

To: Fluvanna County Planning Commission / Fluvanna County Board of Supervisors
From: Expedition Generation Holdings, LLC
Date: Revised January 12, 2026
Re: Expedition Generating Station – Supplementary Environmental Information

I. Introduction

The Virginia Department of Environmental Quality (DEQ) is best equipped with technical expertise to evaluate and authorize environmental permitting and regulations. However, given interest in the environmental aspects of the proposed facility, Tenaska has provided additional information and resources to the county, including:

- An environmental memo, dated November 14, 2025, outlining the applicable air and wastewater permits and associated compliance.
- At the suggestion of Commissioner Kilpatrick, the county is consulting former DEQ director David Paylor on these complex environmental and regulatory issues, to be paid for by Tenaska. His work product was not reviewed by Tenaska prior to submittal to the county.

This additional supplemental memo provides relevant background information and corrective and clarifying information in light of recent reports claiming to detail health impacts associated with natural gas-fueled power generation in Fluvanna County. It also provides preliminary air quality modeling results in support of Expedition's air permit application currently under development in anticipation of the DEQ process.

The Clean Air Act and NAAQS Standards

In the U.S., the regulation of air quality exposures to specific chemicals, including particulate matter (PM), is strictly regulated based on a highly sophisticated and structured human health risk process conducted by the U.S. Environmental Protection Agency (EPA). The formal human health-based regulations are known as the National Ambient Air Quality Standards (NAAQS) that are regulated under the Clean Air Act.

The NAAQS define human health-based specific concentrations (i.e., how much of a substance in micrograms per cubic meter of air [$\mu\text{g}/\text{m}^3$]) and duration (e.g., number of hours, days, or years) for each substance. The NAAQS are based on criteria allowing for an adequate margin of safety and are requisite to protect the public health, including the health of 'sensitive' populations such as asthmatics, children, and the elderly. They are based on considering and defining "acceptable" public health risk levels as zero risk is impossible.

In 2024, the EPA under the Biden administration significantly strengthened the annual standard for PM_{2.5}, strengthening it by 25% after an extensive, multi-year process that included detailed and exhaustive reviews of the published health literature. The overall review process was conducted by EPA and involved in-depth reviews and analysis by independent scientists. The review process considered hundreds of scientific papers and reviews and guidance published by other countries and health agencies, including the World Health Organization Global Air Quality Guidelines.

The new standard was widely praised by public health organizations and environmental groups, including the Southern Environmental Law Center.

A Basic Understanding of PM_{2.5}

PM stands for particulate matter and is the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope. Particle pollution includes PM₁₀, which are inhalable particles with diameters that are generally 10 micrometers and smaller; and PM_{2.5}, which are fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

PM comes in many sizes and shapes and can be made up of hundreds of different chemicals. Some are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks, or fires. Most particles form in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries, and automobiles.

II. Dominici Lab Reports

In 2025, the Dominici Lab, led by statisticians and data scientists, produced health impact studies commissioned by the Southern Environmental Law Center (SELC) addressing at least two proposed natural gas-fired power plants.¹ A similar study has recently been produced at SELC's request regarding Expedition, though it has not been made widely available. Tenaska offers high-level, but not exhaustive, observations below regarding these third-party reports and concerns about their methodologies.

In the two reports released in 2025, the Dominici Lab used non-regulatory standard methods in their analyses, which “applies causal inference Artificial Intelligence to data on emissions to model the movement through the air ...” and uses the InMAP model. These methods and this model are described as “theoretically simple enough for use by non-experts,”² and a “reduced-

¹ Report: Balico Proposal Impact Analysis, Pittsylvania Co., VA, April 2025 (Balico Report) [2025.04.12-Public-Health-Impacts-Analysis-Balico-Gas-Plant-FINAL-REPORT.pdf](#); Air Pollution from the Proposed Canadys Plant, Colleton Co., SC, October 2025 (Canadys Report) [Applied-Impact-Report-092225-D2.indd](#)

² Canadys Report, endnote 19

complexity model.”³ One can infer this was done to save time and cost and allow non-experts to perform the work. Not surprisingly, none of these methodologies are approved by the EPA or the DEQ for regulatory purposes in determining the air quality impacts from a proposed facility seeking an air permit. Instead, both agencies prefer and recommend use of the AERMOD dispersion model⁴, which is being used for Expedition. Accordingly, the methodology employed by the Dominici Lab, which presumably is the same approach taken with their assessment of Expedition, does not include the scientific rigor and quality assurance that are entailed with the AERMOD dispersion model. This renders Dominici Lab’s assessments generally less accurate and reliable, if not significantly incorrect.

The referenced Dominici Lab studies state repeatedly that $0.1 \mu\text{g}/\text{m}^3$ is the annual average threshold above which severe health impacts occur.⁵ The Dominici Lab seemingly uses this threshold, as well as $0.01 \mu\text{g}/\text{m}^3$ and even $0.001 \mu\text{g}/\text{m}^3$, to maximize the number of people who will be “exposed” to emissions from the proposed plants. For example, using the $0.001 \mu\text{g}/\text{m}^3$ threshold in the Canadys report resulted in 2,095,122 “exposed” individuals, or almost 40% of the entire population of the State of South Carolina.⁶ Further, using the same $0.001 \mu\text{g}/\text{m}^3$ threshold, the currently un-published report for Expedition purportedly states that “4+ million” people will be “exposed,”⁷ which translates to greater than 45% of the entire population of Virginia. Such an assumption is on its face highly suspect. With the regional population already “exposed” to existing concentrations (i.e., background) of $6.9\text{--}7.1 \mu\text{g}/\text{m}^3$ on an annual average, the addition of $0.001 \mu\text{g}/\text{m}^3$ with its purported annual health impacts of 2-3 deaths and \$27-50 million in health care costs seems absurd because, if true, existing regional deaths attributable to $\text{PM}_{2.5}$ would exceed 17,000 and healthcare costs would already be \$189-\$350 billion.

For comparison, EPA monitoring data for the past three years show the annual average $\text{PM}_{2.5}$ in Albemarle County/Charlottesville is currently 71 times higher than the concentration attributable by Dominici Lab as causing serious health impacts (i.e., $0.1 \mu\text{g}/\text{m}^3$), yet such current average $\text{PM}_{2.5}$ level is still in compliance with the health-based National Ambient Air Quality Standard (NAAQS), which was lowered just last year by the Biden Administration (which is 90 times higher than the Dominici Lab’s severe impacts threshold).⁸

³ Canadys Report, Part 2 page 3

⁴ <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models>

⁵ Balico Report, pg. 3 “The most serious health impacts occur when $\text{PM}_{2.5}$ levels in an area exceed $0.1 \mu\text{g}/\text{m}^3$ for prolonged periods of time. Exposure at this level correlates with severe impacts, including increased hospitalizations due to heart attack, pneumonia, cardiovascular issues or, in some cases, stroke or cancer.”; Canadys Report, pg. 5 “To identify areas of greatest concern, the research team flagged tracts with $\text{PM}_{2.5}$ exposure increases exceeding $0.1 \mu\text{g}/\text{m}^3$.”

⁶ Canadys Report Figure 6; <https://www.census.gov/quickfacts/fact/table/SC/PST045224>

⁷ <https://www.fluvannahorizonsalliance.org/>

⁸ <https://www.epa.gov/air-trends/air-quality-design-values> There are 1,039 EPA reference method ambient $\text{PM}_{2.5}$ monitors in the United States that are used to determine whether an area is meeting the health-based National Ambient Air Quality Standards (NAAQS). The lowest single annual average value during 2022-24, in Hilo, Hawaii, was $1.1 \mu\text{g}/\text{m}^3$, compared to the NAAQS of 9. Of note, the 20 Virginia monitors ranged from $4.1\text{--}9.5 \mu\text{g}/\text{m}^3$ (NAAQS compliance is determined using a 3-yr avg) with an average of 7.0. The monitor closest to Fluvanna County, in Albemarle County just north of Charlottesville, had an average value over the three years of $7.1 \mu\text{g}/\text{m}^3$.

Further, the lowest annual average in the entire country, in other words the “cleanest” monitored area in the country, is still 11 times greater than the Dominici Lab’s threshold. This means, using Dominici Lab’s threshold for serious health effects, the entire population of the United States is experiencing severe health impacts from PM_{2.5}. Again, the underlying assumptions of the Dominici Lab’s methodology appear misplaced based on regulatory standards for PM_{2.5} intended to protect human health.

Further comparison with certain everyday indoor activities such as cooking also provides relative context. Indoor PM_{2.5} typically ranges from 2.5-5 µg/m³ but can be significantly higher during certain activities. A California Air Resources Board study⁹ found kitchen levels of PM₁₀ ranged from 60 to 1,400 µg/m³ during cooking activities with a gas stove and the self-cleaning cycle of a gas stove produced concentrations over 3,600 µg/m³ over several hours. Even oven cleaning of an electric stove produced levels of almost 1,000 µg/m³. Another study from the American Journal of Student Research¹⁰ showed levels of PM_{2.5} from roasting can exceed 400 µg/m³ and even steaming exceeded 40 µg/m³. While these are relatively short-term in duration, they provide context to ubiquitous activities compared to the purported health effects at the extremely low concentrations used by Dominici Lab.

The Dominici Lab team attempts to calculate PM_{2.5} emissions for the proposed plants being evaluated by using data from two existing plants that use similar combustion turbine technology, one being Tenaska’s Westmoreland Generating Station in Pennsylvania. Instead of using actual emissions data directly reported to the Pennsylvania Department of Environmental Protection, they use industry-wide emission factors from EPA that result in substantially higher emissions (over twice as high).¹¹ The table below presents the difference in Dominici Lab-calculated and Tenaska-reported emissions from Westmoreland, the former of which informed Dominici Lab’s calculated emissions for the proposed plants they were evaluating. This failure to use actual emission data is seemingly intentional, as the industry-wide emission factor suits its purposes better. This further calls into question the accuracy and even legitimacy of the reports for purposes of assessing Expedition’s emissions.

Year	PM _{2.5} Emissions (tons/yr)		Difference (% higher)
	Dominici Lab Calculated	PDEP Reported	
2019	105	24	330%
2020	37	29	30%
2021	67	48	39%
Avg.	70	34	107%

⁹ https://ww2.arb.ca.gov/sites/default/files/2020-03/cookingstudy_0.pdf

¹⁰ https://ajosr.org/wp-content/uploads/journal/published_paper/volume-3/issue-4/ajsr2025_5wxo2apQ.pdf

¹¹ Balico Report, Appendix 4 and footnote 10; Canadys Report, Appendix 3 and endnote 12

Indeed, when referencing the Westmoreland plant as one of the two sources of emissions data, the Dominici Lab team thought it was important to state “Tenaska is ranked one of the top 12 polluters in the state and is well-known to exceed EPA limits on emissions in its operations.”¹² This misleading and inflammatory commentary is not appropriate for inclusion in a purported objective, technical report, especially without context or relevance, and it further belies an underlying policy bias, as mentioned above. Moreover, the reference to “top 12 polluters” is for carbon dioxide, not PM_{2.5}, and being one of the largest such emitters in the state means simply Westmoreland is a relatively large and very efficient plant, together which incentivizes the grid operator PJM to dispatch it virtually every day it is not in a planned outage. In other words, its carbon dioxide emissions are commensurate with its high run time.

In summary, the Dominici Lab reports offer only questionable validity and reflect underlying policy bias instead of rigorous scientific analysis due to their:

- ✓ Use of non-regulatory, non-standard models and methodologies;
- ✓ Comparison with improper and impossibly low concentration levels instead of those set by EPA and DEQ for ambient air quality and air permitting purposes;
- ✓ Use of inaccurate data; and
- ✓ Inclusion of irrelevant, inflammatory commentary.

¹² Balico Report footnote 12; Canadys Report endnote 14

III. Raske Report

Fluvanna County resident Benjamin Raske opines in a brief YouTube message and downloadable written summary on the purported health impacts of the proposed Expedition facility and the existing Tenaska Virginia Generating Station (TVGS), primarily from emissions of fine particulate matter, or PM_{2.5}.¹³ While referring to the plant as “very safe,” Mr. Raske goes on to make serious allegations regarding health impacts from its PM_{2.5} emissions using methods derived, in part, from the Dominici Lab reports.

It is unclear what dispersion model Mr. Raske used but his report indicates it was either not AERMOD or was used in screening mode.¹⁴ The accuracy of data used as inputs to Mr. Raske’s model¹⁵ diverges significantly from the actual (TVGS) and preliminary proposed (Expedition) data being used for the modeling in support of Expedition’s air permit application, as compared in the table below.

Model Inputs	Raske	TVGS / Expedition
Stack Height (ft)	200	153 / 180
Stack Diameter (ft)	8.2	18 / 20
Exhaust Temp (°F)	314	~200
Meteorological Data (yrs)	2023 (avg.)	2020-24
No. of Stacks	2	5
Capacity Factor ¹	0.5	1.0
PM _{2.5} Emissions 24-hr avg. (lb/hr) ²	1.2 - 2.0	~226
PM _{2.5} Emissions annual avg. (lb/hr) ²		~107
NO _x Emissions (lb/hr) ²	71.4	~143
SO ₂ Emissions (lb/hr) ²	6.3	~20
Secondary PM _{2.5} Formation ³	Harvard	EPA MERPs ⁴
Model Output	Raske	Actual
Max. Concentration (µg/m ³) ⁵	0.70	0.60

¹ maximum fraction of year operating

² total of all stacks; TVGS data are historical actual and Expedition data are preliminary proposed

³ methodology to calculate PM_{2.5} emissions caused by emissions of NO_x and SO₂ precursors

⁴ Modeled Emission Rates for Precursors: EPA recommended methodology for PSD permit applications

⁵ annual avg.

¹³ Health Impacts Analysis: Tenaska Dual Gas-Fired Power Plant Scenario – Fluvanna County, Virginia, November 2025 (Raske Report) [Tenaska Health Impact Analysis Fluvanna County VA 2025](#)

¹⁴ Raske Report, Section 6.1 Policy and Permitting Recommendations: “Conduct full AERMOD or CMAQ dispersion modeling before plant permitting to further refine health impact.”

¹⁵ Raske Report, Section 3.2

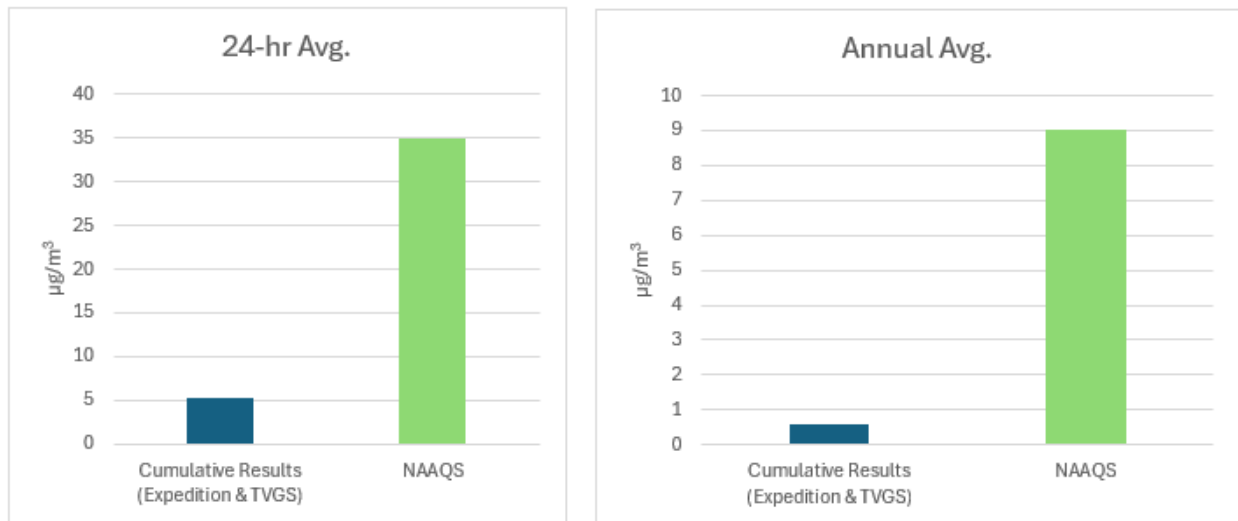
These data discrepancies point to the overall inaccuracy of Mr. Raske's analysis. Further, as the Director of Student Success Analytics and Assessment at the University of Virginia McIntire School of Commerce with degrees in East Asian Studies and Business Operations Management,¹⁶ it is not clear what qualifies him to attempt to perform such highly technical/scientific, health-based air quality studies.

In summary, the Raske report is of questionable value due to:

- ✓ Use of non-regulatory, non-standard models and methodologies
- ✓ Use of inaccurate model input data; and
- ✓ Reliance on Dominici Lab methodologies

IV. Expedition Preliminary PM_{2.5} Modeling Results

Preliminary results of PM_{2.5} modeling recently performed by Expedition's technical expert, provided in the table below, indicate the maximum cumulative impacts from BOTH Expedition and TVGS are/will be well below the NAAQS (<15%).



¹⁶ <https://www.linkedin.com/in/benjamin-raske-98859730/>

This remains true even when adding the conservatively high monitored background in Albemarle County, which includes impacts from all sources, including motor vehicles. Note that Expedition's results are based upon preliminary maximum emission rates while TVGS's are based upon historical actual emissions (except for the 24-hr PM_{2.5} which are based upon maximum hourly emissions). Actual emissions and, thus, impacts, will be much less. Note each plant's maximum impact is at a different location, so individual plant results are not additive.

Scenario	Avg. Period	NAAQS	Model Result ¹	% of NAAQS	Background ²	Model Result ^{1,3}	% of NAAQS
TVGS & Expedition Combined	Annual	9	0.60	7%	7.1	7.7	86%
	24-hr	35	5.17	15%	20.9	26.1	75%
Expedition Only	Annual	9	0.60	7%	7.1	7.7	86%
	24-hr	35	5.17	15%	20.9	26.1	75%
TVGS ⁴ Only	Annual	9	0.02	0%	7.1	7.1	79%
	24-hr	35	0.99	3%	20.9	21.9	63%

¹ µg/m³

² from monitor at Albermarle Co. High School

³ including background

⁴ based upon historical actual emissions except for 24-hr PM_{2.5} which is based upon max hourly



Memorandum

To: Fluvanna County Planning Commission
From: Expedition Generation Holdings, LLC
Date: November 14, 2025
Re: Expedition Generating Station – Environmental Summary

I. Introduction

Tenaska appreciates the interest and discussions regarding the important environmental considerations related to its Expedition Generating Station (Expedition). As a longstanding community stakeholder and business operator within the County, Tenaska strives to be a good corporate partner by strictly adhering to all applicable environmental regulations. Federal and state regulatory agencies are responsible for implementing and enforcing the statutes and regulations that govern these environmental considerations. However, as the County contemplates land use approvals for the proposed facility, Tenaska would like to describe the applicable regulatory procedures and practices to clarify how these key environmental considerations will be addressed.

Due to the state and federal statutory framework for environmental permitting and regulation, the Virginia Department of Environmental Quality (DEQ) does not accept permit applications for complete review until land use approvals have been issued by the locality. As a result, the detailed environmental studies, modeling, review and permitting will occur later in the development process.

The County's Comprehensive Plan acknowledges this regulatory framework with respect to air quality: "Fluvanna's air quality is a major asset to the County. The [EPA] establishes standards monitored by [DEQ], which determine whether a region is an "an air quality attainment area" or not. Fluvanna County lies within a region that achieves this designation."¹ DEQ, US Army Corps of Engineers (USACE), and a variety of other state and federal agencies are statutorily authorized to administer the permitting programs that implement the environmental protection regulations due to the vast experience and expertise on the topic.

Tenaska must obtain all applicable permits detailed in this memorandum and has agreed to include a condition in the special use permit requiring it to do so. Those post-zoning permitting processes will have their own public engagement and comment periods, as discussed elsewhere in this memo, that afford interested individuals many opportunities to voice their opinions and concerns. The air permitting process alone will include at least three local (i.e., within Fluvanna County) hearings/informational meetings involving DEQ, which has a staff of technical experts

¹ Fluvanna County Comprehensive Plan 2024, p. 21.

and permit writers who ensure Expedition meets all applicable state and federal standards. Any required permits will not be issued if Tenaska does not demonstrate compliance with all state and federal regulations.

Recognizing the importance of environmental considerations and the technical nature of the associated regulations, this memorandum seeks to provide the County with greater detail regarding these complex practices and procedures in an effort to demonstrate that these state and federal guardrails will address potential environmental impacts and protect the residents of Fluvanna County and the region.

II. Wastewater and Cooling Water Intake

A. Regulatory Authority authorized to DEQ with EPA Oversight

DEQ has been authorized by the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) program in accordance with the federal Clean Water Act (CWA) that regulates discharge into, and water intake from, Waters of the United States (WOTUS). This program is administered by DEQ as the Virginia Pollutant Discharge Elimination System (VPDES), and as part of the authorization granted to DEQ, EPA routinely reviews the VPDES program to ensure ongoing compliance with the CWA. The impacts of point source discharge and cooling water intake are evaluated in the VPDES.

B. Wastewater and Its Permitting Process

Wastewater permitting is a regulatory process that permits facilities to legally discharge wastewater into a sewer system or water bodies. The CWA prohibits any point source discharge into Waters of the United States (WOTUS) without first obtaining a permit. These permits ensure discharges will not impair water quality by assuring compliance with water quality standards for the receiving stream and its designated beneficial use(s) (i.e., drinking water supply, recreation, fish protection, etc.). Permits ensure that streams are not degraded, such that they cannot be used for the uses they have been designated by the DEQ. For example, the *Final 2024 305(b)/303(d) Water Quality Assessment Integrated Report*² (March 2025) indicates the designated beneficial use for the segment of the Rivanna River in the vicinity of the Tenaska Virginia Generating Station (TVGS) discharge is fish consumption.

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² The *Final 2024 305(b)/303(d) Water Quality Assessment Integrated Report* is available at <https://www.deq.virginia.gov/water/water-quality/assessments/integrated-report>

i) DEQ Review of Permit Application and Permit Drafting

As part of permit development, DEQ reviews the effects that the proposed wastewater discharge will have on the receiving stream, instream and off-stream uses, including water quality and aquatic species. DEQ bases their review on existing receiving stream background data in conjunction with engineering-estimated and/or actual characteristics of the wastewater to be discharged. Characteristics include, but are not limited to:

- Temperature
- Suspended solids
- Oil and grease
- Trace metals
- pH
- Chlorine
- Discharge flow volume and energy
- Minimum instream flow needs for instream uses

These characteristics are mathematically modeled to determine permit limits that not only protect the designated beneficial uses but also meet any standards specific to the industry being permitted and protect human health and the environment. Permits also require routine monitoring and laboratory analyses to ensure ongoing compliance with the established limits, as discussed below.

While drafting the permit, DEQ will be required to ensure permit limits meet or exceed federal effluent guidelines, to be reviewed and approved by the EPA. Other federal and state agencies, such as the US Fish & Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS) Virginia Department of Health (VDH), Virginia Department of Conservation and Recreation (DCR), and Virginia Department of Wildlife Resources (DWR) are often consulted by DEQ while drafting the permit.

ii) Public Comment on Draft Permit issued by DEQ

Once a draft permit is available, there is a minimum 30-day public comment period that allows any member of the public to comment on the permit prior to final permit issuance. Notice of the public comment period is provided via DEQ's website³ and the newspaper of general circulation within the area where the discharge is located (additionally, some agencies also receive a direct notice and copy of permitting documents). All comments must be in writing to the DEQ as specified in the public notice. DEQ must consider all comments received during the public comment period and develop a Response to Comments memorandum to address all "significant comments received"⁴ and if any changes to the draft permit were made including why or why not.

Additionally, a public hearing can also be requested where both written and oral statements can be provided to DEQ. The previously listed federal and state agencies also have another

³ <https://www.deq.virginia.gov/news-info/shortcuts/public-notice/water/surface-waters-vpdes>

⁴ *VPDES Permit Writers' Manual, Version 1.02 (DEQ, July 30, 2025).*

opportunity to review and comment on the draft permit. The permitting process can take several months to over a year to complete depending on the complexity of the proposed discharge.

iii) 5-year Permit Renewal: DEQ Re-evaluation

Lastly, once a final permit is issued, it must be renewed every five years. During this renewal process, the DEQ re-evaluates the permit by the process described above to confirm the validity of existing permit limits and/or establish new limits based on current data. During each renewal process, federal and state agencies and the public again have the opportunity to provide comments to DEQ.

C. CWA Section 316(b) – Cooling Water Intake

i) Cooling Water Intake Explained

The VPDES program also regulates cooling water intake structures (CWIS) used by the permitted facilities in accordance with CWA Section 316(b). CWIS are structures constructed within surface waters to withdraw water used for process cooling. The purpose of CWA Section 316(b) is to minimize impacts on aquatic species (e.g., pulled into the structure with the water or impinged against the screen) in the vicinity of the CWIS.

ii) Facilities Subject to CWA Section 316(b)

These requirements apply to facilities using surface waters for process cooling (e.g., cooling towers) and not necessarily the entity (i.e., ECTI) that owns and/or operates the CWIS.

Section 316(b) requires Best Technology Available (BTA) be implemented to minimize mortality to aquatic life due to being caught against the intake (i.e., impingement) or caught within the cooling water system (i.e., entrainment).

iii) DEQ Cooling Water Intake Review

During the permitting process, DEQ will evaluate the water intake structure design, expected withdrawal volumes, source water biological data (including any Threatened and Endangered Species), cooling water system design, and any site-specific impingement and entrainment requirements. These data are reviewed to ensure compliance with Section 316(b) and the protection of aquatic life in the source water.

Like the wastewater discharge, the permit will also include ongoing compliance requirements for the CWIS and Section 316(b) will be re-evaluated every five years during the wastewater permit renewal process.

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D. Ongoing Monitoring to Ensure Compliance with VPDES Permit

As discussed above, the VPDES permit will require routine monitoring and reporting to ensure compliance with the permit is maintained. Included herein is a summary of these requirements based on the permit for the existing Tenaska Virginia Generating Station (TVGS). Tenaska anticipates a permit for Expedition would contain similar requirements but could vary based on ultimate discharge location and final design.

Wastewater is monitored at the facility, prior to discharge into the Rivanna River. Monitoring includes continuous flow and temperature readings as well as routine (daily, monthly) sampling and analysis for:

- pH
- Chlorine
- Suspended solids
- Oil and grease
- Chromium
- Zinc
- Discharge rate of flow

While some of these parameters can be monitored by TVGS, several require a third-party laboratory to perform the required analyses. The third-party laboratory must be certified by the Virginia Division of Consolidated Laboratory Services (DCLS) to ensure they are complying with EPA-specified methods for analyzing wastewater.

TVGS is also required to perform routine whole effluent toxicity (WET) testing that evaluates the wastewater to ensure it is not toxic to aquatic life. Again, this testing is carried out by a specialized lab that is certified by the Virginia DCLS.

Results from monitoring are submitted to DEQ on a routine basis, via monthly discharge monitoring reports (DMRs), to demonstrate compliance with permit limits. DEQ also completes routine on-site compliance inspections to ensure adherence to permit and regulatory requirements. These reports and inspection results are publicly available from DEQ via Freedom of Information Act (FOIA) request⁵. EPA's Enforcement and Compliance History Online (ECHO) database⁶ confirms TVGS's exemplary record.

Ongoing compliance requirements related to Section 316(b) and the CWIS include monitoring cooling water intake, make-up, and cooling water discharge volumes daily. This data is submitted to DEQ monthly via the aforementioned DMRs. TVGS also performs preventative maintenance to ensure proper operation. These records are reviewed by DEQ during on-site inspections and/or when requested.

⁵ FOIA requests can be made here: <https://www.deq.virginia.gov/news-info/freedom-of-information-act>.

⁶ [Enforcement and Compliance History Online | US EPA](#)

III. Water Withdrawals

A. Water Withdrawal Explained

The DEQ regulates surface water (i.e., stream, lake, etc.) withdrawals through the Virginia Water Protection (VWP) program. The VWP program requires any facility withdrawing water to obtain a Surface Water Withdrawal (SWW) permit prior to construction to ensure the amount withdrawn does not adversely impact other users or aquatic life. The SWW permit covers both the water withdrawal and the associated construction impacts.

B. Water Service Provider

Expedition has applied for water service from East Coast Transport, Inc. (ECTI), an existing Virginia water public service corporation owned by Tenaska, Inc. ECTI supplies raw water to TVGS and the Dominion Bear Garden Generating Station. ECTI also has a contract with Buckingham County for future water needs.

C. Virginia Water Protection Permit

Any water withdrawal permitting (i.e., Virginia Water Protection [VWP] Permit) that may be required, will be completed by ECTI. As part of the VWP process, DEQ will solicit comments from the Virginia Department of Wildlife Resources (DWR), Virginia Department of Conservation and Recreation (DCR), Virginia Marine Resources Commission (VMRC), Virginia Department of Health (VDH), USACE, and USFWS. These agencies will review the VWP permit to ensure environmental impacts (wildlife, natural resources, wetlands, etc.) caused by the proposed water withdrawal are minimized.

D. Anticipated Water Usage for Expedition

Expedition anticipates needing 7 million gallons per day of water when averaged over a one-year period. This equates to approximately 0.20% of the average daily James River water flow over the past 10 years⁷, as detailed in the following table.

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⁷ James River water flows obtained from the USGS gage located at Scottsville, VA (USGS Station ID 02029000; [Statistics for James River at Scottsville, VA - USGS Water Data for the Nation](#)).

**Expedition Daily Average Water Usage
Compared to Annual Average James River Flows**

Year	James River ¹		Expedition		% of James River
	(cfs) ²	(MGD) ²	(cfs) ²	(MGD) ²	
2015	5,464	3,532	10.8	7	0.20
2016	5,460	3,530			0.20
2017	4,081	2,638			0.27
2018	8,422	5,444			0.13
2019	6,677	4,316			0.16
2020	8,698	5,623			0.12
2021	5,443	3,518			0.20
2022	4,659	3,012			0.23
2023	3,834	2,478			0.28
2024	4,732	3,059			0.23

¹ Annual average James River flows based on the average daily flow for the year. Obtained from: <https://waterdata.usgs.gov/monitoring-location/USGS-02029000/>

² cfs = cubic foot per second; MGD = million gallons per day

E. Water Withdrawal Monitoring

ECTI is currently required to monitor the James River water flow and must limit or cease withdrawals from the James River when the flow decreases below specific thresholds (i.e., during drought conditions). James River water flow monitoring and ECTI withdrawal data is reported to DEQ semiannually. During the VWP Permit process for ECTI, DEQ must re-evaluate any water conservation measures that may apply as well as consider the impact, if any, to downstream users of the James River. VWP permits must be renewed every fifteen years and during each renewal process, DEQ will re-evaluate the withdrawals in consideration of recent data.

IV. Air Quality

A. Introduction & Key Considerations

This section is related to air quality in Fluvanna County and the broader region, specifically fine particulate matter (PM_{2.5}), demonstrating the minimal impact the existing TVGS plant has on air quality, and the similar minimal impact Expedition is reasonably expected to have. Certain county-level health data are presented comparing Fluvanna County to the surrounding counties, which show no disparate incidence rates. The following sections discuss the Expedition permitting process and the comprehensive compliance requirements for the TVGS plant that are also expected to apply to Expedition.

B. Regulatory Authority under Clean Air Act & Its Public Purpose

The federal Clean Air Act (CAA) and related regulations issued by EPA and the State Air Pollution Control Board establish the process for protecting public health from air emissions. This is done through National Ambient Air Quality Standards (NAAQS) that are based on criteria allowing for an adequate margin of safety to protect public health. The primary NAAQS provide public health protection, including the health of “sensitive” populations such as asthmatics, children and the elderly.

C. What is PM_{2.5}

Sources of PM_{2.5}, known as “fine particulate matter” given it’s small size with a diameter less than or equal to 2.5 microns, which is well less than the width of human hair) emissions are many and include industrial manufacturing, wood burning, mobile sources such as cars and trucks, windblown dust, wildfires, pollen, plant spores, and power plants. EPA, in partnership with states, monitors ambient concentrations at over 1,000 sites across the country using sampling apparatuses. The data are used to assess whether areas are meeting the NAAQS and, if not, additional restrictions are placed upon emission sources to reduce ambient concentrations. In 2024, under the Biden Administration, the EPA reevaluated the PM_{2.5} NAAQS, as periodically required by the CAA. That reevaluation, considering the latest health literature, input from EPA’s independent Clean Air Scientific Advisory Committee, and hundreds of thousands of public comments, reduced the annual standard by 25% [i.e., from 12 micrograms of PM_{2.5} per cubic meter of air ($\mu\text{g}/\text{m}^3$) to 9 $\mu\text{g}/\text{m}^3$] and left the 24-hour standard as is. The EPA Administrator certified that these standards would protect, with an adequate margin of safety, the health of at-risk populations including children, older adults, those with pre-existing cardiovascular and respiratory diseases, and minority populations.⁸⁹ The EPA does not set any of the NAAQS at zero for a reason: it believes doing so is not necessary to adequately protect public health.

D. Fluvanna County PM_{2.5} Concentrations Well Below Federal Health-Based Standards

The monitored ambient air concentrations for PM_{2.5} for Fluvanna County are well below these latest PM_{2.5} NAAQS, as demonstrated by data collected at the closest monitor at Albermarle High School in Albermarle County, in a densely populated area a short distance from Charlottesville. Below are the latest 3-year averages for both the daily and annual averaging periods, used to determine attainment of the NAAQS, demonstrating the concentration of PM_{2.5}

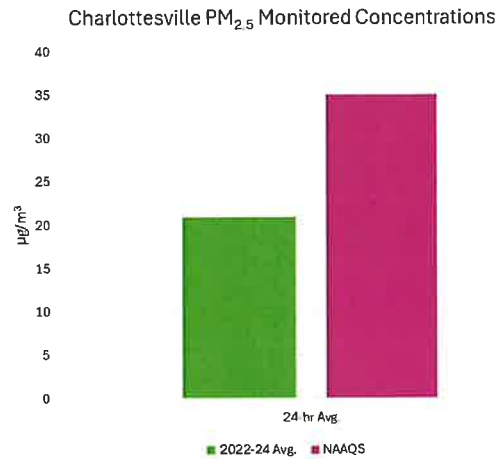
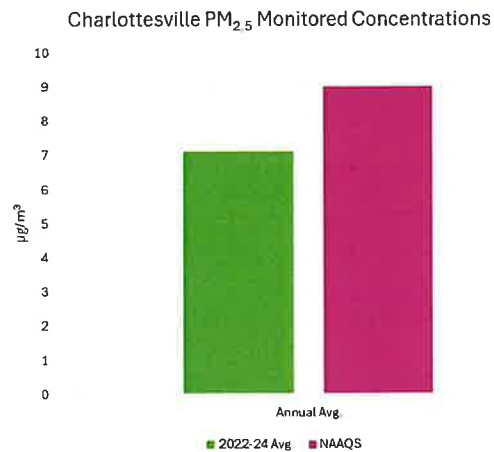
⁸ In leaving the 24-hr average PM_{2.5} NAAQS just last year unchanged at 35 $\mu\text{g}/\text{m}^3$, USEPA concluded:

“The Administrator believes that a 24-hour standard set at 35 $\mu\text{g}/\text{m}^3$ would continue to be sufficient to protect public health with a margin of safety, and believes that a lower standard would be more than what is necessary to provide this degree of protection when considered in conjunction with a revised annual standard.”

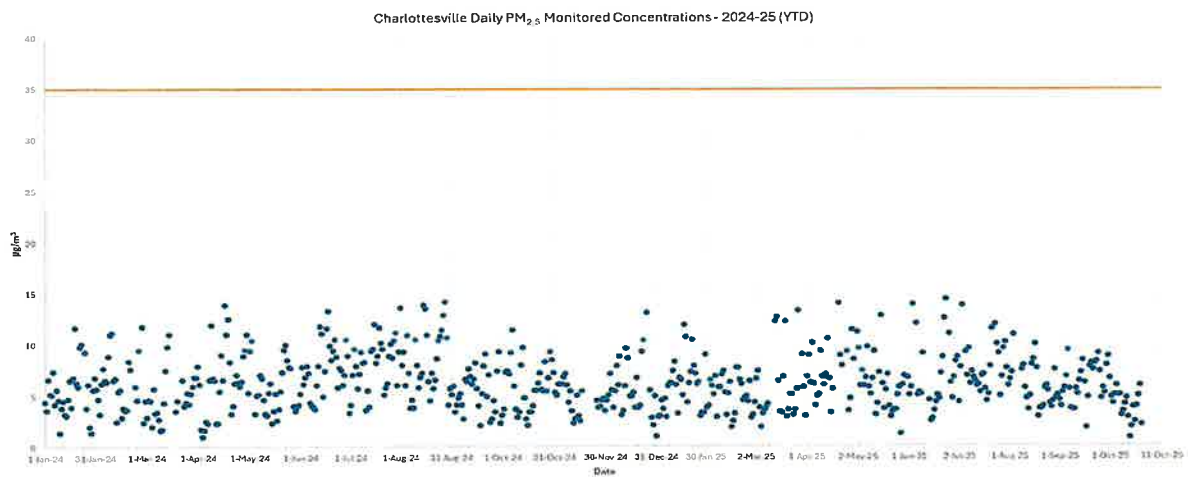
⁹ In lowering the annual average PM_{2.5} NAAQS just last year from 12.0 $\mu\text{g}/\text{m}^3$ to 9.0 $\mu\text{g}/\text{m}^3$, USEPA concluded:

“The Administrator judges that such a standard would protect, with an adequate margin of safety, the health of at-risk populations, including children, older adults, those with pre-existing cardiovascular and respiratory diseases, minority populations, and low SES populations. “The Administrator believes that a standard set at 9.0 $\mu\text{g}/\text{m}^3$ would be sufficient to protect public health with a margin of safety, and believes that a lower standard would be more than what is necessary to provide this degree of protection.”

in the air breathed by area residents is well below the levels set by EPA to be protective of public health, including sensitive groups.

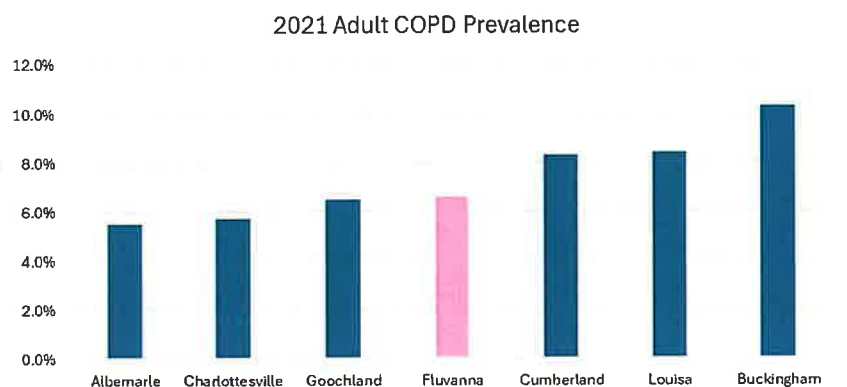
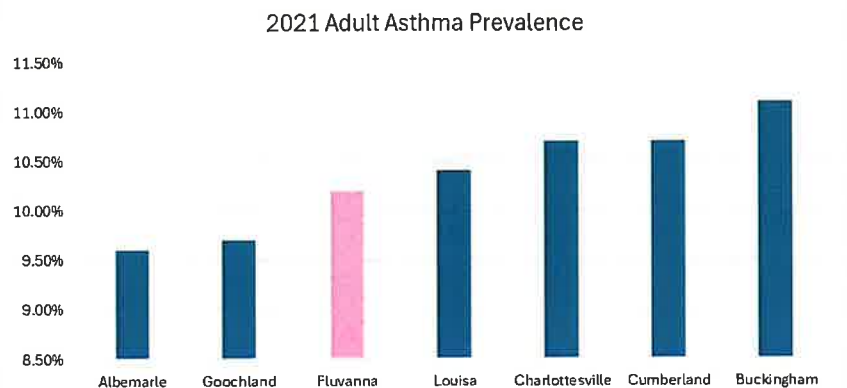


Additionally, daily 24-hour average sampling results from 2024 through 2025 YTD also demonstrate the regional air quality is well below the NAAQS (orange line).

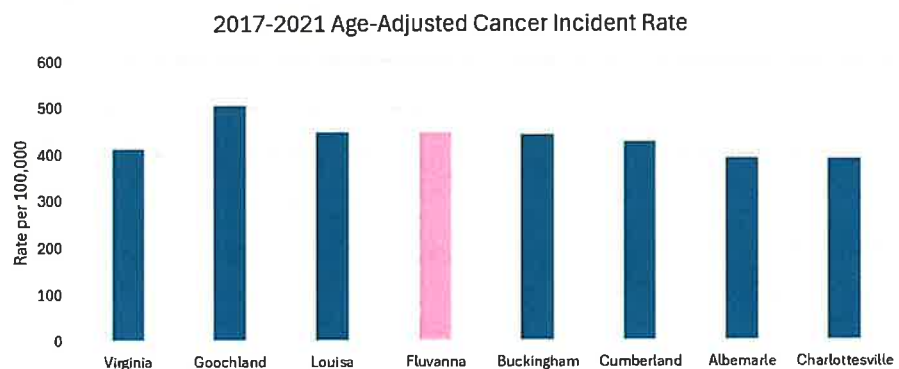


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As these results relate to County inhalation-related chronic health, Fluvanna County's prevalence of adult asthma and COPD is in line with surrounding counties.



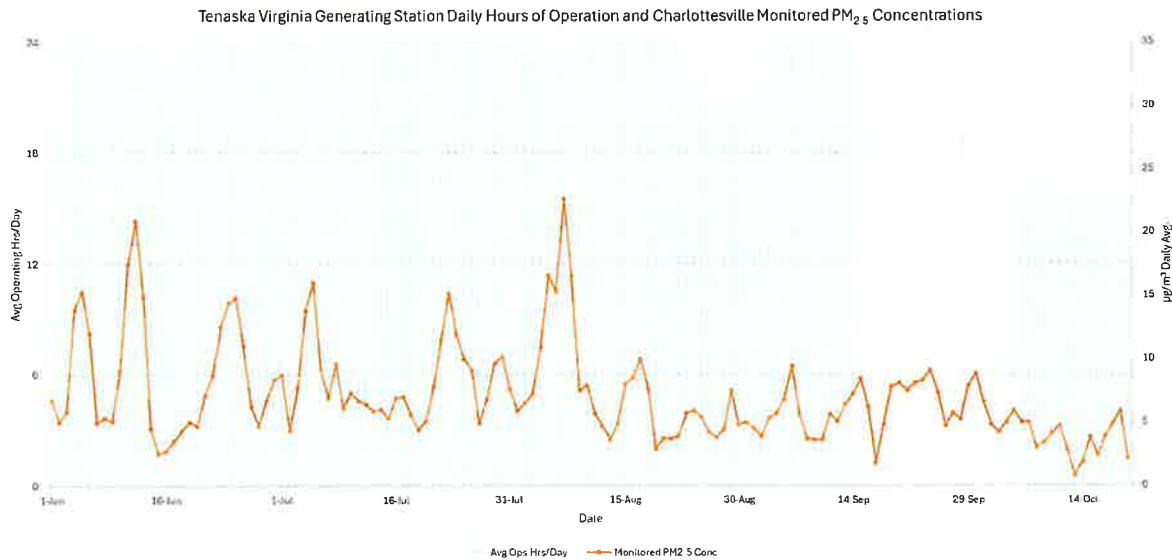
According to the CDC, Fluvanna County's incidence of all types of cancer is also similar to the surrounding counties.



National Cancer Institute/Centers for Disease Control and Prevention National Environmental Public Health Tracking Network
<https://www.statecancerprofiles.cancer.gov/map/map.withimage.php?51&county&001&001&00&0&01&0&1&5&0#results>

E. TVGS Minimal Impacts to Air Quality in Fluvanna County

Further, an analysis of the daily PM_{2.5} data (orange dots below), coupled with the existing TVGS plant's operating profile from June 2025 through October 2025 (blue bars below in avg hours per day of operation among the three units), indicates TVGS's operation has no correlation to monitored fine particulate matter ambient concentrations. For example, the TVGS operated around the clock for most of the summer, with consistent emissions, while monitored concentrations were quite variable. The monitored concentrations remained similar during the ~three weeks the TVGS was completely shut down for its fall outage.



Note that monitors are typically placed in areas of highest impact, either near very large emission sources (e.g., coal-fired plants) or, more typically, in urban areas given the relative greater number of emission sources. DEQ believes Charlottesville, and the immediately surrounding area, to be the highest impact area of the region given its urban size and contribution from mobile sources.¹⁰ Said differently, PM_{2.5} concentrations in Fluvanna County would be expected to be less than in Charlottesville and the adjacent areas.

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¹⁰ "Air pollutants come primarily from the combustion of fossil fuels from stationary and mobile sources, not only locally but also from other areas. Motor vehicle emissions are the major local source." Fluvanna County 2015 Comprehensive Plan, 2024 Review, adopted September 18, 2024, p. 21.

Similar plants are indicative of what is expected for Expedition. Below are the modeling results from the existing TVGS plant (“Fluvanna Results”) that was conducted 23 years ago, comparing them to the standards applicable at that time (“NAAQS 2000”) as well as the applicable current standards (“NAAQS 2025”). Note they are all less than 15% of the allowable standards, so well below allowable emission levels.

**Tenaska Fluvanna Generating Station
2000 Air Quality Modeling Results¹
Compared to 2000 and 2025 NAAQS**

Pollutant	Avg. Time	Fluvanna Results ²	NAAQS (2000)	NAAQS (2025)
NO ₂	annual	1	100	100
	1-hr	—	—	188
PM ₁₀	annual	1	50	—
	24-hr	5	150	150
PM _{2.5} ³	annual	1	15	9
	24-hr	5	65	35
SO ₂	annual	0	80	—
	24-hr	3	365	—
	3-hr	18	1,300	—
	1-hr	—	—	196
CO	8-hr	63	10,000	10,000
	1-hr	185	40,000	40,000

¹ all values in µg/m³

² Fluvanna-only (i.e., do not include background or surrounding sources) because results did not even exceed Significant Impact Levels

³ not evaluated due to the PM₁₀ surrogate policy in effect at that time; PM₁₀ results can be used as proxy given all PM₁₀ from natural gas combustion are assumed to also be PM_{2.5}

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Below are results from two recently permitted facilities¹¹ using the same two-combustion turbine configuration and of the relative size proposed at Expedition. The PM_{2.5} results show the impacts from the facilities without regard to already-occurring background concentrations are virtually identical and well below the NAAQS for both averaging periods. Expedition's results are expected to be very similar.

**Recently Permitted 2-Unit Plants with
Advanced Class Turbines Modeling Results^{1,2,3}**

Pollutant	Avg. Time	NAAQS ($\mu\text{g}/\text{m}^3$)	Entergy Orange County (TX)	Jackson Energy Center (IL)	Avg. % of NAAQS
NO ₂	1-hr	188	65.0	23.1	23%
PM ₁₀	24-hr	150	3.0	2.5	2%
PM _{2.5}	annual	9	0.3	0.2	2%
	24-hr	35	2.4	2.4	7%
SO ₂	1-hr	196	2	—	1%
CO	8-hr	10,000	548	222	4%
	1-hr	40,000	10,872	471	14%

¹ plant contribution only (i.e., does not include background or surrounding sources)

² NO₂ and CO variability between the two plants are due to differences in startup/shutdown profiles and assumptions; PM_{10/2.5} results, less affected by startup/shutdown, are extremely consistent

³ advanced class turbines include Mitsubishi G/J-class, GE H-class, or Siemens H-class.

F. Air Quality Permitting Process

Expedition will need to apply to the DEQ for a Prevention of Significant Deterioration (PSD) air permit which is required to be issued before construction can begin. This multi-hundred-page application will include a control technology evaluation, a regulatory applicability review, and an air quality modeling analysis demonstrating compliance with all applicable ambient standards. DEQ's PSD permit application review process¹² is below, spanning approximately one year, which includes numerous public engagement requirements. The EPA will also review the draft permit and offer comments to DEQ if necessary. DEQ's regulations are continuously reviewed, and approved, by EPA via the State Implementation Plan.

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¹¹ Entergy Orange County Advanced Power Station Orange, TX; Jackson Generation Elwood, IL

¹² Air Permitting Guidelines - New and Modified PSD Sources; DEQ Nov 2015 (Draft)

Activity	#Days	Months from Start Date												Comments
		1	2	3	4	5	6	7	8	9	10	11	12	
Pre-application Meeting		◆												
Prepare Initial Application														
Complete Application Submittal: BACT, Modeling, All Final & w/o Deficiencies														
DEQ Initial Review	30													
DEQ Issue Initial Letter of Determination (ILOD) (see distribution list)														
Applicant Notice - Informational Briefing (DEQ must pre-approve ad)														Within 30 days of receipt of ILOD
Public Informational Briefing (Applicant Holds)														30-60 days after notice
Draft Permit														
Draft Permit to Source														
Negotiate Permit Terms														
Public Participation														
Draft Permit to FLM														
FLM Adverse Impact Determination (Y/N)	30													Determination on Adverse Impact within first 30 days of FLM review.
FLM Review	60													
DEQ Public														If adverse impact

Within 12 months of beginning operation, Expedition will need to apply for a Title V operating permit. This permit will be renewed every five years and include a public notice and comment period (EPA will also review this draft permit prior to DEQ issuance). Note there were no comments submitted to DEQ the last several times the permit for the existing TVGS plant was renewed.

G. Ongoing Compliance to Ensure Compliance with Clean Air Act

Once in operation, Expedition will be required to perform monitoring, keep records, and submit reports to DEQ to confirm ongoing compliance, similarly to how the existing TVGS facility has been required to perform such actions. Monitoring will include continuous in-stack sampling of NO_x and CO emissions, continuous measurement of certain process parameters such as fuel consumption and periodic sampling of fuel quality used to calculate emissions of other pollutants, and periodic stack testing to confirm compliance. Routine air quality compliance documents submitted to EPA and/or DEQ, which are certified by the Responsible Official, will include:

- Quarterly Electronic Data Report
 - Hourly NO_x, SO₂, and CO₂ emissions, fuel consumption, hours of operation
 - CEMS quality assurance test results
- Quarterly Air Emissions Monitoring
 - Results of required emissions monitoring and details on any exceedances and/or Continuous Emissions Monitoring System (CEMS) downtime and reasons/corrective action for such
 - Fuel quality sampling results
- Semi-Annual Title V Monitoring and Deviation Report
 - Results of required monitoring and notes of any deviations from those requirements
- Annual Title V Compliance Certification
 - Statement of compliance with all permit conditions for the previous calendar year with any notes of non-compliance
- Annual CEMS Relative Accuracy Test Audit (RATA)
 - Ensures accuracy of the CEMS and submitted emissions data
 - Performed after DEQ approves protocol and it typically witnessed by DEQ
 - Annual Emissions Inventory (actual emissions of all pollutants emitted during the previous calendar year)

DEQ will typically conduct an on-site inspection at least annually to observe the CEMS RATA and verify compliance with all applicable regulations and permit conditions. We also routinely contract for third-party environmental audits at all our facilities. These reports and inspection results are publicly available from DEQ via a Freedom of Information Act (FOIA) request¹³. EPA's ECHO database confirms TVGS's exemplary record.

¹³ FOIA requests can be made here: <https://www.deq.virginia.gov/news-info/freedom-of-information-act>.



Memorandum

Project: Expedition Generating Station

To: Fluvanna County Department of Planning and Community Development
132 Main Street
P.O. Box 540
Palmyra, VA 22963

From: WSP USA, Inc.
1100 Boulders Parkway, Suite 503
Richmond, Virginia 23225

Cc: Austin Zigler (Tenaska, Inc.), Brian Breissing (WSP USA, Inc.)

Date: August 28, 2025

Re: Executive Summary of Environmental Surveys

Introduction

On behalf of Tenaska, Inc., WSP USA conducted a Wetlands and Waters Delineation, Pedestrian Cultural Survey, and Threatened and Endangered Species Habitat Survey for the Expedition Generating Station Project Area in July and August 2025.

Site Setting

The Project Area is located off Branch Road in Fluvanna County, Virginia. The Project Area includes two parcels, encompassing approximately 425.4 acres, consisting primarily of mixed pine and hardwood forest. The Project Area is bound by mixed hardwood forests and open pastureland in all directions, with several residential properties located immediately south and west. Surface water within the Project Area flows generally from west to east, ultimately draining into Middle Fork Cunningham Creek.

Wetland and Waters Delineation

The purpose of the delineation was to identify wetlands and waters within the Project Area that may be subject to federal jurisdiction under Section 404 of the Clean Water Act (33 U.S.C. §1344), as administered by the U.S. Army Corps of Engineers (USACE), and state jurisdiction under Section 401 of the Clean Water Act (33 U.S.C. §1341), as implemented by the Virginia Department of Environmental Quality (DEQ). A summary of findings is included in Table 1.

Table 1: Summary of Delineated Wetlands and Waters in the Project Area

Wetlands			Streams					
PFO	PSS	PEM	Perennial		Intermittent		Ephemeral	
(ac)	(ac)	(ac)	(ac)	(lf)	(ac)	(lf)	(ac)	(lf)
19.62	0.06	0.30	1.29	12,090	0.61	9,407	0.11	3,114
Total Wetland Area = 19.98 ac			Total Stream Area = 2.00 ac					
			Total Stream Length = 24,610 lf					
Notes: lf = linear feet; ac = acres; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland								

Cultural Resources Survey

WSP completed a pedestrian reconnaissance survey, and no cultural resources were identified within the Project Area. Additional surveys will be completed as required to support future permitting efforts.

In addition, WSP completed a review of the Virginia Cultural Resources Inventory (VCRIS) maintained by the Virginia Department of Historic Resources (VDHR), the National Register of Historic Places (NRHP), and the National Park Service database indicates there is one previously recorded archaeological site east of the Project Area and no architectural resources within the Project Area.

Threatened and Endangered Species Habitat Survey

An onsite habitat assessment was completed during July 2025 and based on the assessment, WSP identified potential habitat for the species included in Table 2. None of the species identified in Table 2 were observed by WSP during the survey.

Table 2. Summary of Federal and State Protected Species with Potential Habitat in the Project Area

Common Name	Potential Habitat in Project Area
<i>Terrestrial Species</i>	
Northern Long-eared Bat	Forested areas
Tricolored Bat	
Little Brown Bat	
Monarch Butterfly	Clearcuts, roadsides, and water line ROW
Appalachian Grizzled Skipper	Clearcuts, roadsides, and water line ROW
Loggerhead shrike	Clearcuts
Bald Eagle	No suitable habitat but could occur in transit among foraging habitat along the James River and other nearby waterbodies
<i>Aquatic Species</i>	
Yellow Lance	Limited, marginal suitable habitat in the lowermost reaches of Middle Fork Cunningham Creek and may occur in downstream waters such as the Rivanna River.
Atlantic Pigtoe	
Green Floater	
Brook Floater	

Conclusion

This memorandum serves as an executive summary of the cultural and natural resources surveys that were conducted in July and August of 2025 for the Expedition Generating Station project. Please contact Austin Zigler at azigler@tenaska.com or (402) 758-6229 if any further documentation regarding environmental surveys is required.

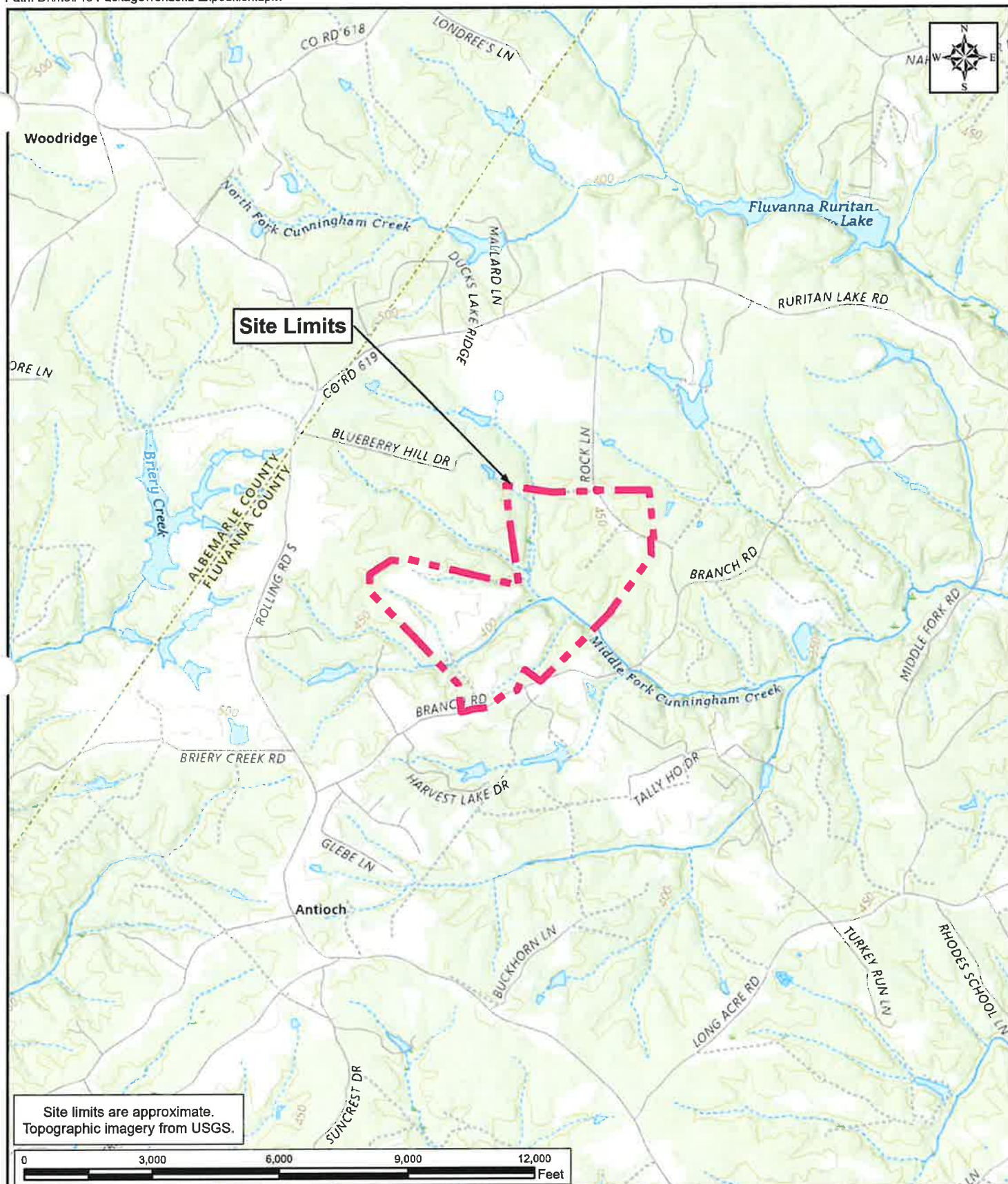
Sincerely,

WSP USA, Inc.


Parker Culver
Environmental Scientist

ENCLOSURE:

Figure 1: Vicinity Map



Site limits are approximate.
Topographic imagery from USGS.



EXPEDITION
FLUVANNA COUNTY, VIRGINIA
FIGURE 1: VICINITY MAP

PROJECT STUDY LIMITS: 425.4 ACRES
LATITUDE: 37.8666897
LONGITUDE: -78.3941444
U.S.G.S. QUADRANGLE(S): SCOTTSVILLE & PALMYRA
DATE(S): 2022
WATERSHED(S): RIVANNA (JAMES RIVER BASIN)
HYDROLOGIC UNIT CODE(S): 02080204



TENASKA
INC.