

**COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION**

**APPLICATION OF)
)
TRANS-ALLEGHENY INTERSTATE LINE)
COMPANY)
)
For certificates of public convenience)
and necessity to construct facilities:)
500 kV Transmission Line from)
Virginia-West Virginia Boundary to)
Virginia Electric and Power Company)
Transmission Line #580)**

CASE NO. PUE-2007-00033

**REBUTTAL TESTIMONY OF
TIM GAUL**

February 5, 2008

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Tim Gaul, and my business address is 2445 M Street, NW, Washington, D.C.
3 20037.

4 Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

5 A. No. However, I was involved in the work performed by The Louis Berger Group
6 (“Berger”) on the 502 Junction-Loudoun line, including the Route Evaluation Report and
7 Environmental Report (“LRE”) submitted as Exhibit JH-1 to the Application of Trans-
8 Allegheny Interstate Line Company (“TrAILCo”).

9 Q. PLEASE DESCRIBE THE PURPOSE OF YOUR REBUTTAL TESTIMONY.

10 A. On behalf of TrAILCo, this rebuttal testimony addresses a number of issues raised in the
11 public input hearings, as well as the testimony of Kristina Hill and Watsun Randolph on
12 behalf of Piedmont Environmental Council, concerning the visual impact of the 502
13 Junction-Loudoun line in Virginia.

14 Q. WILL YOU BE USING THE SAME TERMS IN YOUR REBUTTAL TESTIMONY AS
15 SET FORTH IN THE TABLE OF NOMENCLATURE ATTACHED TO THE
16 APPLICATION?

17 A. Yes. I may also define other specific terms in this rebuttal testimony.

18 Q. IN WHAT CAPACITY ARE YOU EMPLOYED AT BERGER?

19 A. I am a Senior Environmental Scientist, the Geographic Information Systems (“GIS”)
20 Manager for Berger’s D.C. office, and was recently appointed the Manager of Berger’s
21 Transmission Services Division.

1 As a Senior Environmental Scientist, I provide project management and analytical
2 support for environmental science and planning projects. I have conducted a range of
3 natural resource and infrastructure planning efforts, some of which have included
4 evaluation of visual character and assessment of potential visual impacts.

5 As GIS manager, my responsibilities include serving as a senior technical resource for
6 GIS analysis efforts, managing GIS technical staff, overseeing software purchases and
7 licensing agreements, and serving as coordinator of Berger's Business Partnership
8 agreement with the Environmental Systems Research Institute ("ESRI").

9 For the 502 Junction-Loudoun line, I served as Berger's Project Manager for the LRE
10 and was a member of the Routing Team. I coordinated team efforts, ensured
11 communication and coordination with TrAILCo staff, and managed budgets and
12 schedule. As a Routing Team member, I was involved in GIS data gathering, analysis,
13 and mapping; route planning and field reconnaissance; public workshop facilitation;
14 environmental analysis; and LRE preparation.

15 Q. WHAT ARE YOUR QUALIFICATIONS FOR THESE JOBS?

16 A. I have a B.S. from SUNY College of Environmental Science and Forestry at Syracuse
17 University (1997) and a M.S. from Creighton University (2000), both in biological
18 sciences. My resume is attached as Exhibit TG-1. My background as an environmental
19 scientist is interdisciplinary, with a background in forest ecology, aquatic biology, and
20 GIS sciences. I specialize in landscape level environmental assessment and modeling,

1 natural resource inventory, hydrologic analyses, and GIS analysis in support of
2 environmental planning and compliance efforts.

3 VISUAL IMPACTS

4 Q. WHAT IS YOUR GENERAL RESPONSE TO THE COMMENTS ON THE
5 APPROACH TAKEN TO ASSESS VISUAL IMPACT IN THE ENVIRONMENTAL
6 REPORT AND THE VIRGINIA DEPARTMENT OF HISTORICAL RESOURCES
7 (“DHR”) HISTORIC RESOURCE VIEWSHED ANALYSIS?

8 A. Our methodology was based on the Commission’s “Guidelines of Minimum
9 Requirements for Transmission Line Applications Filed Under Virginia Code Section
10 56-46.1 and The Utility Facilities Act,” consultation with the DHR, and the knowledge
11 and experience of our routing team.
12 Our analysis included general descriptions of the visual character of the landscape, and
13 evaluated the visual accessibility of the line (vegetative screening and topographic
14 variation between the line and the viewpoint) for those residences within close proximity
15 to the line. For the broader landscape, we provided photographs and simulations of the
16 general visual character of the line from both an aerial perspective and from several
17 public viewpoints, and we also prepared an assessment of the potential for visual impacts
18 on historic resources within one mile of the preferred route. This analysis included
19 photographs of the site, photosimulations of particular views from the site, and statements

1 of potential impact as a result of the construction and operation of the 502 Junction-
2 Loudoun line.

3 Q. DO YOU HAVE ANY RESPONSE TO THE TESTIMONY OF WATSUN
4 RANDOLPH, ON BEHALF OF PIEDMONT ENVIRONMENTAL COUNCIL,
5 REGARDING TRAILCO'S "HISTORIC SITE VIEWSHED ANALYSIS"?

6 A. In addition to the points raised by Cyril Welter in his rebuttal testimony, the concerns
7 raised by Mr. Randolph are addressed elsewhere in this rebuttal testimony – specifically
8 in the methodology discussion above and leaf-on discussion below. Furthermore, as
9 discussed in the rebuttal testimony of Alan Fleissner, TrAILCo has not completed its
10 historic and archaeological review, and will continue to work with DHR through the
11 construction of the 502 Junction-Loudoun line.

12 Q. WHAT IS YOUR RESPONSE TO MS. HILL'S ASSERTION THAT THE
13 METHODOLOGY FOR SELECTING OBSERVATION POINTS FOR THE DHR
14 HISTORIC RESOURCE VIEWSHED ANALYSIS AND FOR SIMULATION IN THE
15 ENVIRONMENTAL REPORT POSSESSED "NEITHER RHYME NOR REASON"?

16 A. I disagree with Ms. Hill's assertion. DHR established the criteria used to identify which
17 historic sites would be considered for individual visual impact review. Before taking
18 photographs at these sites, we conducted a viewshed analysis using GIS software to
19 evaluate the effects of topography on the views from each site. This analysis was
20 conducted and prepared for use by the architectural historian while reviewing each site

1 identified by the DHR. Photograph locations at each site were selected in the field based
2 on the potential for visibility as identified in the viewshed analysis maps. Photographs
3 were also taken in many cases to verify the lack of visibility from a given viewpoint.

4 Photographs and simulations selected for presentation in the LRE were reviewed and
5 considered by the routing team. For the most part, few useful views of the line were
6 available to the west of Little North Mountain from ground-based public points of access,
7 due to variable topography and significant forest cover. For this reason, aerial photos
8 taken from a helicopter were presented to provide the reader with a reasonable
9 approximation of the visual character of the line as it would be viewed in the landscape in
10 this area. To the east of Little North Mountain, topography is less variable and longer
11 views of the landscape can be seen from ground based viewpoints. In this area, we
12 selected several views from public points of access where the line would be visible.
13 Because our proposed route immediately parallels the existing Mt. Storm to Meadow
14 Brook line, identifying sites where the proposed route would be visible was centered on
15 views of the existing line from points of public access, primarily major roads.

16 Q. DO YOU AGREE WITH MS. HILL'S IMPLICATION THAT TRAILCO SHOULD
17 HAVE USED, IN PREPARING THE LRE, A "SCENERY MANAGEMENT
18 SYSTEM," AS OUTLINED IN "LANDSCAPE AESTHETICS: A HANDBOOK FOR
19 SCENERY MANAGEMENT AND ITS APPLICATION TO THE SITING OF HIGH-
20 VOLTAGE TRANSMISSION LINES"?

1 A. No. As also stated in Mr. Welter's rebuttal testimony, our study was done for the
2 Commission, not the U.S. Forest Service, and therefore follows the Commission
3 guidelines. The objective was to support a CPCN evaluation under state rules, not to
4 develop a Forest Service visual management plan for the study area.

5 That said, while several witnesses focus on the need to do additional scenic assessment,
6 few recognize the intentional use (paralleling) of existing transmission lines in the area to
7 limit impacts across the broader landscape. This commonly used transmission line
8 planning philosophy is supported by the Commission guidelines.

9 Q. WHAT IS YOUR RESPONSE TO MS. HILL'S COMMENTS ON THE STATEMENT
10 IN THE BERGER REPORT THAT A 500-FOOT DISTANCE FOR EVALUATING
11 VISUAL ACCESSIBILITY OF THE LINE FROM KNOWN RESIDENCES IS MORE
12 INCLUSIVE THAN THE FOREST SERVICE'S USE OF A 300-FOOT BUFFER IN
13 THE ENVIRONMENTAL REPORT?

14 A. The Commission guidelines require the tabulation of all residences within 500 feet under
15 Section III. We expanded on this tabulation and characterized the potential for
16 intervening vegetation and topography to reduce visibility at these sites which are most
17 likely to be visually impacted by the additional line. Our statement that "The 500 foot
18 length represents a somewhat more inclusive distance than the 300 feet often used for
19 assessment of impacts in the immediate foreground by the US Forest Service" was
20 intended to describe the visibility zone that the 500 foot distance represents.

1 Q. DO YOU AGREE WITH MS. HILL'S SUGGESTION THAT, BECAUSE ALL OF
2 THE PICTURES USED FOR SIMULATION WERE FROM THE LEAF-ON PERIOD,
3 THERE WAS A CONSCIOUS EFFORT TO MINIMIZE THE ESTIMATED VISUAL
4 IMPACTS?

5 I disagree with Ms. Hill's suggestion that there was a conscious effort to minimize the
6 estimated visual impacts by using leaf-on photos. As is shown in the LRE (Exhibit JH-1)
7 to the direct testimony of Jack Halpern submitted with TrAILCo's Application), all of the
8 photos presented were taken during leaf-off conditions.

9 While the photos presented in the Historic Site Viewshed Analysis report were indeed
10 taken during leaf-on conditions, this was not done for any sinister purpose, but rather to
11 meet a government-imposed deadline. The DHR made the request for the report in June
12 and its completion was required by August. Thus, the DHR request time and schedule
13 dictated the time of year the photos were taken and the character of the vegetation at that
14 time of year. That said, it should also be mentioned that we purposely did not take into
15 consideration the screening effects of vegetation in our viewshed analysis, in contrast to
16 what Ms. Hill suggests on page 8, line 21 of her testimony. The GIS-based viewshed
17 analysis conducted did not take in to account the effects of vegetation, since photographic
18 evidence from each site would provide greater accuracy for assessing vegetative
19 screening effects.

20 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

1 A. Yes.

TIM GAUL

Sr. Environmental Scientist
Manager, Transmission Services
Manager, GIS

Education

M.S., Biology, Creighton University, 2000

B.S., Environmental and Forest Biology, SUNY College of Environmental Science and Forestry at Syracuse University, 1997

Registrations/Certifications

Wetland Delineation and Management Training Course - U.S. Army Corp. of Engineers (ACOE) - approved - 2002

Native American Fish and Wildlife Society, Certificate of Appreciation (2003)

Professional Overview

Mr. Gaul is an environmental scientist with an interdisciplinary background in forest ecology, aquatic biology, and GIS sciences. He specializes in landscape level environmental assessment and modeling, natural resource inventory, hydrologic analyses, and GIS analysis in support environmental planning and compliance efforts. He has experience conducting a range of environmental studies for federal agencies including: watershed analyses, environmental assessments (EAs), environmental impact statements (EISs), ecological risk assessments, natural resource inventories, and utility and transportation analyses. He is trained in a variety of field techniques including wetland delineation and vegetation and forest type characterization. Throughout his training and experience, Mr. Gaul has incorporated the use of computer technology in the form of GIS, statistical software packages, environmental modeling, and graphic arts applications to produce advanced analyses and high quality presentations.

Mr. Gaul has worked with numerous Federal agencies including the Forest Service, Environmental Protection Agency, National Park Service, Bureau of Indian Affairs, Bureau of Land Management, Department of Defense, and Army Corps of Engineers. He has managed or served as team leader for numerous projects including: Utility Route Evaluation Reports, Macrocorridor Studies, Environmental Baseline Studies, Roads Analyses (RAPs), watershed management plans and assessments (including Ecosystem Analysis at the Watershed Scale), and NEPA compliance efforts (EAs and EISs).

Selected Project Experience

Power Utilities

Trans Allegheny Interstate Line (TrAIL) Line Routing Study and Environmental Analysis – In June, 2006, PJM Interconnection approved an expansion plan calling for the construction of a new 500-kilovolt transmission line from Southern PA to Northern Virginia within the next 5 years. Mr. Gaul is currently managing the routing study and environmental effects analysis for the 220 mile 500kV TrAIL project. He is responsible for daily client contact, organizing and facilitating data gathering efforts, managing staff allocation, budgets, and schedule, GIS model development, and managing all line route evaluation efforts.

Environmental Assessment of a transmission line proposed by South Carolina's Central Electric Power Cooperative to cross the Santee River delta and serve the town of McClellanville, South Carolina. Lead the preparation of a least- cost corridor modeling effort, macrocorridor study preparation, and coordination with the Rural Utilities Service for siting of the transmission line across the Francis Marion National Forest.

FirstEnergy Route Screening Study. Served as Assistant Project Manager for a 30 mile 115 kV Route Screening Study in PA. This study included the preliminary siting of 5 substations and 30 miles of transmission lines in an area with significant recreation use and residential development.

U.S. Forest Service

Thunder Basin National Grassland, Wyoming. Project manager and GIS specialist for a Roads Analysis for the Thunder Basin National Grassland, Wyoming, in accordance with FS-643, *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System*. Served as facilitator for all interdisciplinary meetings, conducted the road valuation and risk analysis, and compiled a database for tracking risk and value rankings for each maintenance level 3 and higher road on the National Grassland.

Valle II Project EA (Proposed restorative treatment of the forests of the Cerro Grande Fire area) on the Santa Fe National Forest, New Mexico. Responsible for mapping and analysis of GIS information relative to areas under consideration for fire management activities.

Land and Resource Management Plan Amendment and EA for the Lincoln National Forest in New Mexico. Deputy Project Manager for the Land and Resource Management Plan Amendment and EA for the Lincoln National Forest in New Mexico. The Lincoln NF proposes to amend its Forest Plan to meet current Federal wildland fire management policy, direction, and terminology. Proposed changes to the Forest Plan include allowing for the use of wildland fire for resource benefit, removing the option to use wildland fire in areas containing wildland/urban interface (WUI), allowing for prescribed fire in wilderness, and requiring suppression of all human-caused ignitions.

Roads Analysis Process (RAP) Report for the decommissioning of the Navy's Extremely Low Frequency (ELF) Transmitter on the Chequamegon National Forest, northern Wisconsin. Managed the analysis, modeling, and preparation of the RAP report, lead agency meetings for individual road risk and value assessments, and served as technical representative for the RAP at public scoping meetings.

Uwharrie National Forest (North Carolina) Roads Analysis Process Report. Managed the production of the Uwharrie National Forest (North Carolina) Roads Analysis Process Report, in accordance with FS-643, *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System*. Responsible for agency coordination, oversight and review of all analyses, preparation of the risk and value analysis, and assessment of hydrologic condition, aquatic communities, and forest resource access.

Environmental Assessment for Herbicide Treatments on the Long Cane Ranger District of the Sumter National Forest in South Carolina. Managed the preparation of an Environmental Assessment for Herbicide Treatments on the Long Cane Ranger District of the Sumter National Forest in South Carolina. For this analysis, major concerns focused on the indirect effects of herbicide treatments on wildlife, migratory bird use of regeneration sites, and forest composition effects.

Cullasaja Falls Recreation Improvement Project Biological Inventory and Assessment on the Nantahala National Forest, North Carolina. Served as deputy project manager for the Cullasaja Falls Recreation Improvement Project Biological Inventory and Assessment on the Nantahala National Forest, North Carolina. Responsible for project management of field surveys, analysis and assessment of wildlife and aquatic inventory analysis.

Bethesda Analysis Area Environmental Assessment on the Enoree Ranger District of the Sumter National Forest, South Carolina. Project manager for the preparation of the Bethesda Analysis Area Environmental Assessment on the Enoree Ranger District of the Sumter National Forest (South Carolina). Also responsible for preparation of the analyses of timber and vegetation management effects on forest vegetation, soil, and visual and noise resources.

Lower Enoree Watershed Assessment, South Carolina. This analysis included three separate analyses including; an ecosystem analysis, hydrologic condition analysis, and roads analysis all performed at the

watershed scale. Responsible for the assessment of forest conditions, water quality analyses, and managing the preparation of the Hydrologic Condition Analysis and Roads Analysis.

Little Mountain Analysis Area EA on the Long Cane Ranger District of the Sumter National Forest, South Carolina. Responsible for preparation of the analyses of timber and vegetation management effects on forest vegetation, soil, and visual and noise resources.

EA for proposed modifications of Forest Highway 50 on the Pisgah National Forest, North Carolina. Major concerns focused on soil and water issues related to paving or not paving several portions of an 8 mile stretch of FS road. Conducted a field survey to support the modeling and assessment of erosion and sediment input to streams adjacent to the proposed road paving and maintenance operations. Analyses concerning soil erosion and water yield estimates will utilize the Forest Service Water Erosion Prediction Project Model (WEPP).

EA for the Land Between the Lakes open area vegetation management plans, Kentucky. Conducted analyses of water quality and aquatic community concerns, and performed analyses using the Soil and Water Assessment Tool (SWAT) model.

Little Muskingum Watershed Assessment, Wayne National Forest, Ohio. Responsible for inventory and assessment of forest vegetation and structure and technical support for analyses of water quality, aquatic community, and hydrologic conditions analyses.

Pine Creek Watershed Assessment, Wayne National Forest, Ohio. Responsible for inventory and assessment of forest vegetation and structure, analyses of water quality, aquatic communities. Provided GIS support through ortho-photo rectification, remote sensing, and land cover identification.

Shaver's Fork Watershed Assessment, Monongahela National Forest, West Virginia. Responsible for inventory and assessment of forest vegetation and structure and technical support for analyses of water quality, aquatic community, and hydrologic condition analyses.

Wayne National Forest (Ohio) Prescribed Fire Program Environmental Assessment, Ohio. Mapped and analyzed prescribed fire area boundaries, and planned and coordinated with both FS personnel and field personnel regarding property boundaries and required T&E survey boundaries.

EIS on oil and gas leasing in the Finger Lakes National Forest, New York. Responsible for mapping and assessing impacts associated with the various leasing alternatives. In addition to mapping and GIS based natural resource analyses, he supported the assessment of potential noise and visual impacts.

National Park Service

Water Resource Scoping Report for the Denali National Park and Preserve, Alaska. The report provides an overview of water-related legislation, summarizes the hydrologic environments in the park, and identifies and provides an analysis of high-priority water resource issues and management concerns. Project responsibilities included project management, researching and identifying water resources issues relating to hydrology, development impacts, scoping meeting facilitation, and GIS analyses.

EA for Wrangell-St. Elias National Park and Preserve, Alaska. The proposed project would establish the first and only formal NPS campground in the park. The campground is located on sensitive wetland habitat along a lakeshore, which required analysis of classification of vegetation types from infrared imagery and available botanical studies to determine wetland impacts.

Environmental Assessment to support rehabilitation efforts on the Roosevelt Ice Pond Dam in Hyde Park, New York. For this project he was responsible for project management and GIS analyses and modeling. GIS activities for this project included general mapping and efforts to determine peak flows for development of appropriate dam rehabilitation methods.

Environmental Assessment to support rehabilitation efforts on the Val Kil pond in Hyde Park, New York. For this project he was responsible for both project management and GIS analyses and modeling. GIS activities for this project included general mapping and review of historical imagery to assess changes in pond size and structure over time.

Potomac Gorge Wetland Inventory, Mapping, and Characterization Project, a joint venture between the Nature Conservancy and the National Park Service. Identified wetlands from satellite imagery and performed field inventory of the type and vegetation composition of all identified wetlands within the Potomac Gorge (which forms the boundary between Maryland/D.C. and Virginia).

Delaware Water Gap National Recreation Area McDade Trail Environmental Assessment Amendment and Monitoring Plan, Pennsylvania. Responsible for TR55 modeling and hydrologic analysis in support of culvert design and sediment and erosion control design efforts.

Environmental Assessment for the Mount Rushmore 4th of July Fireworks Program, South Dakota. Responsible for analyses of vegetation and fire risk, noise, and all GIS mapping and analysis.

EA for the Blue Ridge Parkway, regarding reconstruction of a bridge and other Park facilities and restoration of eroded areas at the Otter Creek Campground in Amherst County, Virginia. The current bridge design results in debris buildup and flooding during severe storm events, causing massive stream bank erosion and subsequent sedimentation of Otter Creek and Otter Lake downstream, loss of riparian areas, and threatens visitor health and safety, as well as the stability of Park structures. High waters also flood a nearby sewage system, causing untreated wastewater to be discharged into the Creek. Analyzed impacts of the alternatives on air quality, the sanitation system, land use, and impacts from construction noise on park operations and resources.

EA for the NPS Denver Service Center that analyzed the construction and operation of a new Corinth Civil War Interpretive Center in Corinth, Mississippi, to be operated and maintained as part of the Shiloh National Military Park, Tennessee. Responsible for the analysis of noise impacts from the proposed construction and operation of the interpretive center. This resource was of particular concern due to the potential of activities to affect a nearby elementary school and daycare center.

Fish and Wildlife Service

GIS database development, mapping, and training for the Chassahowitzka Refuge Complex, Florida. Provided introductory and advanced training in GIS to the Chassahowitzka Refuge Complex, which includes the Chassahowitzka, Crystal River, Egmont Key, Passage Key, and Pinellas Refuges. A custom training curriculum was developed to coincide with the needs of the refuges' CCP planning process. Additional tasks included the development a GIS database for the refuge and creation of maps for the final CCP.

Army Corps of Engineers

Missouri River Restoration Management Plan and EIS – Currently supporting the USACE in development of a research compendium and ecological restoration model for the Missouri River.

Upper Turkey Creek Feasibility Study – Technical lead for the Upper Turkey Creek Flood Damage Reduction and Ecological Restoration Feasibility Study. Managed field assessments, ecological restoration treatment planning, and ecological restoration report preparation.

South Dakota Title VI Land Transfer EIS for the U.S. Army Corps of Engineers, Omaha, Nebraska District. This project involved a Congressional mandate for the transfer of Federal lands to the State of South Dakota for recreation and wildlife management purposes, and to several Native American Tribes. Acted as the team lead for GIS mapping and data analysis, and was also responsible for the analysis and assessment of potential visual impacts.

Tribal Experience

Environmental Assessment to support the development of a Forest Management Plan for Naragansett Indian Tribe of Rhode Island. For the Naragansett (a Category 4 – Minimally Forested Reservation), forest planning centers around management of forest resources for firewood, wildlife, culturally significant species, and protection of forest resources from insects and disease. For this project, GIS analysis primarily focused on correlation of forest inventory data with Tribal land use patterns to determine appropriate management prescriptions for different land areas.

Forest Management Plan and associated Environmental Assessment for the Mississippi Band of Choctaw Indians. For the Choctaw (a Category 1 – Major Forested Reservation), forest planning centers around multiple use management of forest resources for timber production, recreation, and protection of forest resources from insects and disease. For this project, GIS analysis correlates forest inventory data with Tribal land use patterns, recent imagery, and for developing appropriate management strategies for the 7 major communities that comprise the Mississippi Band of Choctaw lands.

Local Governments/Agencies

District of Columbia Comprehensive Plan Environmental Baseline Report – Technical Lead for preparation of the Environmental Baseline Report supporting the District of Columbia’s Comprehensive Plan.

Nottawasaga and Lake Simcoe Target Load Study - Lake Simcoe Regional Conservation Authority. Served as team lead for the Lake Simcoe and Nottawasaga River phosphorous load target setting study. Supported the development of a phosphorus target setting strategy for a rapidly developing watershed north of Toronto, CA. Regularly presented results and status to the Project Technical Advisory Committee comprised of local municipality leaders in Ontario, managed GIS analysis efforts, and lead the production of the final report.