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Atlantic Coast Pipeline: Technical Information Response, Nationwide 12 permit Specific Wetland and/or Stream Crossings

In these technical information comments, I report on *key required data that have been omitted from Atlantic Coast Pipeline's (ACP) application documents, and FERC's subsequent FEIS*, that point to far higher environmental impacts from wetlands and stream/river crossings in Buckingham County, Virginia than ACP and FERC reports provide. These omissions include and center on *ACP's knowledge of yet erasure of factual demographic data* – actual resident population size, majority African American race, mostly elderly and the very young, and Freedmen descent of current residents at ACP's proposed Compressor Station 2 site. A tiny minority only of Buckingham County residents has access to municipal water, in Dillwyn, VA. All other *residents of Buckingham County rely on individual wells for 100% of their drinking water*. This includes both the CS 2 and James River HDD locations.

I respectfully submit the technical information provided below based on my 22 years of professional experience with design and implementation of Fulbright- and NIH-funded community and clinical medical research studies. I am also a co-founding community member of Yogaville Virginia. I ask the scientists of Virginia's Water Control Board to review these missing data, as necessary for decision-making about Nationwide 12 permit issues. These data directly relate to sole drinking water source degradation issues at the very least and permanent contamination at the worst, for all individual well water drinking sources at two sites: 1. CS 2's aggregated facility and pipeline infrastructure in existing wetlands and Ripley Creek crossing; and, 2. James River HDD crossing impacts on the James, its tributaries, streams, springs, ponds, and individual wells water quality based on the site's hydrogeological and topographic conditions.

Close examination of Buckingham County reveals disproportionately high ACP planned impacts on sole sources of drinking water. In Buckingham, ACP and FERC misapply the county's predominantly rural character to both ACP's CS 2 location and its James River HDD crossing. If built, both key infrastructure components of long distance hazardous, toxic transmission place at highest risk far higher populations of people than Dominion and FERC reports would allow VDEQ to know and act upon. These population erasures limit VDEQ's capacity to assess the

scale of degradation and contamination risks to single source drinking water at hazardous sites ACP would newly introduce into Virginia's ecosystems and water resources.

Rural Classification and its consequences to water sources

These misapplied "Rural" classifications have significant consequences for local drinking water source issues, particularly as they interface with the specific hydrogeology of Buckingham County (see Dodds reports, attached). PHMSA – Pipeline and Hazardous Materials Safety Administration states,

"The need for class location designations arose because a "greater number of people in proximity to the pipeline substantially increases the probabilities of personal injury and property damage in the event of an accident. ... In addition, class locations are considered in determining the frequency of patrolling of transmission lines to observe surface conditions on and adjacent to the transmission line right-of-way¹⁹ and, in conducting leakage surveys. The number of buildings within the sliding mile at any point during the movement would determine the class location for the section of pipeline within that sliding mile." [<https://www.phmsa.dot.gov/regulations/title49/interp/PI-81-001>]

"Rural" classification allows for 75% thinner, less heavy pipeline construction specifications. It allows for 1000% greater distances between shut-off valves (from 2.5 miles to 20 miles apart). Thus, being classified as "Rural" or Class 1 significantly increases the impacts on water sources of routine, expected pipeline leaks at CS 2. At the Buckingham County special use permit exemption hearing, January 3, 2017, Dominion responded to direct questions about leaks and contamination of their water supplies by residents of Union Hill, saying "***There is no guarantee against leaks from pipeline daily operations.***" Expected, routine leaks are especially troubling at CS 2 where the ACP's business plan for export markets requires its intersection underground with the existing 4-pipeline Transco, in the middle of existing wetlands.

At the James River HDD site, "rural" construction concerns apply at a floodplain where marble underlaid by karst features, in a faultline with shale deposits where the proposed HDD site is immediately followed by a steep vertical ascent then descent then ascent to a ridge-line (described in greater detail in attached aquifer and hydrogeology documents).

Therefore, Dominion's omissions of facts about actual far higher population at the CS 2 and the James River HDD provide considerable cost benefits in construction, in not-undertaken preventive and mitigation requirements, at these two key, significantly hazardous infrastructure sites. These omissions allow for geometric increases in water source-contamination impacts' costs to health, individual and personal economies, and cumulative social costs, that would be transferred to and borne by larger than reported numbers of impacted residents.

Demographics Part I: Union Hill household study at proposed ACP CS 2 site Majority race, ages, health, historic cultural information, current uses of their land

Under the National Environmental Policy Act (NEPA), "each Federal agency should analyze the environmental effects, including human health, economic, and social effects of Federal actions, including effects on minority populations, low-income populations, and Indian tribes. Agencies should consider the composition of the affected area to determine whether there may be disproportionately high and adverse human health or environmental effects on these populations. And recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed action" (NEPA, 7).

“Agencies should identify a geographic scale for which they will obtain demographic information on the potential impact area. Agencies may use demographic data available from the Bureau of the Census. ... [However] The fact that census data can only be disaggregated to certain prescribed levels (e.g., census tracts, census blocks) suggests that pockets of minority or low-income communities, including those that may be experiencing disproportionately high and adverse effects, *may be missed in a traditional census tract-based analysis.*” ***Caution is called for in using census data due to the possibility of distortion of population breakdowns*** ... In addition to identifying the proportion of the population of individual census tracts that are composed of minority individuals, analysts should attempt to identify whether high concentration “pockets” of minority populations are evidenced in specific geographic areas. ... The IWG guidance also advises agencies not to ‘artificially dilute or inflate’ the affected minority population” (1997, 15-16).

I quote NEPA at such length, because recently, at the Governor’s Advisory Council on Environmental Justice, Dominion representatives responded to council questions about why they did not correct their CS 2 population reports to reflect the population numbers identified in a door-to-door household study I designed, implemented and submitted findings from in every public hearing and comment period, by saying “We used census tract data because it is the law.” In 2015, when ACP submitted its application to FERC, and then in FERC’s own FEIS in 2017, Appendix U 4-512 states, **“No census tracts within 1 mile of ACP or SHP have a minority population greater than 50 percent or meaningfully greater than that of the county in which it is located.”** That is, ACP and FERC both used for CS 2 population, the census tract data from 2010 for the whole of Buckingham County – 29.6 people per square mile.

FERC did acknowledge that the:

proposed Compressor Station 2 would be within a census tract that is designated a low-income environmental justice population. None of the three census tracts within 1 mile of the proposed Compressor Station 2 are designated minority environmental justice populations based on the methodology described above.

The door-to-door household study for CS 2 that I designed and oversaw of the 1-mile radius that encircles the proposed CS 2 site took four months to reach 63 of the 99 households (66%) that lie clustered in some places, on long lines on Rt. 56, a high traffic route, on every road on each side of this triangular property purchased by Dominion that includes the existing 4-pipeline Transco easement. Easily visible to the naked eye to anyone standing at Dominion’s Transco easement – and on each of these roads are the dense clusters of homes or the mile long line of homes just across the 2-lane highway.

The door-to-door household study of Union Hill (never once actually named in an ACP or FERC report) was to counteract with evidence ACP’s de-populating of the CS 2 neighborhood. To learn as much as possible about Union Hill, I undertook a NEPA environmental justice review format community study. The component elements were to learn: majority race, residents’ age ranges, existing health conditions that would be exacerbated by close proximity to the toxic polluting air emissions cited in ACP’s special use permit application for a zoning exemption in an A1 Agricultural Zone; existing cultural activities and agricultural uses of their lands; and, historic cultural resources, including family burials nearby.

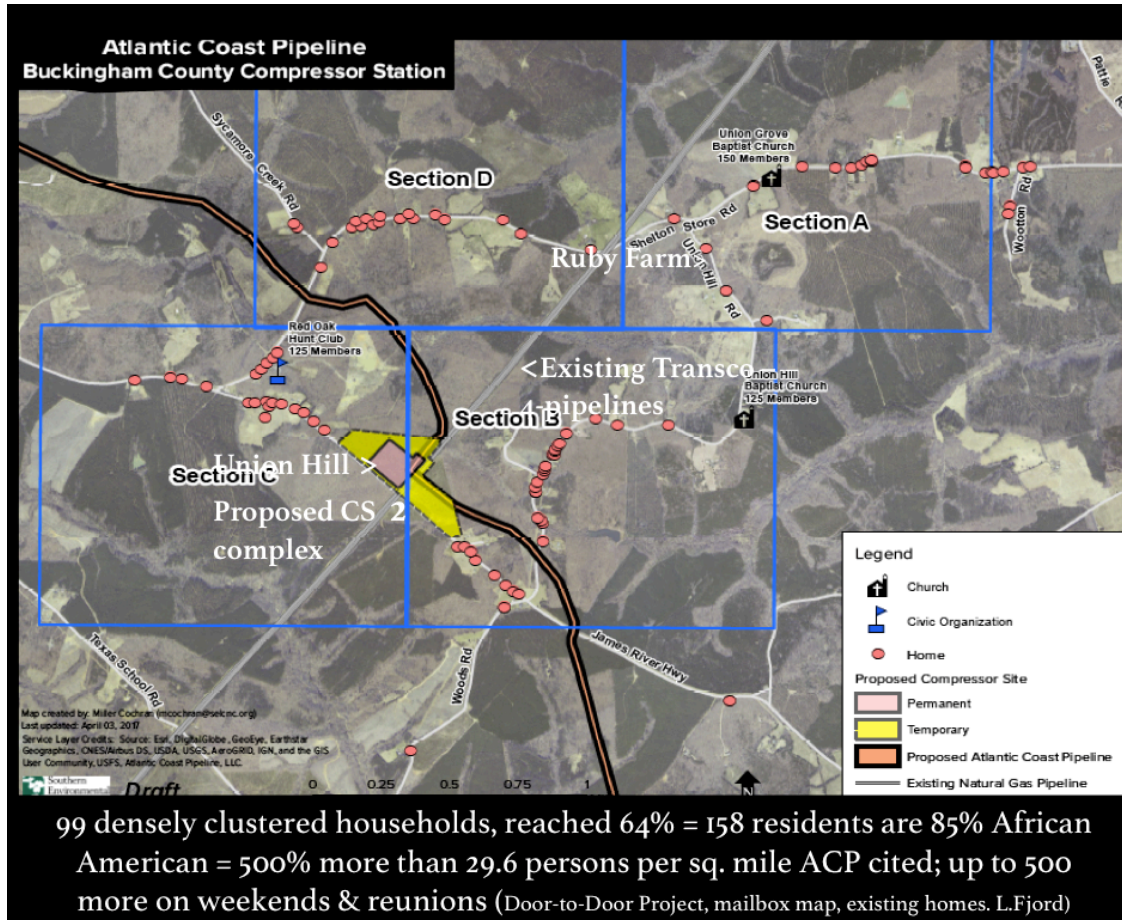
After the first stage of the study was completed in September, 2016, I placed into the public record at every stage of the ACP permitting and FERC comment processes, written and oral “expert comments” based on the data from these five component parts. Allowing for open-ended responses, our teams were able to elicit information inductively as well as deductively from

specific questions. In their FERC DEIS comment, Southern Environmental Law Center (SELC), which represents Friends of Buckingham (Union Hill), used our study's data to report on the environmental justice issues related to the CS 2 site, and also commented on CS 3 in North Carolina and its terminus in a Lumbee Indian community.

At no point has Dominion not known about the actual household population and 85% African American majority we found from just 2/3rds of households reached. Most of my comments on these data in public hearings took place where Dominion representatives were both present and also allowed to respond. There can be no doubt that Dominion is well aware of these factual omissions and has been allowed to perpetuate them to their advantage (see References for list of hearing dates and Fjord public comments).

Household data findings

We created a households map, overlaid on the USGS map once able to be found at Dominion's interactive ACP maps, where in the light green and beige colored areas, one may easily discern the presence of these 99 households, farms, and outbuildings. Also easily discernable is the close proximity to the proposed CS 2 facility of numerous homes on all sides.



Farmlands, forests, drives, and lanes, and less easy to see is Ripley Creek and its tributaries used by local farmers.

Our data was anonymized to protect residents' personal information. We included numbers of weekday residents and also weekend residents, biannual visitors (because this is a low-resource,

low-income county, with few jobs); we asked about family history in Union Hill and nearby, based on family burial sites; located water sources and identified their agricultural uses of their land in this designated A1 Agricultural District in Buckingham's Comprehensive Plan.

Of the 63 households reached, we found 158 weekday residents, 85% of which self-identify as African American/Black/Negro and bi-racial. 37 are known descendants of Freedmen enslaved here or nearby. The population by numbers of persons in each age range of our questionnaire skews strongly towards highest vulnerability populations: 0-5 = 19; 6-17 = 26; 18-21=3; 22-40 = 20; 41-64 = 34; 65+ =61. Missing numbers are refusals by respondents to give adult ages. The 65+ age range is too encompassing as to skew the data, we learned, because the majority of respondents in that age group is between 79 - 99 years old. Similarly, the two children's age ranges do not capture the majority, which are primarily infants - elementary school.

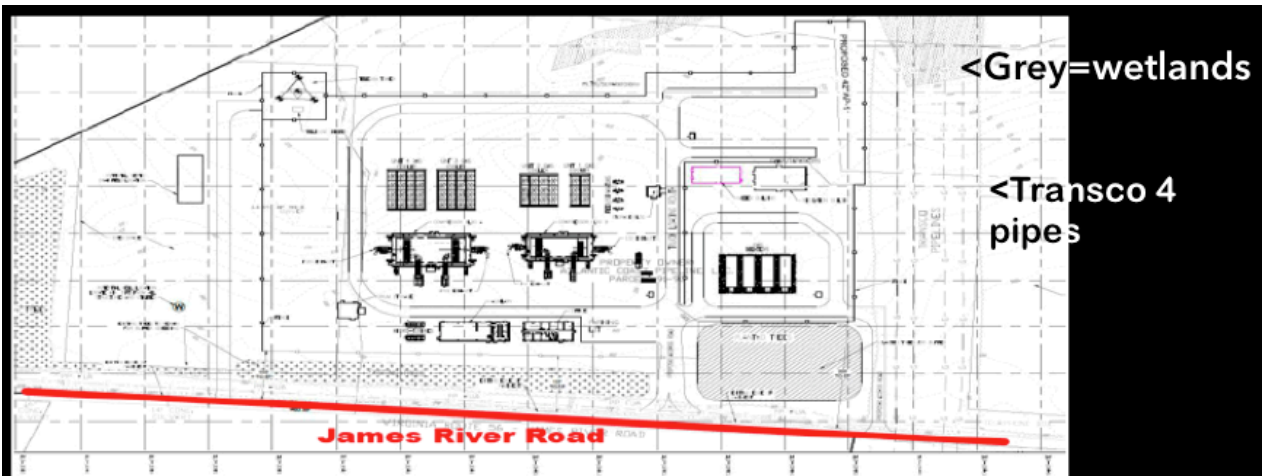
This finding is not surprising to the researcher because of Union Hill's history as a continuous Black settlement for over 200 years. Thus, information about people who visit often reveal that hundreds more people come back for yearly reunions, with upwards of 500 people at the largest family events. Another pattern found that many very small children live with grandparents and great grandparents for during the weekdays, with parents visiting on weekends, because of out-migration to more equal opportunity jobs in urban centers. Grandchildren often live in Union Hill for long residencies in the summer to, as one great grandparent put it, "live in this Green Paradise and good air of Buckingham." Therefore, because our two periods of community research did not occur in the summer months, we could not accurately assess how many children that involves.

Aggregated facilities and pipelines at the proposed CS 2 site in Union Hill

To give evidence to the disproportional nature of harms to water, air, soil, health, and their economic costs borne by residents Union Hill, I will locate the aggregated facilities ACP plans for CS 2 above and below ground if allowed to proceed to the construction phase at this site.

In Appendix K, we find the extensive list of 1536 water body crossings of rivers, streams, creeks, and wetlands, yet omitted are several would-be highly impacted wetlands. Specifically, the large wetlands located exactly at the point underground where the existing Transco 4-pipeline corridor would intersect underground with the new ACP pipeline at the proposed only Virginia compressor station – CS 2 (see facility map below – supplied by Dominion Energy for the special use permit to Buckingham County Board of Supervisors). This complex also includes a metering and regulatory station, 2 underground and 1 aboveground storage tanks.

Please note the attached site and facility drawings used by ACP in their special use exemption permit process for CS 2 to the Buckingham County Board of Supervisors. CS 2 is highly environmentally impacted because it is where ACP's business plan requires the new ACP to intersect underground with the existing 4-pipeline Transco for the purpose of moving pipeline contents in 3 cardinal directions. As these facility drawings reveal, this intersection takes places in the middle of an existing large wetlands, and, where ACP would twice cross Ripley Creek, a key agricultural source for neighboring farmers.

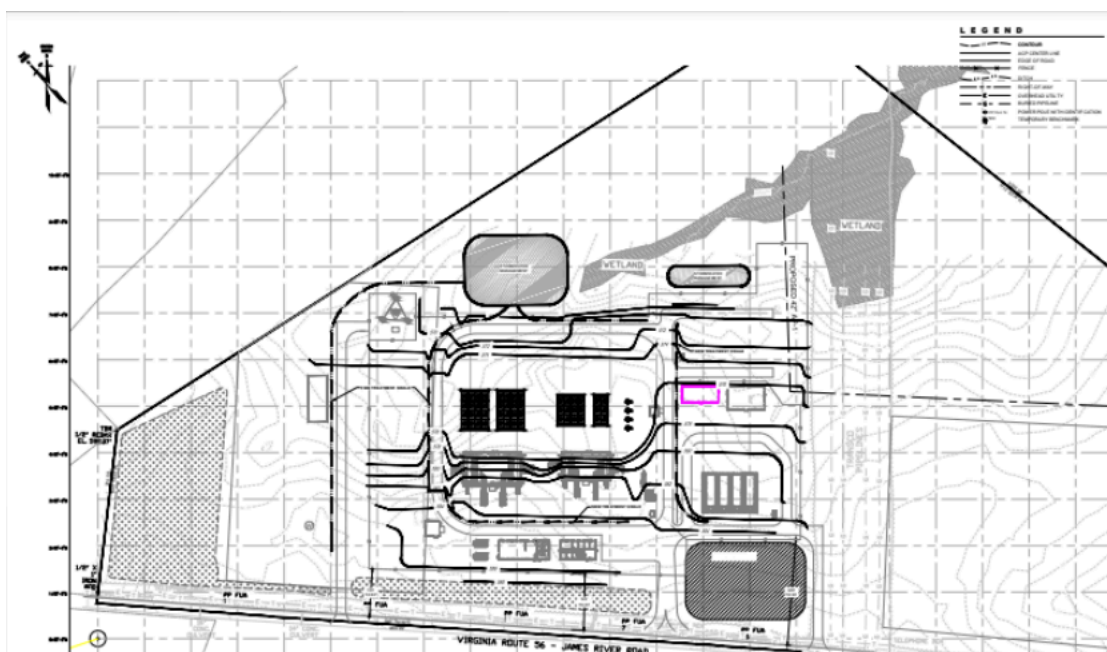


More ways Union Hill CS site = not industry standard

- 2 underground & 1 above storage tanks of methane, ammonia, and diesel fuel
- 99 homes within 150 ft + on all sides
- only source of water = individual wells
- located on only major highway in rural western Buckingham County = no alternate routes for trucks
- locating man-camp for across the street for construction workers, who are from out of state & region = crime and sex trafficking

At this complex, and not aggregated with ACP's application or FERC's FEIS is a metering and regulatory station; 2 underground and 1 above ground storage tanks – which was the source of the methane fire that burned in Porter Ranch, CA from four months, forcing the evacuation of 5,000 households – and 54,000 hp gas turbine engines capable of transmitting at highest allowed psis of pressure, the contents of the pipelines over 200 miles in 3 directions.

Please note the closeness of the existing wetlands to these operations.



What are the impacts of this wetland crossing in the middle of this heavily toxic polluting facility in a populous area? We ask you to consider the following aquifer report to extrapolate these impacts.

**Buckingham County Aquifer Report submitted with comments by Pam Dodds, Ph.D.,
Licensed Professional Geologist (Attached)
Summary of key points**

“The aquifer underlying the ACP construction corridor in Buckingham County is referenced by the U.S. Geological Survey (https://pubs.usgs.gov/ha/ha730/ch_g/G-text8.html#piedblurdge) as a crystalline rock aquifer underlying the Piedmont Physiographic Province. The Candler Formation bedrock, consisting predominantly of phyllite, schist, and marble, underlies the James River at the proposed ACP HDD crossing. To the east, the Candler Formation also underlies the proposed ACP gas pipeline construction corridor to the area including the proposed location of Compressor Station #2; however, metagraywacke is also predominant, along with phyllite, schist, and marble.

There will be deforestation, soil compaction, and dewatering during construction of the proposed ACP gas pipeline installation. When rainwater is intercepted by trees on forested ridges, the rainfall gently penetrates the ground surface and migrates downward through the soil to bedrock. The water then flows through bedrock fractures and along bedding planes to continue migrating downward or to form seeps and springs where the fractures or bedding planes intercept the ground surface. Deforestation results in increased stormwater runoff and decreased groundwater recharge. Deforestation facilitates greater rainfall impact, causing erosion. The increased stormwater discharge transports sediment to receiving streams. Where sediment is released to receiving streams during construction activities, the sediment accumulates in the stream beds, increasing embeddedness, which remains in the stream bed after construction has been completed. The increased stormwater discharge in the streams also results in downstream stream bank erosion, releasing additional sediment to the streams. Increased embeddedness, resulting from sediment accumulation in streams, fills in the spaces between cobbles and boulders on the stream bed.

Soil compaction from heavy equipment in the construction corridor, and also from stockpiled soil in the sediment underlying the stockpiled soil, results in increased stormwater runoff and decreased groundwater recharge. Dewatering of the pipeline trench intercepts groundwater and directs the groundwater through pipes and/or French drains onto the ground surface. Trench dewatering thereby increases surface runoff while decreasing groundwater. The pipes and/or French drains remain in place after completion of construction, causing continual interception of groundwater and directing of the groundwater onto the ground surface. Again, the increased surface runoff transports sediment to receiving streams and increases stormwater discharge, causing downstream stream bank erosion.

Construction of the proposed ACP gas pipeline in Buckingham County will result in degradation of the water resources, both groundwater and surface water resources” (Dodds).

History of Seismic activity: Attachment Earthquake Epicenter Density Map

Buckingham has an over 125-year recorded history of earthquakes, including being at the epicenter. They occur at least twice a year. Here is the record for 2017:

2017: epicenters in Buckingham: USGS

1. March 22, 2017: 2.3 magnitude, epicenter 3 miles from Dillwyn

2. Aug. 3, 2017, 2.3 magnitude, epicenter Buckingham County
2017: epicenters Dillwyn: VA Tech
May 14, 2017: Earthquake near Dillwyn, VA (Md 2.1)
)March 22, 2017: Earthquake near Dillwyn, VA (Md 3.0)

We ask the Board to consider the seismic impacts on both the compressor station complex and the James River HDD given its hydrogeological features.

According to Pam Dodds, “First, Virginia’s Earthquakes can cause landslides and also "solifluction", in which unconsolidated sediments (sand, silt, clay) behave as a fluid. Solifluction is most noticeable at rivers and streams. Where this occurs, the sediment that is supporting structures, such as a pipeline, become incompetent and are unable to support the structure. This is a concern with a pipeline because it could result in a fracture or break of the pipeline.

Surface waters would experience impacts during construction activities as a result of potential blasting, trenching, installation of the pipeline, water withdrawals for HDD construction, hydrostatic testing, and dust control” (see attached Buckingham hydrogeological report).

Buckingham County, James River HDD

On FERC’s TABLE 2.3.1-3 Construction Workspaces Greater Than 75 Feet in a Wetland Facility/Milepost Wetland, the reader finds under “**Width in Wetland (feet) Justification for Modification to FERC Procedures AP-1** Mainline 184.8 wbuc 109 f 90: To support the HDD of the James River. Modification needed to stage materials and equipment used for the HDD.” This troubling note identifies a potential issue to erosion and run off at this sensitive location. Where antidegradation measures should instead be the order of the day. The Corps has made no specific analyses that address antidegradation in covering these projects under Nation Wide Permit 12. The Corps expresses the vague requirement that water quality impacts be minimized, which cannot ensure that antidegradation conditions are met.

For all state waters, the antidegradation policy requires that all “existing uses” be fully supported. Under both state and federal law, “existing uses” are “those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.

At this location, Yogaville has built the LOTUS - Light of Truth Universal Shrine to celebrate All Faiths. The land that surrounds the shrine has flooded on several occasions, including the flood of 1985, where the James River over-crested. Our organic farm, three live springs and farm pond are all interconnected with the James River. Our neighbor’s plane floated onto our property, dead livestock littered the riverbanks. Yogaville is comprised of over 275 permanent residents, with over 10,000 yearly visitors. This figure is not represented by ACP or FERC in its reports on the HDD site’s impacts on local people and their water sources.

USGS Virginia Floods and Droughts, found at <https://md.water.usgs.gov/publications/wsp-2375/va/> identifies issues of grave concern to the James River HDD construction and operations if built. “Floods and droughts affect the quality of surface water. During floods, large quantities of pollutants such as fertilizer and insecticides wash into streams. However, because the volumes and velocities of floodwaters are large, these pollutants are generally diluted and are quickly washed downstream. Problems caused during droughts are different. Low flows during droughts may be insufficient to adequately dilute effluents from industrial and municipal sewage-treatment plants. Flow augmentation is used on some streams during periods of low flow to improve water

quality and to support aquatic life. Water quality is improved by increasing dilution and washing pollutants downstream.” ... “A disturbance that was caused, in part, by Hurricane Juan resulted in a major flood in November 1985” (see photos below).

Flooding at Yogaville Village Center at proposed James River HDD site, November 1985, impacts of Hurricane Juan. LOTUS shrine is the white object in upper center.



We propose that the location of pipelines under the James River will introduce diesel fuel and pipeline contents into the water supply during droughts especially, but also at large flooding events.

Conclusion

In sum, coverage under NWP 12 is inappropriate for projects with the scale of impacts of the Atlantic Coast Pipeline, which under no reasonable interpretation can be classified as “minimal,” as required for coverage under a Clean Water Act section 404 general permit. According to FERC’s FEIS, P. 4-100, there would be “1,536 waterbodies crossings within the ACP workspace.” The NWP program was neither instituted nor intended to streamline such a major toxic polluting fracked gas infrastructure project. Especially as the fracked gas development industry already is rife with well-documented routine leaks, breaks, and even explosions, especially among those most newly constructed. Each poses different hazards causing permanent impacts on wetlands, streams, and major rivers that must be acknowledged as major risks to single source drinking water in the mostly rural routes of both the ACP (and MVP).

Further exacerbating water permit issues is ACP’s pattern of erasures of key required scientific and social scientific data needed to make your decisions that will impact forever the water sources that sustain hundreds of miles of ecosystems, and the people who reside there. Thousands of Virginians have already either faced seizures of their land by eminent domain and/or forced proximity to fracked gas development by ACP for a project that is not intended to benefit them or even Virginians generally. No demonstrated need or benefit to the public good allays these threats to water quality and ways of life dependent upon single sources of water, in particular. Our best environmental scientific knowledge and real-world experience from just-built fracked gas pipelines, such as the Rover in Ohio, W. Virginia, and Pennsylvania point instead to large-scale water degradation and contamination risks and hazards by the ACP route across considerable karst terrain, faultlines, flood zones, and steep slope conditions.

Rover’s continuous catastrophic leaks, fines paid as “the price of doing fracked gas business,” and the rash of newly built pipeline explosions, point to what lies in store for our Virginia water sources if the ACP is built by Dominion -- the least experienced of these developers. In store lies the almost-certain degradation and contamination of single sources of drinking water all along ACP’s route, with particularly vulnerable places the sites chosen for CS 2 site and the James River HDD. As with these experienced developers, Dominion claims that they will also use “best in class practices,” which are never defined or compared with these terrible examples from their industry peers.

We who are concerned Virginia citizens join together to ask you to carefully consider the technical information provided during this NW 12 comment period that taken together reveal thousands of detailed concerns for the over 1536 water bodies crossed by the proposed ACP – wetlands, streams, ponds, springs, tributaries and major rivers, including the James River, a designated Outstanding, Scenic and Historic river. Can we really afford the actual costs of the ACP to Virginia’s water sources by erosion and sediment, by flooding, sinkholes, leaks, and explosions?

Further, Dominion’s profit-making plans for fracked gas exports – as described by their CEO at the recent stockholder’s meeting -- must be weighed in the balance of the environmental injustice of locating CS 2, ACP’s most toxic polluting compressor station, in Union Hill, Buckingham, Virginia. One of the last places in the South where descendants of former plantation owners still live in proximity to descendants of people enslaved there, and descendants of slaves are retaliated against for naming racism in systemic practices. Under considerable political pressure by Dominion, the Buckingham Board of Supervisors overrode 91-4 the majority dissenting voices against ACP’s siting their only Virginia compressor station in the middle of a community of Freedmen descendants. The lack of concern for the protection and preservation of this former

slave heritage community, its health and economic bases, by local and Virginia state officials, is aptly demonstrated by the capacity given to Dominion to ignore factual evidence and all industry and NEPA guidance, to locate a huge toxic emitting facility within 150 ft. on all sides of a populous community.

Please recommend that the ACP neither receive a 404 Water Permit under NW 12 nor receive final approval of their 401 Water Permit.

Respectfully submitted,
Lakshmi Fjord

References Cited

Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629; February 16, 1994
<https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice>

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Council on Environmental Quality, Dec. 10, 1997
<https://www.energy.gov/nepa/downloads/environmental-justice-guidance-under-nepa-ceq-1997>

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[All Cvllle People's Tribunal publications, testimonies, and videos available at: vapeopletribunal-humanrightsenvironmentaljusticeimpactsfrackedgas.com]

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1. Buckingham County, Planning Commission, Sept. 9, 2016
2. Buckingham County, Board of Supervisors, Special Use Permit Public Comment period and hearing, January 3, 2017.
3. FERC DEIS Written public comment, filed April 6, 2017; submitted online at FERC.
4. FERC DEIS Public Hearing, Farmville, VA,
5. VDEQ 401 Water Permit Public Comment filed August 22, 2017; emailed and sent by mail.
6. VDEQ 401 Water Permit Public Hearing, Farmville, VA, August 10, 2017; in person.

[http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityStandards/ExceptionalStateWaters\(TierIII\).aspx](http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityStandards/ExceptionalStateWaters(TierIII).aspx)

PHMSA - Pipeline and Hazardous Materials Safety Administration, <https://www.phmsa.dot.gov/>

Virginia Floods and Droughts: <https://md.water.usgs.gov/publications/wsp-2375/va/>