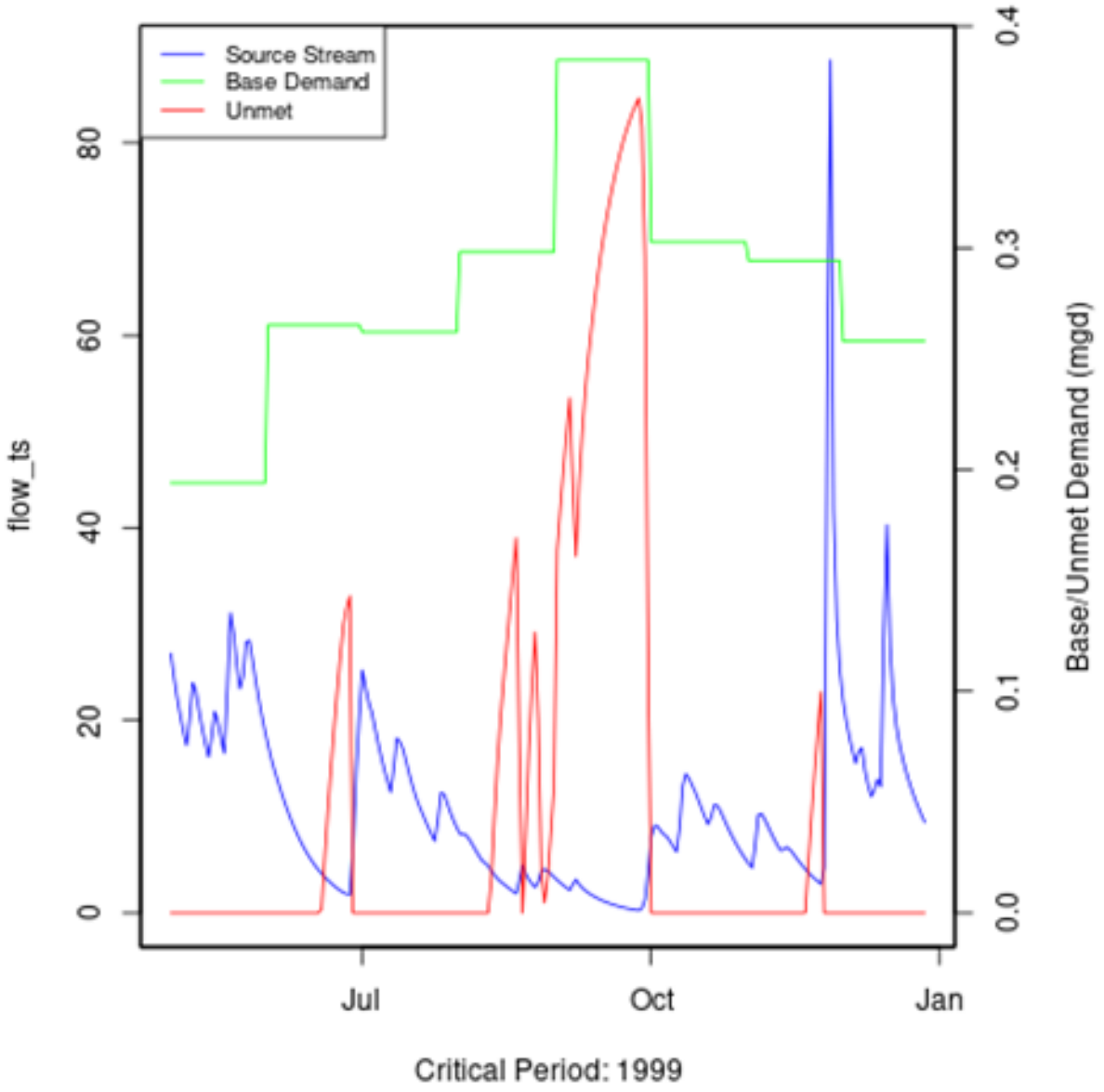
3.3.3.1. Drought reduction/Unmet Demand: VWP 09-0833

Unmet Demand Heatmap

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals	Avg
1985	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	12 / 0.1	1 / 0.05	0 / 0	0 / 0	13	1.1
1986	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 0.01	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2	0.2
1987	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	15 / 0.1	0 / 0	0 / 0	3 / 0.03	0 / 0	18	1.5
1988	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 0.04	13 / 0.1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	16	1.3
1989	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1990	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1991	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	7 / 0.07	6 / 0.03	0 / 0	13	1.1
1992	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1993	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 0.03	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2	0.2
1994	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1995	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	4 / 0.05	19 / 0.05	17 / 0.3	0 / 0	0 / 0	0 / 0	40	3.3
1996	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1997	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 0.04	0 / 0	0 / 0	0 / 0	3	0.2
1998	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	17 / 0.2	3 / 0.03	7 / 0.02	0 / 0	27	2.2
1999	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	10 / 0.08	0 / 0	20 / 0.08	30 / 0.3	0 / 0	6 / 0.05	0 / 0	66	5.5
2000	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 0.009	0 / 0	0 / 0	20 / 0.2	23 / 0.2	23 / 0.2	13 / 0.2	81	6.8
2001	1 / 0.001	0 / 0	0 / 0	0 / 0	1 / 0.01	0 / 0	0 / 0	0 / 0	2 / 0.03	0 / 0	28 / 0.2	8 / 0.03	40	3.3
2002	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	15 / 0.2	0 / 0	0 / 0	0 / 0	15	1.2
2003	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2004	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2005	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 0.02	0 / 0	0 / 0	0 / 0	1	0.1
2006	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2007	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	7 / 0.06	11 / 0.1	12 / 0.1	30 / 0.2	24 / 0.2	0 / 0	0 / 0	84	7
2008	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 0.03	3 / 0.04	2 / 0.02	0 / 0	0 / 0	6	0.5
2009	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2010	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2011	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2012	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2013	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	6 / 0.07	0 / 0	0 / 0	6	0.5
2014	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0				0	0
Totals	1	0	0	0	1	22	32	67	150	66	73	21	433	
Avg	0	0	0	0	0	0.7	1.1	2.2	5	2.2	2.4	0.7		



3.3.3.2. Hydrograph: VWP 09-0833



[1]

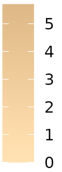
"No local facility impoundment for VWP 09-0833"

3.3.3.3. Drought reduction/Unmet Demand: VWP 25-0041

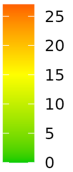
Unmet Demand Heatmap

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals	Avg
1985	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 0.01	0 / 0	0 / 0	0 / 0	1	0.1
1986	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1987	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	10 / 0.07	0 / 0	0 / 0	0 / 0	0 / 0	10	0.8
1988	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	12 / 0.08	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	12	1
1989	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1990	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1991	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 0.02	0 / 0	0 / 0	3	0.2
1992	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1993	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1994	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1995	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 0.01	5 / 0.02	16 / 0.1	0 / 0	0 / 0	0 / 0	22	1.8
1996	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1997	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
1998	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	9 / 0.04	0 / 0	0 / 0	0 / 0	9	0.8
1999	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	6 / 0.05	0 / 0	9 / 0.04	27 / 0.1	0 / 0	2 / 0.01	0 / 0	44	3.7
2000	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	12 / 0.07	19 / 0.09	18 / 0.1	13 / 0.1	62	5.2
2001	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	23 / 0.1	0 / 0	23	1.9
2002	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	7 / 0.06	0 / 0	0 / 0	0 / 0	7	0.6
2003	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2004	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2005	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2006	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2007	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 0.01	11 / 0.07	8 / 0.08	22 / 0.1	24 / 0.1	0 / 0	0 / 0	68	5.7
2008	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2009	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2010	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2011	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2012	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0	0
2013	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 0.01	0 / 0	0 / 0	2	0.2
2014	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0				0	0
Totals	0	0	0	0	0	9	24	32	94	48	43	13	263	
Avg	0	0	0	0	0	0.3	0.8	1.1	3.1	1.6	1.4	0.4		

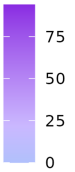
Average Unmet Days



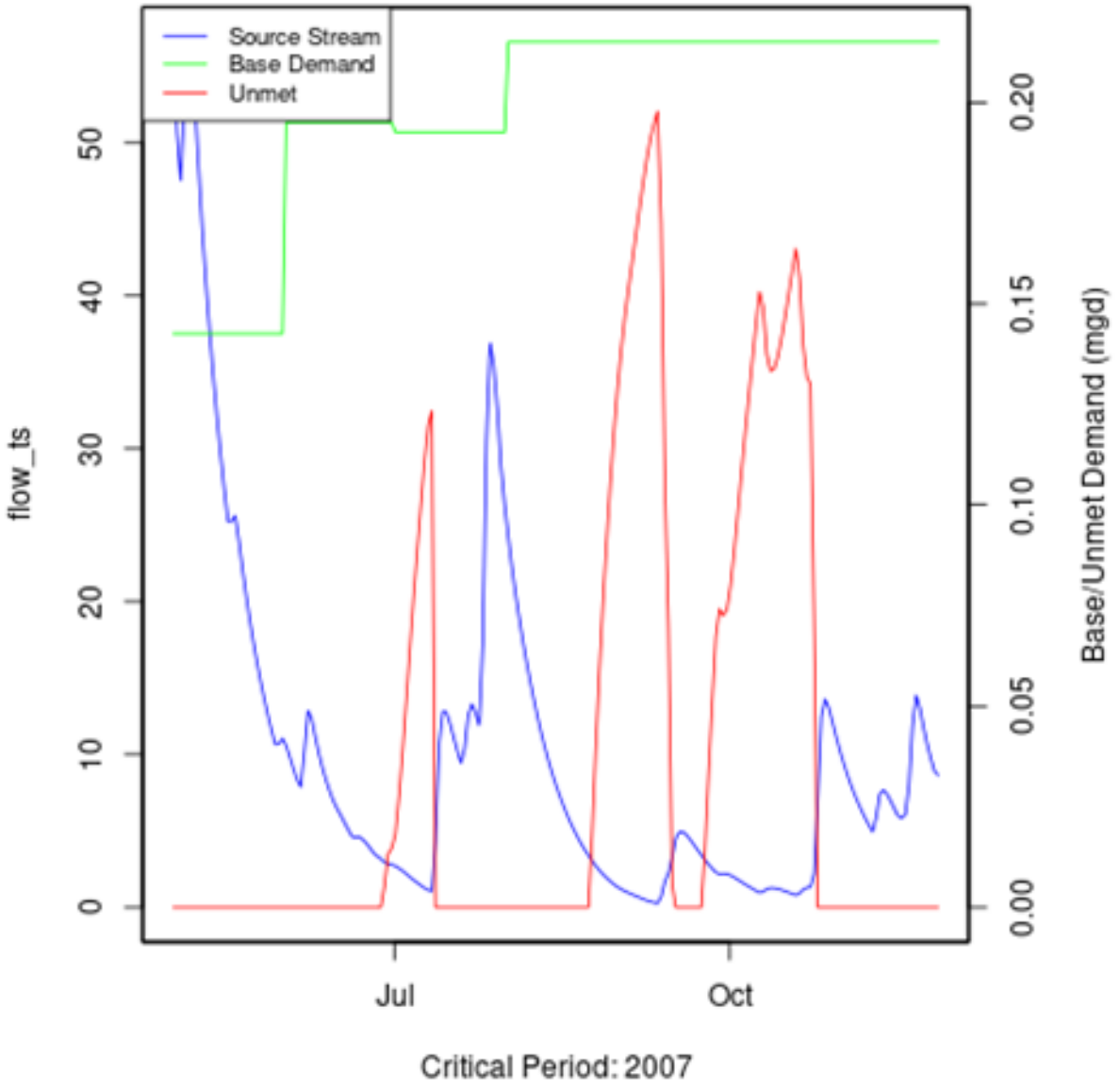
Unmet Days



Total Unmet Days



3.3.3.4. Hydrograph: VWP 25-0041

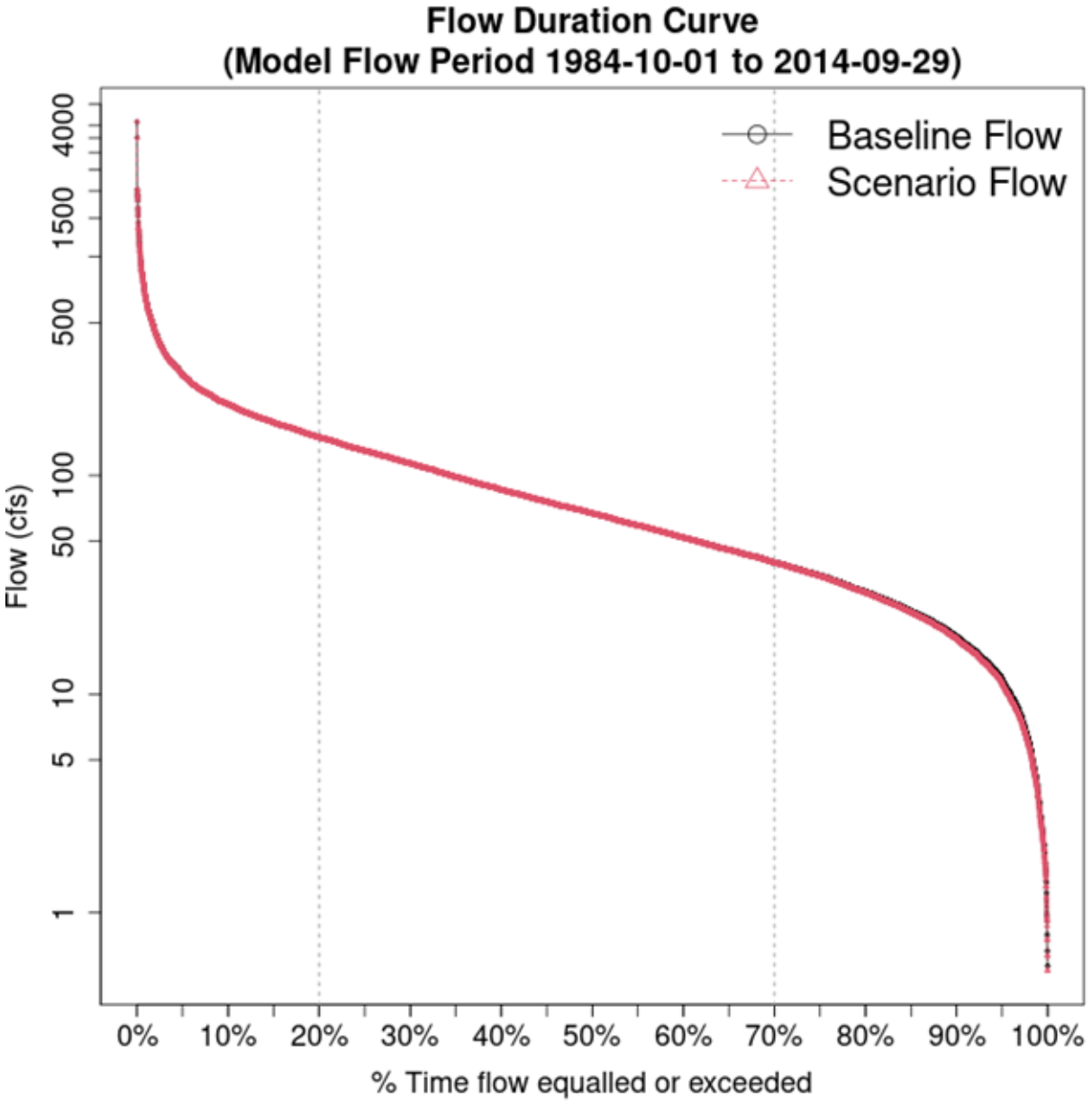


[1]

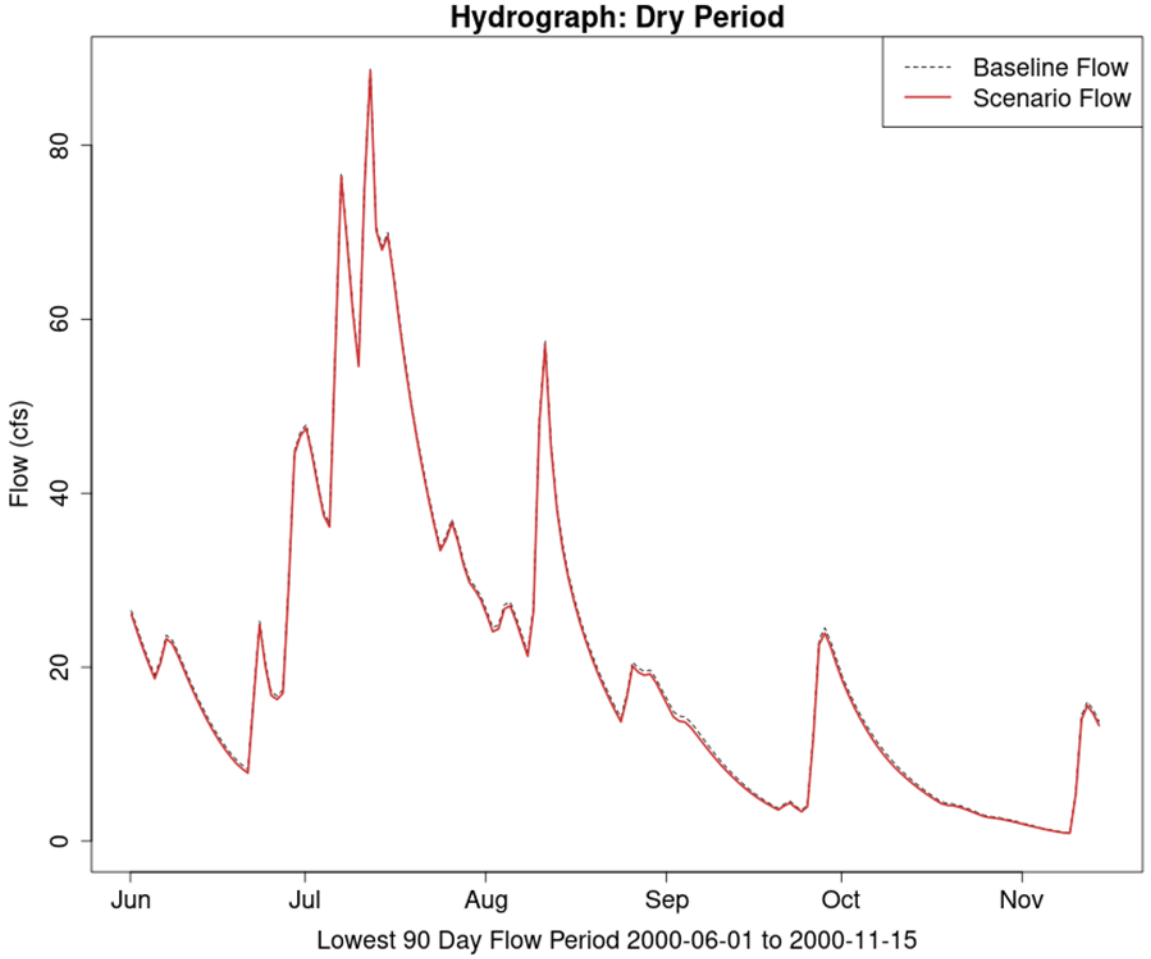
"No local facility impoundment for VWP 25-0041"

3.3.4. Additional Model Flow Plots:

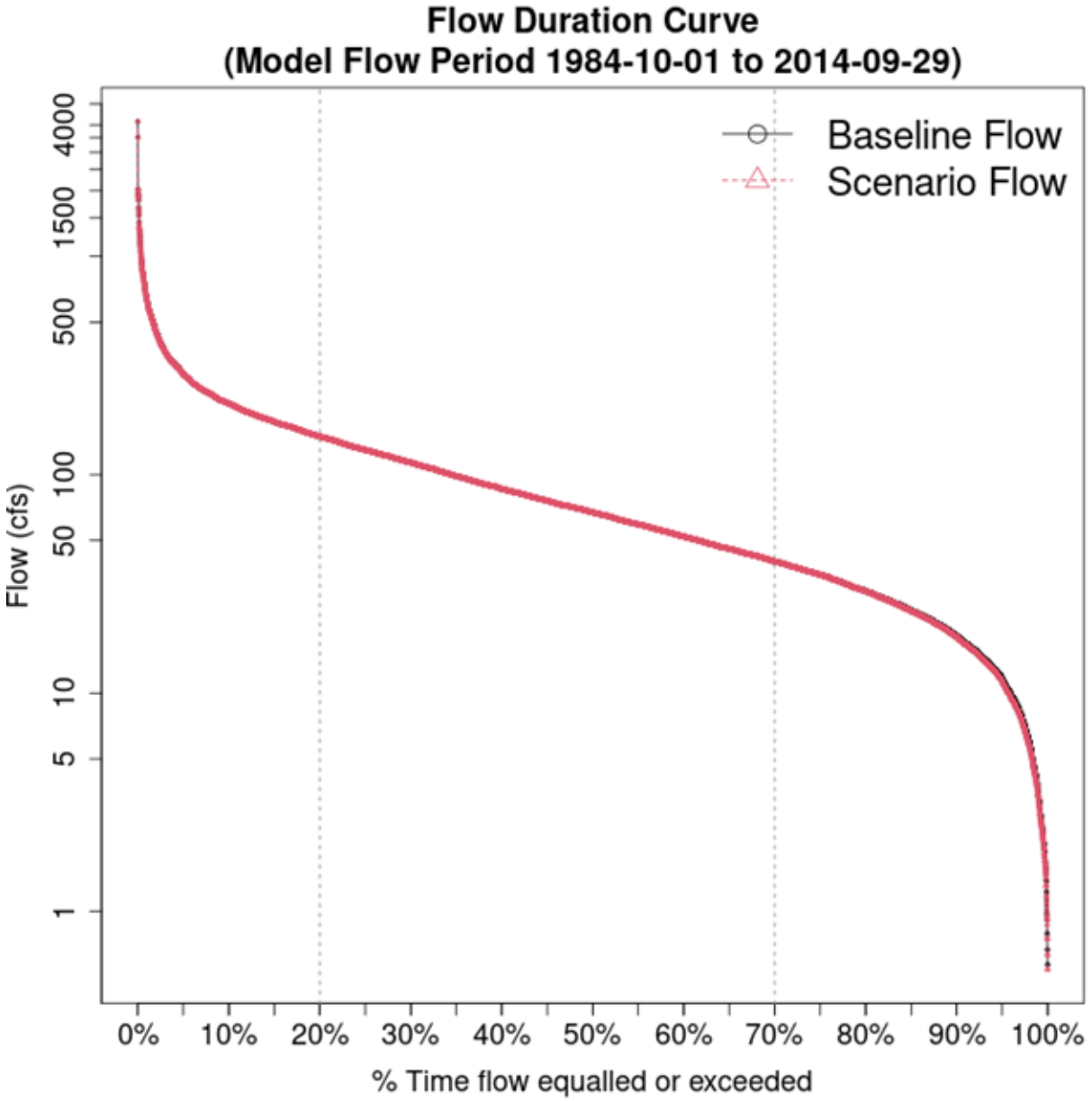
3.3.4.1. VWP 09-0833 :



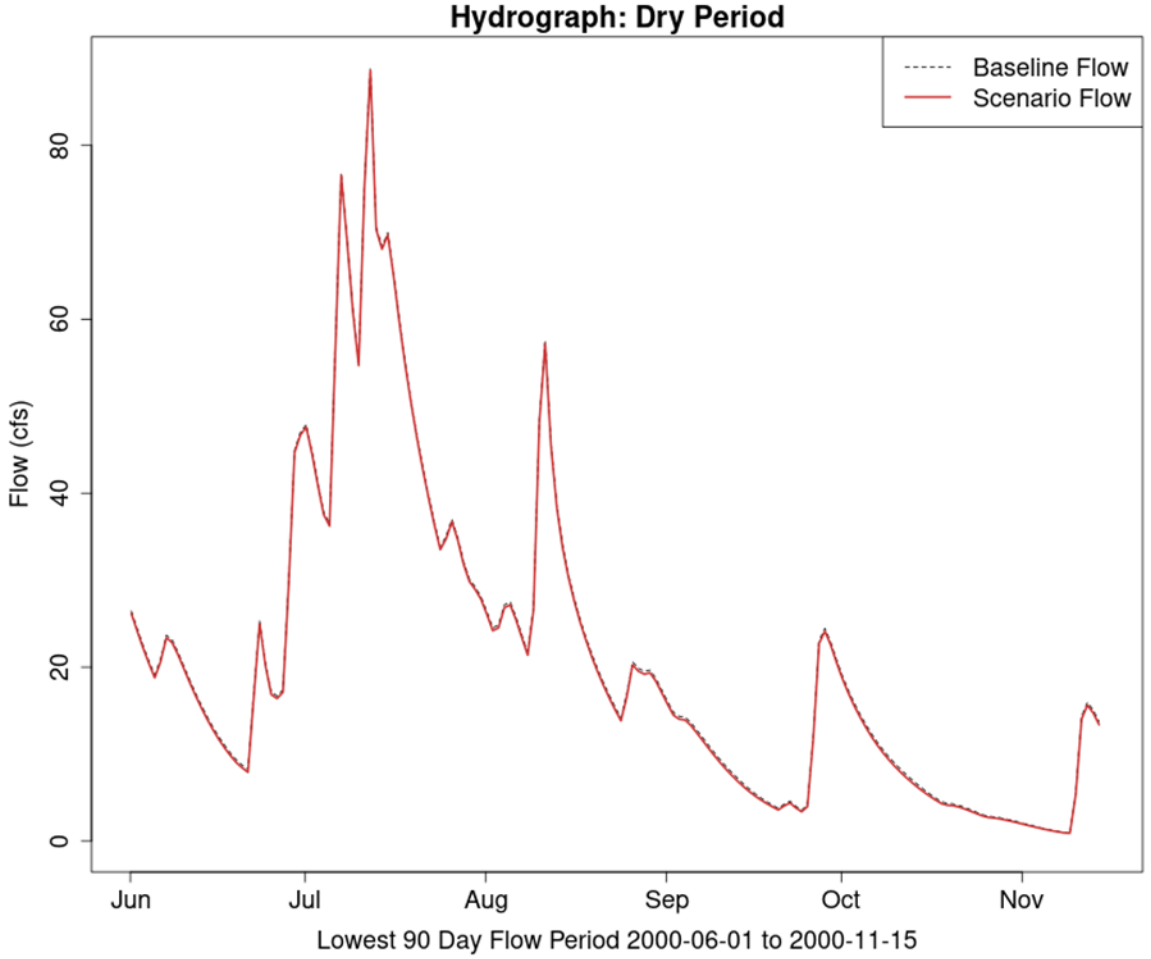
3.3.4.2. VWP 09-0833 :



3.3.4.3. VWP 25-0041 :



3.3.4.4. VWP 25-0041 :



4. VAHydro Model:

4.1. Appendix B - VAHydro

The comprehensive VAHydro hydrologic model is used by the DEQ Office of Water Supply to evaluate instream and off-stream beneficial uses for non-tidal surface water withdrawals throughout Virginia. This model also simulates streamflow with inputs such as precipitation, climate, land use, and topography, as well as local data collected through DEQ water supply planning and reporting programs, which includes all known withdrawals and discharges, as well as operational rules of Virginia Water Protection (VWP) permits and major hydrologic features such as reservoirs.

The VAHydro model is built on the rainfall-evaporation-runoff (RER) time-series from the Chesapeake Bay Model Phase 6[2]. The VAHydro model simulates conditions from 1984-2014 in the Chesapeake Bay watershed drainage, and 1984-2005 in the rivers flowing outside of the Chesapeake Bay watershed. The VAHydro model features high-resolution hydrologic subsections called "river segments" (over 600 river segments in total), roughly the size of HUC 10 hydrologic units, with additional high-resolution segments added for VWP modeling projects as needed.

4.2. Cumulative Impact Analysis (CIA)

DEQ assesses water supply sustainability through Cumulative Impact Analysis (CIA). CIA is a modeling and analysis approach that takes into account the varied hydrologic processes occurring throughout a river network (including meteorological and human water use). By simulating a daily water balance for every individual river segment within a watershed, DEQ is able to evaluate the potential "cumulative impact" of all streamflow changes occurring upstream and downstream of any location within the river system, as well as the downstream impact of a specific proposed or permitted surface water withdrawal.

The goal of the following analysis is to estimate the potential impacts of the proposed water withdrawal upon existing beneficial uses, including both in-stream and off-stream uses. In addition, cumulative impacts from all existing withdrawals are included in the evaluation.

4.2.1. Glossary of Cumulative Impact Modeling Terms

- 30 Day Low Flow (l30): Describes the lowest consecutive 30 day average daily streamflow over the simulation period. This metric is a representation of a short-term, or acute drought.
- 90 Day Low Flow (l90): Represents the lowest consecutive 90 day average daily streamflow over the simulation period. This would represent a prolonged drought.
- Base Demand / Requested Demand: The demand simulated for a facility/intake prior to any reductions due to conservation, depleted storage, or adherence to Minimum Instream Flow operational rules (MIF). In this document, *Base Demand* is expressed as *MGY*, and Requested Demand is given in *MGD*.
- CFS: Cubic Feet Per Second, a common unit of measuring stream flow.
- Consumptive Use Fraction (CU): This is calculated as a fraction of modeled Flow, so it is CU = 1.0 - (Flow / Flow_Baseline), where Flow_Baseline = (Flow + WD - PS), and WD and PS are the total cumulative withdrawals and point source discharges above the point in the stream. In other words, for calculating baseline flow, we take modeled outflow from the river, add the withdrawals back in, and subtract the point source in order to estimate a baseline flow balance. This almost always ends up being a higher number than the

[2] Chesapeake Bay Program Phase 6 Model.

modeled Flow out, so it tells us the fraction of baseline flow that is consumed. Occasionally there are water transfers and point sources from groundwater, or point sources that cross watershed boundaries that can make the CU fraction in some watersheds negative, i.e. Flow > Flow_Baseline.

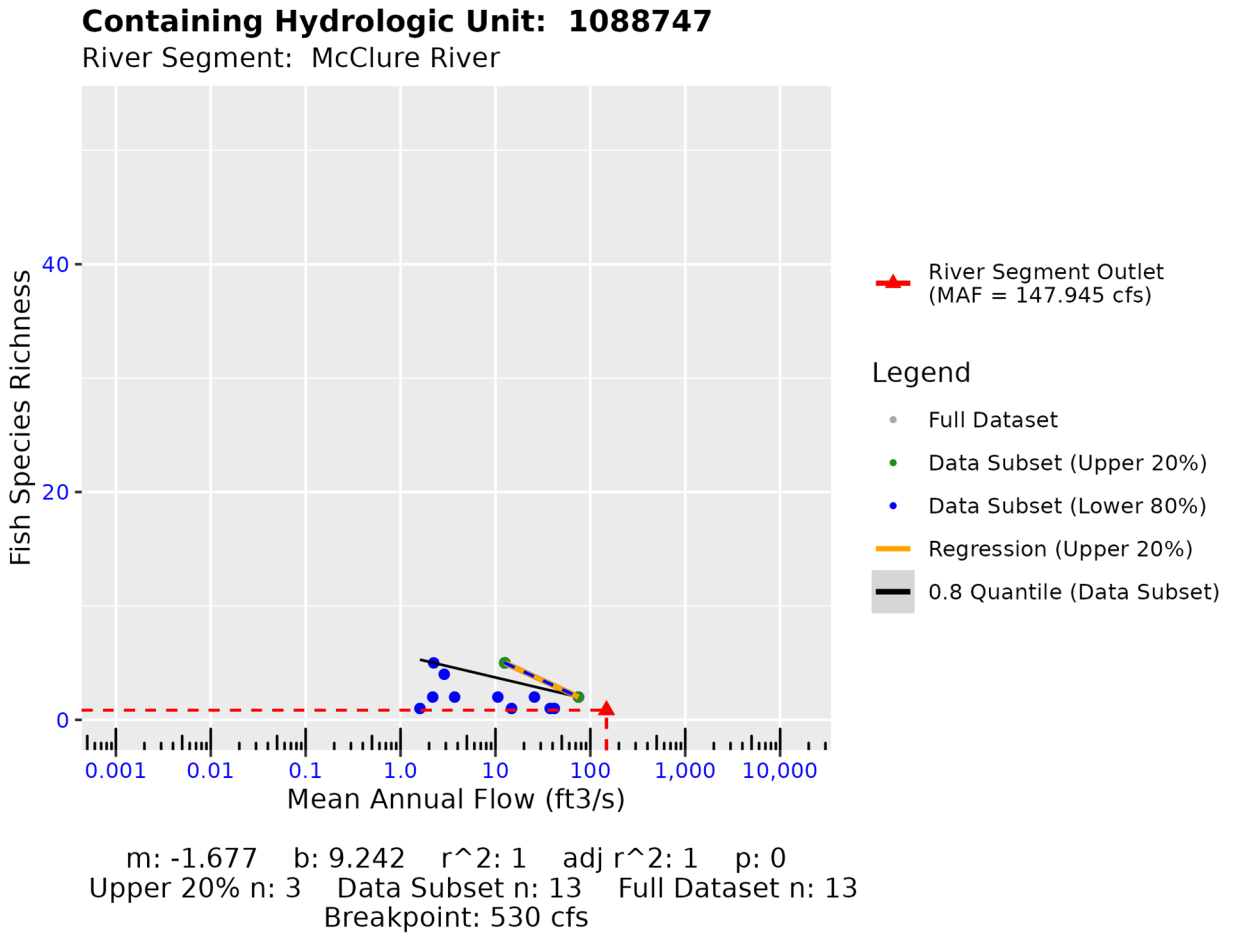
- Cumulative Withdrawal: The amount of water withdrawn by all intakes in a given river segment sub-watershed, and all upstream sub-watersheds. See also: *Cumulative Withdrawal*.
- Days of Storage Remaining: For reservoir models, the quotient of the volume of water in a reservoir divided by the daily rate of withdrawal, calculated at each time step of the entire simulation period.
- Maximum 30 day potential drought reduction/Unmet Demand (MGD): The largest difference between *Requested Demand* and *Withdrawal Met* that results during a continuous 30-day simulation period.
- MGD: Millions of Gallons per Day, a common unit of measuring withdrawal and discharge.
- MGY: Millions of Gallons per Year, a common unit for expressing annual facility demand.
- Minimum Days of Storage Remaining: The minimum simulated *Days of Storage Remaining* in a reservoir.
- Point Source: Water returned to the stream as treated wastewater.
- Withdrawal: The amount of water withdrawn by a single facility, or the total amount of water withdrawn within a single simulated river segment sub-watershed. See also: *Cumulative Withdrawal*.
- Withdrawal Met: The amoiunt of requested demand that was met, on average, throughout the entire simulation period.
- Drought Reduction/Unmet Demand: The difference between *Base Demand* and *Withdrawal Met*, on average, throughout the entire simulation period.

5. Appendix A - Ecological Impacts Assessment:

5.1. Elfgen:

In response to a need for better environmental flow metrics, DEQ has developed a new framework for characterizing relations between streamflow and aquatic organism species richness. Part of an evolving approach to managing environmental flows for maintaining aquatic life; this methodology builds on existing minimum instream ow approaches, allowable withdrawals as a percentage of flow, and extensive flow-habitat studies. For the first time this new framework may allow quantification of potential species loss resulting from flow change, and may offer an improved understanding of aquatic life risk variability due to geographic location, stream size and local scale.

This new flow-ecology framework referred to as "elfgen" (*pronounced elf-jen*) derives its name from Ecological Limit Function (ELF) generation (*ELF-gen*). In order to calculate river segment-level richness change, elfgen is first used to produce ELFs, or relations between stream flow and species richness at the HUC 8 scale (See plot below). This is achieved using long term datasets for both ecological and hydrologic data. Ecological data (Fish species richness) is sourced from the VAHydro-EDAS dataset. Hydrologic data (Average Annual Flow) is sourced from the National Hydrography Dataset Plus. The Richness Change values presented in the table below are derived from this flow-ecology relation.



Estimates for richness change are presented both as an absolute number of species (Richness Change (abs)) and as a percentage of the total number of species present (Richness Change

(%)). Richness change calculations are derived from the estimated percent total consumptive use[3]. Note: elfgen methodology only applicable for watersheds < 800 cfs mean annual flow.

Description	VWP 09-0833	VWP 25-0041
Consumptive Use (%)	0	0
Cumulative Withdrawal (MGD)	0.24	0.17
Richness Change (abs)	0.01	0
Richness Change (%)	0.71	0.5

[3] Kleiner et al: https://onlinelibrary.wiley.com/doi/full/10.1111/1752-1688.12876 & Rapp et al: https://onlinelibrary.wiley.com/doi/full/10.1111/1752-1688.12877

6. Appendix C - Nearby Users Table:

	Location	riverseg	Intake_Model_Name	Sub_Watershed	MP_Type	MP_Name	MP_Status	MP 5-yr Avg Use (MGY)	base_demand_mgy
1	-	BS3_8580_8440	Deep Mine 41:McClure River-Deep Mine 41	McClure River	intake	McClure River	active	21.48	64.6

7. Appendix D - Facility Location, Withdrawals, and Discharges

propname	riverseg	wd_mgd_runid_400	ps_mgd_runid_400	wd_mgd_runid_600	ps_mgd_runid_600
Dickenson (Community Water System):McClure River	BS3_8580_8440	0.0000000	0.00000000	0.0000000	0.0000000
Dickenson (Large Self-Supplied User):McClure River	BS3_8580_8440	0.0000000	0.00000000	0.0000000	0.0000000
Dickenson (Agriculture):McClure River	BS3_8580_8440	0.0000000	0.00000000	0.0000000	0.0000000
Paramont Coal Co VA LLC - Deep Mine No 41:McClure River	BS3_8580_8440	0.0000000	0.00000000	0.0000000	0.0000000
Deep Mine 41:McClure River	BS3_8580_8440	0.2441264	0.06103161	0.1748184	0.0437046

8. Appendix D - River Model Withdrawals, Discharges and Flows

propname	rivers eg	l90_Qout	wd_mgd_runid_400	ps_mgd_runid_400	wd_mgd_runid_600	ps_mgd_runid_600
McClure River	BS3_ 8580_ 8440	6.542966	0.2441393	0	0.1748221	0

Attachment B – Water Conservation

Mandatory Non-essential Water Use Restrictions
Virginia Drought Assessment and Response Plan

The following non-essential water uses will be prohibited during periods of declared drought emergencies. Please note the exceptions that follow each prohibited use. These prohibitions and exceptions will apply to uses from all sources of water and will only be effective when the Governor of Virginia or the Virginia Drought coordinator declares a Drought Emergency. Water use restrictions shall not apply to the agricultural production of food or fiber, the maintenance of livestock including poultry, nor the commercial production of plant materials, *provided that best management practices are applied to assure the minimum amount of water is utilized*.

1. ***Unrestricted irrigation of lawns 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 rates may not exceed one inch of applied water in any 7-day period.
   - Gardens, bedding plants, trees, shrubs and other landscape materials may be watered with handheld containers, handheld hoses equipped with an automatic shutoff device, sprinklers or other automated watering devices at the minimum rate necessary but in no case more frequently than twice per week. Irrigation should not occur during the heat of the day.
   - 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.

2. ***Unrestricted irrigation of golf courses is prohibited.***

   - Tees and greens may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.
   - Localized dry areas may be irrigated with a handheld container or handheld 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 handheld hose equipped with an automatic shutoff device at the minimum rate necessary.
   - Fairways may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. 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 restoration 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.

3. ***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 handheld 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 handheld containers or handheld 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 handheld containers or handheld hoses equipped with an automatic shutoff device at the minimum rate necessary no earlier than two hours prior to official game time.

4. ***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.

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

   - Mobile equipment may be washed using handheld containers or handheld 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 handheld 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 handheld 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.

6. ***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.

7. ***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.

8. ***Water may be served in restaurants, clubs, or eating-places only at the request of customers.***