

**United States  
Department of  
Agriculture**

**Forest  
Service**

**September 2013**

# **Environmental Assessment**

**Natural Gas Pipeline Construction Project,  
Proposed by Columbia Gas of Virginia  
for service to Celanese Plant in  
Giles County, Virginia**

**Eastern Divide Ranger District  
George Washington & Jefferson National Forests**



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## **INTRODUCTION**

The Eastern Divide Ranger District is conducting this environmental analysis (EA) for construction of a 12-inch natural gas pipeline. The project area is located on Peters Mountain, north of the Celanese Acetate LLC (Celanese) Plant near Narrows, Virginia. Please see the map in Appendix B. The purpose of this new line is to provide adequate natural gas service to the Celanese Plant, allowing for the conversion from coal-fired boilers to natural gas-fired boilers.

## **GENERAL DESCRIPTION OF AREA**

The Peters Mountain area lies primarily in Giles County, Virginia with most of the area north of the ridge line in Monroe County, West Virginia. This entire project is in Giles County, Virginia. National Forest System lands are primarily vegetated with upland hardwoods, with a few yellow pines on the southern aspects of finger ridges.

## **PROPOSED ACTION**

The Forest Service received a Special Use application from Columbia Gas of Virginia (CGV) to construct a buried 12-inch, coated steel natural gas distribution line across Peters Mountain to provide additional service to the Celanese Plant near Narrows, VA. This entire line would be 18,488 feet with about 4,238 feet of it on National Forest System lands over Peters Mountain to Celanese. The project location parallels an existing buried 6-inch natural gas line permitted to CGV, which will remain an active line (Appendix B Map).

The proposed action is to permit construction of the line and issue a long-term special use permit for its operation and maintenance. The current easement area covers the existing 6-inch line. Construction of the new 12-inch line would require a cleared corridor next to this current easement. New clearing would range from 75 feet to 125 feet in width, depending on terrain and placement along the pipeline. Construction activities are anticipated to start in April of 2014 and finish in October of 2014, although there may be some clearing and clean-up beyond this timeframe.

The cleared area would be used for soil stockpiling, pipeline preparation, and a temporary access route to the construction area. An approximately 6-foot deep and 6-foot wide trench would be excavated next to the existing 6-inch line. The excavated material would be returned to the trench upon completion of the pipeline. Some permanent grading would be required over the trench to provide necessary cover over the pipe. After the pipe is placed, a 40-foot wide easement area would be maintained long-term for inspection and maintenance. This 40-foot area would encompass the existing easement. The rest of the cleared area would eventually return to a forested condition. Any grading required outside of the easement area would be returned to as close to preconstruction contours as practical.

An approximately 20,000-square foot (or about 0.5 acre) temporary staging area just west of the existing corridor and southwest of the ridgeline of Peters Mountain would also be permitted.

The location of this staging area was altered from the site shown on CGV's application to move it from the top of Peters Mountain and away from the Appalachian National Scenic Trail (AT). This change allows for substantial reduced impacts on hikers and on the long-term scenic quality of the area.

The existing pipeline crosses the AT at two points; the top of Peters Mountain and the bottom of Peters Mountain near Virginia State Route 641 (Clendennin Road). The construction near Clendennin Road should take 2 to 3 days. It will be easy to reroute the AT with on-site signing and temporary blazes to move hikers around the construction site. No ground disturbance is needed for this reroute as the woods are gently-sloped and open at this location.

On top of Peters Mountain, the trail and pipeline cross at nearly right angles. The AT goes over the grassy corridor on nearly flat terrain. As described above, the original proposed staging area was at this location. In addition to moving the staging area, the proposal was modified as follows to address concerns about impacts to hikers and visual impacts.

- A barrier fence to restrict access will be placed around the vicinity of the AT (at the ridgeline) prior to any activity and will remain in place for the duration of the project. This fence will enclose an area about 50 feet uphill from traverse point #1027 on the north side of the ridge to the top of the staging area on the south side of the ridge and will be about 300 feet wide. It will be an orange plastic mesh barrier fence, about 4 feet high and will be clearly signed as a "Do not enter" area. Construction activity inside the fence will be limited to the movement of equipment and supplies a few times a day for the majority of the project. The exception to this will be when the pipeline is actually installed inside the fence (limited to an August 1 to September 30 period as described below).
- Gates will be installed in this perimeter fence where it crosses the AT. These gates will be staffed during all periods of construction activity for the length of the project, anticipated to be from April to October 2014. These gates will be closed to hikers only when equipment is inside the area. In the rare occasion when this equipment is inside the perimeter fence for more than a few minutes, hikers will only be permitted to cross the area with escort from contractor personnel.
- Installation of the pipeline inside the perimeter fence will be limited to a construction period of August 1 to September 30. This is the time of the year that has the fewest hikers while still being inside the construction season (April through November). Two interior security fences will be installed, paralleling the trail. During construction in this section, the AT will remain passable. For the short amount of time when the area at the AT needs to be trenched, a bridge will be installed over the trench with a design provided by the contractor and approved by the Forest Service. The gates in the perimeter fence at the AT crossing locations will be staffed during all construction activity and when not staffed, these gates will be left open with the area along the trail safe for public use.

- Clearing and grubbing of the corridor inside the restricted area is anticipated to occur prior to May 15<sup>th</sup>, 2014. If it is not done before May 15<sup>th</sup>, it will not be allowed until the August 1 to September 30 construction period.
- Information concerning this project will be posted on the following web sites to alert hikers: [www.appalachiantrail.org](http://www.appalachiantrail.org), [www.nps.gov/appa](http://www.nps.gov/appa), [www.fs.usda.gov/gwj](http://www.fs.usda.gov/gwj). Information will also be posted at the Clendennin Road (Virginia State Route 641) and Stony Creek Road (Virginia State Route 635) crossings and at Pine Swamp and Docs Knob trail shelters.

These bullets deal specifically with mitigating the impacts to AT hikers. Since the proposed action was released for public comment in May of 2013, the Forest Service and Celanese have reached agreement on an easement for a relocation of the AT that has been in the works for several years. The relocation is independent of this pipeline project and will move the AT to the east of the pipeline (see yellow line on Appendix B Map). Every effort will be made by Columbia Gas of Virginia, Celanese, the Forest Service, and the Appalachian Trail Conservancy (ATC) to move the trail to its new location. Getting this relocation completed prior to the start of pipeline construction would eliminate the need for the measures described in the bullets above as the AT would no longer overlap with the pipeline corridor.

Additional mitigation measures have been added to address concerns with visual, soil, water quality and other resources.

- The staging area will be located just west of the existing corridor and southwest of the ridgeline of Peters Mountain, as flagged in the field on April 22, 2013.
- Any disposal of cleared timber and brush will occur outside of the restricted area.
- Prior to the initiation of clearing activities, CGV and the contractor will work with the Forest Service to minimize clearing within the 125-foot maximum clearing corridor where possible; particularly at the top of the small ridge most visible from US 460. This location was field-reviewed with the contractor and a Forest Service Landscape Architect.
- A specific erosion and sediment control plan will be developed by Columbia Gas of Virginia and reviewed and approved by the Forest Service.
- Sediment control structures of hay bales and/or silt fences would be installed along gradient sides of all work areas and the staging area.
- A protective cover, such as mulch, will be applied on disturbed areas where needed to prevent accelerated erosion during construction or before the next growing season.
- Schedule, to the extent practicable, construction activities to avoid direct soil and water disturbance during periods of the year when heavy precipitation and runoff are likely to occur.
- Limit the amount of exposed or disturbed soil at any one time to the minimum necessary to complete construction operations.
- A specific revegetation plan will be developed by Columbia Gas of Virginia and reviewed and approved by the Forest Service, including the seed mix.

- If any cultural resources are located during the implementation of construction activities, all work will stop until the resources can be evaluated by the Forest Service Archeologist, in consultation with the State Historic Preservation Office, Department of Historic Resources.
- Portable toilet facilities would be made available for use by all construction crew personnel for the duration of the project.
- Two existing access routes would be utilized as part of this project. These roads are in place but would require some maintenance. All road maintenance activities will be approved by the Forest Engineer. These roads, which are currently unclassified roads, would be part of the special use permit. Columbia Gas of Virginia will be required to install a gate to Forest Service specifications at the federal boundary on the lower access road.

There is potential for the establishment of non-native invasive species due to the stirring of the soil and opening created within the cleared corridor. The application of herbicide to treat non-native invasive plants is authorized in the Decision Notice for the “George Washington and Jefferson National Forests Forest-wide Non-Native Invasive Plant Control” (12/14/2010) and therefore is not be part of the proposed action for this project. However, non-native invasive species and the use of herbicide is addressed in the Environmental Consequences discussion in this EA for several resources.

## **PURPOSE AND NEED FOR ACTION**

### **Purpose and Need:**

The purpose of this proposal is to provide Celanese with an adequate, reliable source of natural gas so they are able to convert their coal-fired boilers to natural gas. Federal policies include an emphasis for the Forest Service to help meet energy resource needs to provide and sustain benefits to the American people by timely processing energy-related special use proposals. Direction in the 2004 Revised Jefferson National Forest Land and Resource Management Plan (Forest Plan) guides response to this application.

### **Forest-wide Goals and Objectives:**

The Forest Plan recognizes that various transmission/distribution facilities on national forest lands are essential to local, regional, and national economies. These special uses of federal land serve a public benefit by providing for a reliable supply of electricity, natural gas, and water. The goal in the Forest Plan is to consolidate these uses in the same corridor where possible to minimize negative environmental, social, or visual impacts and minimize acres of land affected. Where feasible, expansion of existing corridors is preferable to designating new sites. (Forest Plan pages 2-59 to 2-61)

### **Management Prescription 4A - Appalachian National Scenic Trail Corridor and Management Prescription 8A1 - Mix of Successional Habitats:**

The bulk of the project is in Management Prescription (Rx) 4A “Appalachian Trail” (AT) with a small portion in Rx 8A1 “Mix of Successional Habitats” in the Forest Plan. However, the AT is proposed for relocation from US 460 to the top of Peters Mountain and when that relocation is

complete the AT will lay nearly one mile to the east of this new transmission line. Now that the easement across Celanese property is in place, construction of the AT relocation can begin this fall. If weather cooperates, the trail relocation can be completed prior to the pipeline construction starting; thereby eliminating all impacts to AT hikers from this project.

The AT management prescription also recognizes that utility transmission corridors, communication facilities, or signs of mineral development activity exist or may be seen within the prescription area, although the goal is to avoid these types of land uses and to blend facilities which cannot be avoided into the landscape so that they remain visually subordinate. Management practices are modified to recognize the nationally significant aesthetic and recreational values of these lands. Activities are planned and carried out in cooperation with appropriate Appalachian Trail management partners. Specific guidelines include “Locate new public utilities and rights-of-way in areas of this management prescription area where major impacts already exist. Limit linear utilities and rights-of-way to a single crossing of the prescription area, per project. Require mitigation measures including screening, feathering, and other visual management techniques to mitigate visual and other impacts of new or upgraded utility rights-of-way.” (Forest Plan pages 3-19 to 3-23)

### **Scope of the Analysis:**

The Final Environmental Impact Statement for the Forest Plan will be tiered to and will guide this analysis. Together with the Forest Plan, these documents provide the programmatic, or first, level of the two level decision process adopted by the Forest Service. These documents satisfy many requirements of the National Forest Management Act (NFMA 1976) while providing programmatic guidance.

All of these documents are available for review at the George Washington and Jefferson National Forests Supervisor’s Office, 5162 Valleypointe Parkway, Roanoke VA 24019 or the Eastern Divide Ranger District Office, 110 Southpark Drive, Blacksburg VA 24060.

The Forest Service will coordinate with the Federal Energy Regulatory Commission (FERC) and the Virginia State Corporation Commission on this environmental review. FERC is conducting an environmental assessment on the section of the proposed line from Forest Hill to Peterstown, West Virginia, in Summers and Monroe Counties. This section runs from the Line KA Metering and Receipt Station to CGV’s Scott Brach Point of Delivery and is being proposed by a separate entity which is Columbia Gas Transmission, LLC. The Virginia State Corporation Commission has regulator authority over the proposed line in Virginia, both on the private and national forest land sections.

## **DECISION FRAMEWORK**

The Responsible Official for this decision is the Forest Supervisor, as he has the responsibility and authority to authorize Columbia Gas of Virginia to use and occupy the involved national forest land. Based on the stated purpose and need, the Responsible Official will review the environmental analysis for this project and decide the following:

Should the construction of a 12-inch natural gas pipeline be permitted? If so, what are the most appropriate construction and rehabilitation standards? If so, what modifications or mitigations are needed to address potential impacts? Should a long-term special use permit be authorized for the operation and maintenance of the pipeline?

## **PUBLIC INVOLVEMENT**

A letter describing the proposed action and requesting comments was mailed on May 23, 2013 to interested and affected agencies, organizations, and individuals. A legal announcement describing the proposed project was published in The Roanoke Times on May 24, 2013. Comments were received from five agencies, organizations, or individuals and these comments were reviewed for potential issues, alternatives and/or mitigation measures. The following summarizes the issues associated with the proposed action.

## **ISSUES**

In general, project issues are considered for formulating and developing alternatives, identifying applicable design criteria and/or determining mitigation measures. Other issues are also analyzed by alternative to comply with laws, policies, and Forest Plan standards. All project issues are used in tracking and disclosing environmental effects.

There were two project issues identified for this proposal:

1. Short and long-term scenic quality issues as viewed from the AT and from US 460
2. Short-term impacts to hiker use of the AT and their safety during construction

**1. SCENIC RESOURCES** – There is concern that the wider clearing limit associated with this new line may adversely impact views from US 460 and the Appalachian Trail. The short-term concern is associated with the construction period and is particularly focused on where the proposed line crosses the AT.

### **INDICATORS:**

- a. Does the pipeline have significant impacts in the short or long-term on the scenic resources along the AT and as viewed from US 460?
- b. What are the cumulative impacts to the scenic resource of this line, in conjunction with the other transmission lines and cell towers in this area?

**2. HIKER EXPERIENCE AND SAFETY** – There is a slight concern that the hiker experience along the AT will be negatively impacted by the construction activity but the primary concern is hiker safety. Hikers will be in the area during construction activity, including speed hikers and night hikers. If the AT is relocated before pipeline construction begins, these concerns are eliminated.

**INDICATORS:**

- a. Are the proposed measures that are included in the proposed action adequate to address the potential hazards to hikers that are associated with the pipeline construction zone and its activities?
- b. Do these measures adequately address the numbers and nature of some thru-hikers, such as speed hiking and night hiking?

**ALTERNATIVES**

In addition to the proposed action (under Alternative 1), the “no action” alternative (Alternative 2) will be considered for evaluation. This alternative provides a baseline for evaluating and comparing the effects of the action alternative.

**Alternatives Eliminated from Detailed Study**

No other alternatives were considered for study in this EA. Prior to accepting the special use application for this gas transmission line, an alternative route that avoids national forest was reviewed. This route took the line closer to populated areas and along travelways. It was also much longer. It therefore was substantially more hazardous and created more impacts so it was not considered viable.

**DESIGN CRITERIA AND MITIGATION MEASURES APPLICABLE TO THE PROPOSED ACTION**

Design criteria are Forest Plan standards developed to implement project activities to minimize or eliminate environmental impacts. Mitigation measures are developed based on site-specific conditions to reduce impacts. Appendix A lists the site-specific requirements for this project as well as the most applicable Forest Plan standards.

**MONITORING**

Monitoring of this project will occur before, during, and after construction to ensure that various aspects of the project adhere to the Forest Plan and conform to design criteria and mitigation measures set forth in this document. Monitoring will also occur to verify the accuracy of the predicted effects this assessment discloses. Specific monitoring responsibilities and activities include:

- The District Ranger or representative will ensure that the staging area is in the approved location and the safety fences, signing, and trail reroute are well established prior to project initiation. This person will also spot monitor the construction zone and the adequacy of protection measures around the AT, particularly at the top of Peters Mountain during hiker season.
- The District Trails Technician and Partnership Coordinator will coordinate trail reroute information with ATC, National Park Service, and the trail maintenance club.

These top two items will be needed if the AT relocation is not completed prior to pipeline construction.

- The District Biologist will ensure that erosion control measures are functioning, the seeding mixture is what was specified and is adequately applied, the vegetation is properly re-established and invasive species are adequately managed. This degree of monitoring will likely last at least three years.
- The Forest Soil Scientist will ensure that soil stability is maintained.
- The Forest Engineer will ensure the road work is properly accomplished and the gate is correctly installed.

## **ENVIRONMENTAL CONSEQUENCES**

This section describes the potential effects of implementing the proposed action and the action alternatives. It provides the scientific and analytical basis for comparing the alternatives.

### **Framework for Analysis**

The scope of this analysis for environmental consequences can vary depending on the resource. The following activities have occurred within or near the project area and will be considered in the determination of cumulative effects, as appropriate.

The proposed gas line is to parallel an existing 6-inch gas line that serves the area. Also, a 345kV power line runs across the proposed gas line corridor. In addition, the AT is in the process of being relocated to the east of the proposed gas line construction.

### **Biological Environment**

The biological environment is the living portion of the environment and includes trees, plants, animals, fish, mollusks, crustaceans, insects, etc. This section describes the major forest communities present in the area and the habitat found within the proposed cleared corridor. These communities are further discussed in terms of wildlife habitat including successional forests, old growth, permanent openings, interior habitats, riparian habitats, snags, dens and

downed wood. Discussion of terrestrial and aquatic species is presented in four sections: demand species; migratory species; aquatic species; and threatened, endangered, sensitive and locally rare species.

Analysis of effects to the biological environment follows the framework used during forest planning (Forest Plan and FEIS) to address these elements. Use of this framework is designed to ensure comprehensive consideration of project effects to the biological environment, including effects to diversity of plant and animal communities, and to fish, plants, and wildlife. Only those relevant to the project are analyzed further in this document.

The Forest Plan identifies 13 management indicator species (MIS) to help identify effects of management on some elements of this framework. MIS populations are monitored at the Forest level (USDA Forest Service, 2004) and the effects of management actions on MIS are considered at the local scale. MIS are used to monitor and/or estimate the impacts of activities on overall ecosystems. These species are used as indicators for groups of organisms that occupy similar niches or are related within the same ecosystem (i.e. they depend upon each other or upon a common factor within the ecosystem). Effects on MIS would be discussed in the section that represents the ecosystem for which the MIS was selected.

It should be noted that six of these MIS are neotropical migrants (species that arrive in spring and depart in the fall). Declines in populations of these species may be caused by events happening on the wintering areas south of the U.S. and not necessarily in Virginia. These species were selected as MIS for the Forest Plan because they occur commonly enough to monitor trends of populations over time. MIS include the hooded warbler, scarlet tanager, pine warbler, eastern towhee, chestnut-sided warbler and Acadian flycatcher. Another MIS, listed in the Forest Plan, the Peaks of Otter Salamander, is not found in the project area.

## **MAJOR FOREST COMMUNITIES**

### **MESIC DECIDUOUS AND OAK AND OAK-PINE FORESTS**

#### **Issue(s) Related to this Resource:**

None

#### **Scope of the Analysis**

The spatial bounds of the analysis of effects on vegetation are limited to National Forest System lands impacted by the gas line construction. The temporal bounds include past activities that affect current vegetation condition in the project area and any foreseeable activity within the next 10 years.

#### **Existing Condition**

The forest resource within this area is primarily comprised of upland oaks such as chestnut oak, white oak, and scarlet oak.

## **Vegetation Effects Alternative 1**

### **Direct and Indirect Effects**

The project will result in the clearing of most of the trees within a corridor paralleling the existing gas line. The trees will be cut and many of the stumps grubbed out to allow for the burying of the new gas line.

The effects of this alternative upon MIS associated with mesic deciduous and oak and oak-pine forest communities would include the following:

Scarlet Tanager – This common migrant woodland bird is typically found in upland mature deciduous (usually oak) forests for which it was selected as an MIS. It is most common in lower and middle elevations in the mountains up to 4,000 feet and is rarely found over 5,000 feet. The key habitat feature is mature deciduous forest. Nests are located 20 to 50 feet above the ground in a hardwood tree. The scarlet tanager feeds on insects that it gleans from twigs and leaves (Hamel, 1992). In the fall it often feeds on berries. It is common in the hardwood stands in this area.

This species would be displaced from the area cleared for the gas line. However, there is a large amount of forest interior habitat within the upper elevations of Peters Mountain that can provide needed habitat. Local populations are not expected to decline as a result of the proposed activities.

Hooded Warbler – Habitat of this common migrant warbler is moist deciduous and mixed forests with a dense understory, as is typically found in rich woods, ravines, and bottomlands. Key habitat requirements are forests (usually deciduous) with a thick, rich understory layer. The hooded warbler is rarely associated with these moist deciduous forests above 4,000 feet (Hamel, 1992). Nests are built 2 to 5 feet above the ground in shrubs and saplings where they are poorly concealed. These warblers forage primarily in shrubs within 15 feet of the ground by gleaning and hawking insect prey. The hooded warbler is an MIS for mid- to late-successional mesic oak and oak-pine forests. They are known to exist within the project area.

This species would benefit from the opening of the canopy since the corridor is not wide. Local populations should benefit from this project.

Pine Warbler – The pine warbler is closely associated with middle-aged to mature pine and pine-oak forests, generally occurring only where some pine component is present. While not among the common migrant warblers, it is considered the most appropriate MIS for the yellow pine habitat component. Nests are built in pines and foraging for insects occurs in the crowns of pines where they glean insects from needles and twigs (Hamel, 1992). This area contains some yellow pine, but this component will not be benefited from this project. Populations are expected to remain stable in the future.

### **Cumulative Effects**

No future management activities are planned in the project area that would impact the forest overstory.

### **Vegetation Effects Alternative 2**

#### **Direct and Indirect Effects**

With no gas line constructed, there would be no impacts to the forest resource.

The effects of this alternative upon MIS associated with mesic deciduous and oak and oak-pine forest communities would include the following:

Scarlet Tanager – This species is associated with mature hardwoods so with no tree cutting, this alternative is the most favorable for this species.

Hooded Warbler – This species is associated with mid to late-successional hardwood forests. Local populations would remain stable with no action.

Pine Warbler – This species is associated with yellow pine so with no tree cutting, this alternative is the most favorable for this species.

#### **Cumulative effects:**

No future management activities are planned in the project area that would impact the forest overstory.

### **RARE COMMUNITIES**

Rare communities and other special biological areas on the Jefferson National Forest were identified through a cooperative effort between the Forest and the Virginia Department of Conservation and Recreation, Division of Natural Heritage as part of the Forest Plan Revision process.

#### **Issue(s) Related to this Resource:**

None

#### **Existing Conditions:**

There are no rare communities or special biological areas within the project area, so by definition, there are no effects.

## **TERRESTRIAL SPECIES AND THEIR HABITATS**

This section discusses different aspects of wildlife habitat elements. For the purpose of this discussion, the term “wildlife” refers to terrestrial wild animals, including arthropods and other invertebrates, which occur on the Forest.

### **SUCCESSIONAL FORESTS**

#### **Issue(s) Related to this Resource:**

None

#### **Scope of the Analysis:**

The spatial bounds of the analysis of effects on vegetation are limited to National Forest System lands that comprise the project area.

The temporal bounds include past management activities that affect the current vegetative condition in the project area and any foreseeable vegetative manipulation within the next 10 years.

#### **Existing Conditions:**

The existing gas line right-of-way is semi-open with herbaceous and woody vegetation found within the corridor. The existing corridor is approximately 30 feet wide. The rest of the project area is the adjacent woods that would be cleared to create the new wider corridor. This wood is primarily an upland oak stand.

#### **Direct and Indirect Effects:**

##### **Alternative 1**

Stump grubbing and gas line burying could result in some amphibians, reptiles, small mammals, and insects within the construction zone being crushed by heavy equipment or buried by dirt from the digging. In addition, some terrestrial or semi-aquatic species of salamanders, insects, reptiles, and small mammals within and adjacent to the gas line may be directly impacted by heavy equipment use during construction.

Through vegetation alteration, herbicide use would affect wildlife habitat. Non-native invasive species would be treated with a low volume foliar spray treatment applied to individual plants or a cut surface treatment of individual stems then sprayed with glyphosate; most wildlife species would move out of the immediate area. Smaller animals that remain are either under cover or would seek cover upon human disturbance; it is possible some herbicide could drip onto vegetation that could be ingested by herbivorous animals; a less likely exposure would occur through contact with skin/fur of an animal. Dermal exposure may be determined using the criteria of either extreme or realistic doses. The realistic dose estimate for glyphosate (Table 8-6,

p.8-11 of the VMAM EIS) suggests that this herbicide is below the EPA risk criterion of 1/5 LD50 (median lethal dose) for all representative birds, reptiles, amphibians, and mammals.

Glyphosate is a chemical that presents a “low to very low” risk (VMAM, Appendix A, p.8-4). Local populations of small mammals, small birds, terrestrial amphibians, and reptiles may be adversely affected when large areas are treated; however, the reproductive capacity of these species is generally high enough to replace the lost individuals within next breeding cycle. Populations of larger mammals, birds, and any domestic animals present are not likely to be affected at all (p. 8-4, Vol. II, DEIS VMAM). Glyphosate is rapidly excreted. Based on high elimination rates and low tissue retention, there is a very low risk for bioaccumulation (DEIS VMAM, Volume II, p. 3-27).

No known documentation in the published literature exists describing the effects of this herbicide on lepidopterans and other arthropods. This herbicide was developed to impact plant physiology. The selective nature of the application would limit any impact on arthropod populations. Milkweed and other flowering plant species would not be targeted. In summary, risk is at a low (“no risk”) level at typical application rates, according to EPA standards for terrestrial animals (VMAM, p. IV-75) for this herbicide.

The effects of this alternative upon MIS associated with successional forests would include the following:

Chestnut-sided warbler – The habitat of this common migrant warbler is typically found in second-growth hardwoods and overgrown fields in the Appalachian Mountains in Virginia, over 2,500 feet in elevation. On the Forest it is therefore found in the Blue Ridge, Ridge and Valley, and Cumberland mountains. It is most numerous in abandoned fields with scattered saplings, along woodland edges, and in open park-like deciduous woods. It nests 1 to 4 feet above the ground in saplings and shrubs and feeds on insects gleaned from leaves and twigs in deciduous vegetation (Hamel, 1992). The chestnut-sided warbler is an MIS for high-elevation early-successional habitats because of its strong association with these habitats, and because its populations should be responsive to such habitat conditions. Local populations would benefit from this alternative, as it creates early seral habitat.

Eastern towhee – This common short distant migrant is typically found in early-successional habitat. They nest in thickets or brushy places on the ground or in shrubs or saplings up to five feet high (Hamel 1992). Eastern towhees require shrubs, saplings, or understory trees in a wide variety of situations, usually where a thicket is present. Populations respond favorably to conditions created three years following forest regeneration in larger forest patches (Thompson and Fritzell 1990). Towhees are common within early-successional and brushy habitat found in the area. The towhee is an MIS for early-successional habitats because of its strong association with these habitats, and because its populations should be responsive to such habitat conditions. Local populations would benefit from this alternative, as it creates early seral habitat.

### **Cumulative Effects:**

The cumulative effects (past, present, and reasonably foreseeable future actions considered together) of this alternative upon MIS associated with successional forests would include the following:

Chestnut-sided Warbler – The widening of the existing gas line corridor in combination with an existing power line corridor would likely provide an increase in usable or more suitable habitat in the immediate area for breeding pairs. This should result in an increase the potential habitat for chestnut-sided warblers and their populations into the foreseeable future.

Eastern Towhee – The widening of the existing gas line corridor in combination with an existing power line corridor would likely provide an increase in usable or more suitable habitat in the immediate area for breeding pairs. This should result in an increase the potential habitat for chestnut-sided warblers and their populations into the foreseeable future.

### **Alternative 2**

There would be no impacts including cumulative effects, upon amphibians, reptiles, small mammals, and insects as no construction would occur. The existing gas line right-of-way provides some early successional habitat, and early successional species would continue to use the existing corridor.

This alternative does not create additional habitat desired by the chestnut-sided warbler or eastern towhee.

### **OLD GROWTH**

#### **Issue(s) Related to this Resource:**

None

#### **Existing Conditions:**

In June of 1997, the Regional Forester issued new guidance on the definition and management of old growth forest communities in a report entitled "Guidance for Conserving and Restoring Old Growth Forest Communities on National Forests in the Southern Region." Areas proposed for gas line were evaluated to see if any trees met the age, disturbance, basal area, and diameter at breast height (DBH) criteria identified in the Regional Guidance. The area proposed for construction use and access had been disturbed in the past. There was old growth northern red oak observed west of the existing gas line on the north side of Peters Mountain, but this area will not be impacted by the proposed action.

#### **Direct, Indirect, and Cumulative Effects:**

Since the project area does not contain any old growth, there are no effects from either alternative.

## **INTERIOR HABITATS**

### **Issue(s) Related to this Resource:**

None

### **Existing Conditions:**

Forest fragmentation is the breaking up of large contiguous areas of forested land into smaller units. This causes an increase in forest edge; the border between forest and non-forested areas, and reduces the amount of forest interior habitat present. It also causes an increase in temperatures at the ground level from thermal radiation.

Fragmentation and the resulting edge habitat can cause a change in the plant and animal communities within an ecotone. Forest management activities such as timber harvesting and road construction are commonly cited as causes of forest fragmentation. Construction of a gas line right-of-way will also create edge habitat. Edges are often referred to as "ecological traps" for some species of songbirds, because their structural diversity is attractive to the birds when they are seeking nesting locations. This same structural diversity, however, attracts predators and parasites, which can decrease the songbirds' nesting success. Brood parasitism from brown-headed cowbirds is often mentioned in this scenario. Brown-headed cowbirds, commonly found in southwest Virginia, are usually associated with permanent pastures and urban areas. Although cowbirds do occur on private agricultural lands in the surrounding landscape they are not considered common on National Forest System lands.

Finch (1991) reviewed existing neotropical bird population literature and identified some of the conflicting evidence. Most studies documenting the negative effects on forest interior species have been undertaken in agricultural regions where forests have been isolated and there has been a large decrease in the region's total area of forest. Even in more extensively forested areas, Rodewald and Yahner (2001) provide evidence that agricultural disturbances within forested landscapes seemed to negatively affect bird communities in adjacent forest more than silvicultural disturbances. Managing extensively forested landscapes at a variety of scales and through a variety of regeneration methods can provide suitable habitat for both species that need large unbroken forest habitats and species that need forest edges and early-successional habitat (Annand and Thompson 1997). However, Buford and Capen (1999) present evidence that challenges the argument that songbirds breeding in an extensive forest landscape are not affected by canopy disturbance. Their study suggests breeding success of some forest interior species is reduced significantly in extensive forested areas with only 10% of the area considered open. In addition, Flaspohler and others (2001) provided evidence that the creation of openings in forest landscapes reduces nesting success for ground nesting songbirds in a zone adjacent to the opening. These openings were clear cuts, not agricultural clearings.

There are over 3,000 acres of forest interior habitat along Peters Mountain to the west of the proposed gas line, and several thousand more to the east. Roads and power line right-of-ways break up forest interior habitat on this portion of Peters Mountain.

## **Interior Habitats Effects Alternative 1**

### **Direct and Indirect Effects**

The construction of 4,238 feet of gas line right-of-way on the National Forest will result in a wider open area than currently exists, but no additional edge, as the line parallels an existing right-of-way.

The effects of this alternative upon MIS associated with forest interior habitat would include the following:

Ovenbird – Preferring mature, dry, deciduous hardwoods with a closed canopy, the ovenbird is an area-sensitive MIS requiring relatively large undisturbed tracts. As ground nesters, they are especially vulnerable to predators. Breeding habitat is deciduous or mixed forest (rarely pure pine woods) with moderate understory, preferably in uplands. Minimum tract size is 37 acres, (Hamel 1992). It is common within the upland hardwood stands in the area. This species would be displaced from the expanded corridor. However, there is a large amount of forest interior habitat within the area that can provide needed habitat. Local populations are not expected to decline as a result of the proposed activities. On the Forest, overall total ovenbird populations are stable or increasing (USDA Forest Service, 2004).

### **Cumulative Effects**

No other activities are foreseeable that will add cumulative effects.

## **Interior Habitats Effects Alternative 2**

### **Direct and Indirect Effects**

Existing edge conditions would not change in quantity or quality given the no action alternative. This alternative would not reduce existing interior habitat and local populations of ovenbirds would remain stable.

### **Cumulative Effects**

No other activities are foreseeable that will add cumulative effects.

## **RIPARIAN HABITATS**

### **Issue(s) Related to this Resource:**

None

### **Existing Conditions:**

There are no perennial, intermittent, or channeled ephemeral streams within the gas line right-of-way on National Forest land.

**Direct, Indirect and Cumulative Effects:**

Given there are no perennial or intermittent streams on National Forest land within the gas line right-of-way, there will be no impacts to riparian habitat.

**INVASIVE SPECIES**

**Issue(s) Related to this Resource:**

None

**Existing Conditions:**

No invasive species were observed along the existing gas line. However, tree-of-heaven, multiflora rose, and autumn olive and have been seen along Forest Service roads near the project area, and along the access roads for the project. They also occur within a nearby powerline right-of-way.

**Invasive Species Effects  
Alternative 1**

**Direct and Indirect Effects**

Stirring soil and opening the forest canopy along the gas line could allow for the establishment of invasive species from existing seed sources such as existing power line right-of-ways and road corridors. Proposed use of glyphosate and fosamine to control these species would eliminate their establishment along the expanded corridor.

**Cumulative Effects**

The expanded gas line right-of-way would be a prime area for establishment of non-native invasive species, especially considering existing source locations of power line rights-of-way and road corridors. These other source locations are close geographically, and an increase in non-natives should be expected in all disturbed or open areas. However, there is a Forest-wide environmental assessment and associated decision notice that allows for treatment of non-native species, with appropriate documentation. This allows for treatment and control of non-native species in the corridor. This treatment is expected to control the spread of these invasive species.

**Invasive Species Effects  
Alternative 2**

**Direct and Indirect Effects**

With no pipeline construction, there would be no stirring of soil. No expansion of existing non-native species populations associated with disturbance would occur.

### **Cumulative Effects**

Existing non-natives would not have additional area to inhabit with the gas line right-of-way not being built. Therefore, no cumulative impacts are anticipated.

## **FISHERIES AND AQUATIC HABITAT**

### **Issue(s) Related to this Resource:**

None

### **Scope of the Analysis**

The Celanese gas line project area is located in the Clendennin Creek-Bluestone Lake (HUC 050500020602) and the Rich Creek (HUC 020802020107) watersheds of the New River.

The gas line will cross an intermittent tributary of Stillhouse Branch, and will go under the streambed.

As stated in the Hydrological Analysis, boundary of the analysis area for aquatic biota will be the watersheds of Clendennin Creek-Bluestone Lake sub-watershed (Hydrologic Unit Code 050500020602), and the Rich Creek sub-watershed (HUC 050500020601). The time frame for the analysis will be until the sediment level returns to near pre-project levels.

### **Existing Situation and Effects of Past and Present Actions Related to this Resource**

#### **a. Existing Situation**

There are no fish found within the project area, nor in Stillhouse Branch or its tributaries classified by the Virginia Department of Game and Inland Fish (VDGIF). The VDGIF database lists many aquatic species in the New River within the 6<sup>th</sup> level Clendennin Creek watershed. They include but are not limited to the following fish: Appalachia darter, largemouth bass, rock bass, smallmouth bass, bigmouth chub, greenside darter, Roanoke darter, candy darter, margined madtom, telescope shiner, white shiner, whitetail shiner, northern hog sucker, and redbreast sunfish; mussels: pistolgrip, pocketbook, purple wartyback, spike, and green floater; snails: crested mudalia, two-ridge rams-horn; and crayfish: Teays River, *Orconectes spinosus*, and *Cambarus sp.*

#### **b. Past and present actions that have affected the existing situation**

See the Hydrological Analysis for a description of current timber harvest activities and roads in the area. In addition, historic mining of iron ore and the associated activities of iron furnaces occurred in the area throughout the 18<sup>th</sup> and into the 19<sup>th</sup> century. The utility corridor for a high voltage electric transmission line (86 foot high) runs parallel to the road and main drainages within the project area.

### Future Actions Related to this Resource

See the Hydrological Analysis for a description of future actions related to this resource.

### **Fisheries and Aquatic Resources Effects Alternative 1**

#### **Direct and Indirect Effects**

The main concern for aquatic biota related to the proposed action is increased sediment from the placement of the new gas line and any road reconstruction. As stated in the Hydrological Analysis, minor sedimentation can be expected from project activities. Sediment is expected to return to pre-activity levels within two years. The minor sediment increases are un-measurable and insignificant in comparison to the sediment loads of Stillhouse Branch and Rich Creek, and will have no significant effect on habitat for fish or other aquatic life.

Sedimentation and erosion potential will eventually return to a constant state, very close to the level existing before the implementation of the selected alternative.

#### **Cumulative Effects**

Alternative 1 does not have a significant cumulative effect on the aquatic biota when viewed in conjunction with past, present, and future activities.

### **Fisheries and Aquatic Resources Effects Alternative 2**

#### **Direct and Indirect Effects**

There would be no significant additional effects on sedimentation, water quality, or riparian areas and in turn no effect on aquatic biota.

#### **Cumulative Effects**

The No Action Alternative does not have a significant cumulative effect on the aquatic biota when viewed in conjunction with past, present, and future activities.

### **THREATENED, ENDANGERED, SENSITIVE AND LOCALLY RARE SPECIES**

#### **Issue(s) Related to this Resource:**

None

#### **Scope of the Analysis:**

The scope of analysis for aquatic species effects is the same as that used for the hydrology effects analysis, the Stillhouse Branch, Scott Branch, and Clendennin Creek watersheds.

The entire George Washington and Jefferson National Forests serve as the geographic scope for effects concerning the Indiana Bat, *Myotis sodalis*. The Indiana bat is not being considered as an issue in this environmental assessment because the analysis area is not situated within an Indiana bat cave protection area (Indiana bat cave protection areas are defined in the Forest Plan). This issue has already been decided and the effects disclosed by this agency through the NEPA analysis and documentation by the U.S. Fish and Wildlife Service by its Biological Opinion (BO) of January 13, 2004. The BO issued constitutes compliance with Section 7 requirements of the Endangered Species Act (ESA) regarding the Indiana Bat and therefore no further consultation with the USFWS is necessary. The BO also contains an incidental take statement which provides for "taking" (as identified in ESA) of individual bats and habitat modifications thus allowing for implementation of forest management activities within the Terms and Conditions and would not violate Sections 4 (d) and 9 of ESA.

However, to meet Endangered Species Act, (ESA) Statutory and National Forest Management Act (NFMA) requirements, Indiana bat requirements from the Forest Plan, as applicable to the proposed project and reiterated in the BE or BO, also become part of the design of the project level alternatives. Thus, these requirements for protection of the Indiana bat are included in the Design Criteria (Appendix A) section of this EA.

The scope of analysis for the sweet pinesap and the Diana fritillary is the pipeline construction zone.

### **Existing Situation:**

The Peter's Mountain mallow, a federally endangered plant species, is known to exist within 3 air miles of the project site. This plant is only found in this one location in the world. The portion of the project area that had the highest probability of providing habitat for this species was checked three times, and no Peter's Mountain mallow were found and no appropriate habitat was considered present upon further review.

No caves that could provide wintering habitat for the federally-endangered Indiana bat are known to be found in the project area. Habitat for the bat does exist across the Eastern Divide Ranger District despite the fact that there is no critical habitat (as defined in the Endangered Species Act) for the Indiana bat on the GWJNFs or adjacent to the Forests in Virginia, West Virginia, or Kentucky. The project area is not within any primary or secondary cave protection areas surrounding hibernacula since it is not within 2 miles of any hibernaculum. The closest hibernaculum is approximately 10 miles away. The project area also does not contain any fall foraging and swarming habitat since it is not within 2 miles of any hibernaculum. The project area contains potential summer roost sites, summer foraging habitat, and potential maternity sites for the Indiana bat.

The sweet pinesap, a Forest Service Sensitive plant species, could potentially exist within the project area, but no individuals were observed during project planning surveys. The Diana fritillary, a Forest Service Sensitive butterfly species, is known to exist within the project area, but no individuals were observed during project planning surveys.

A Biological Evaluation (BE) of the proposed project has been completed, and is contained in the project files at the Eastern Divide Ranger District office in Blacksburg.

### **Threatened, Endangered, Sensitive and Local Rare Species Effects Alternative 1**

#### **Direct and Indirect Effects**

Individual sweet pinesap that potentially exist could be crushed or uprooted if they occurred in the clearing area or access paths. No individuals were observed within the project area, but if present, individuals of these species may be impacted as a result of proposed activities. This limited impact would not lead to Federal listing, or loss of species viability (Biological Evaluation for Sensitive Species, December 5, 2003 for the Forest Plan). Impacts to the Diana fritillary would also be limited as no existing potential nectaring areas are being eliminated. The larval stage for this butterfly feeds on violets. The expansion of the cleared area could improve nectaring sources for adult butterflies. No individuals were observed within the project area, but if present, individuals of these species may be impacted as a result of proposed activities. Again this would not lead to Federal listing, or loss of species viability due to the scope of the impacts (Biological Evaluation for Sensitive Species, December 5, 2003 for the Forest Plan). There are no significant cumulative effects anticipated.

In terms of impacts to Indiana bat habitat, the clearing of approximately 13 acres would indirectly provide feeding areas since bats are known to forage within the canopy openings of upland forests, over clearings with early-successional vegetation, and along the borders of croplands, wooded strips (fence rows), and over ponds.

For the Indiana bat this project would be in compliance with the BO issued by the USFWS on January 13, 2004 and therefore constitutes compliance with ESA Section 7 requirements. Since implementation of this project would be in compliance with, and tiers to, the BO that was issued as a result of formal consultation and it provides both specific Plan and project level direction, plus no new information has been identified as of this date, a finding of the effect to the Indiana bat for this proposed project is: no effect, beyond that which is already disclosed in the Revised Land and Resource Management Plan of March 2004 and by the USFWS in the BO of January 13, 2004.

#### **Cumulative Effects**

There are no significant cumulative effects anticipated.

### **Threatened, Endangered, Sensitive and Local Rare Species Effects Alternative 2**

#### **Direct and Indirect Effects**

There are no management activities and therefore, there would be no potential negative direct, indirect, or cumulative impacts to the threatened, endangered, sensitive or locally rare species in this area.

## **Cumulative Effects**

There are no significant cumulative effects anticipated.

## **Physical Environment**

### **SOILS**

#### **Issue(s) Related to this Resource:**

None

#### **Scope of the Analysis:**

The scope of the analysis for the impacts to soils would be the area contained within the activity areas for this proposed project. The activity areas are the treatment areas where there is potential for soil disturbance. These areas would be expected to produce biomass in the future – areas such as, the cleared right of way and the staging area. Activity areas can be smaller in extent than the entire proposed project area and are intended to include only the areas being treated by the proposed project alternatives. The table below shows the total activity area for each project alternative, which defines the scope and the basis of the analysis for the effects to the soil from the proposed activities. Activities not expected to affect the soil resource are road maintenance to existing Forest Service access roads.

#### **Activity Areas by Alternative**

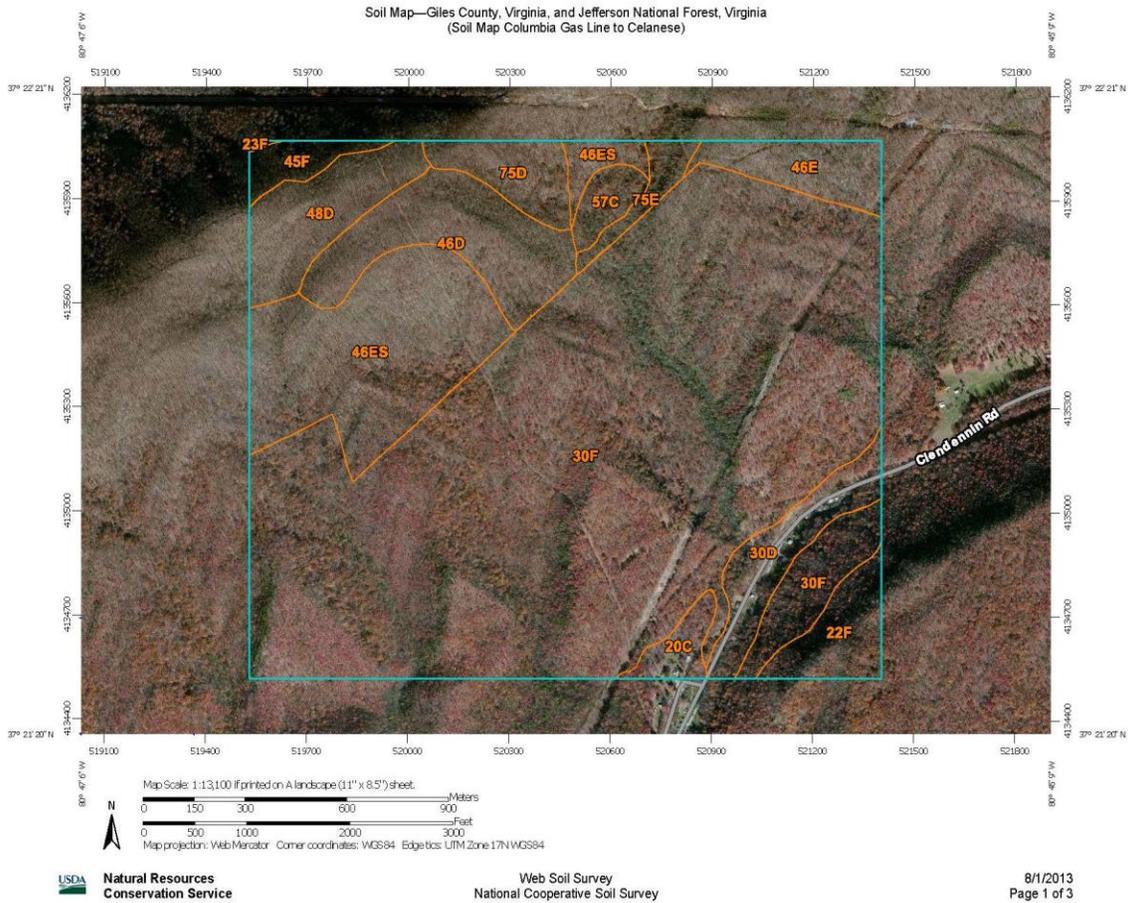
<b>Potential soil disturbance</b>	<b>Alternative 1</b>
Cleared Right of Way * Includes, stockpiled soil, temporary access, new trench.	12.2 acres
Temporary Staging area	0.5 acre
Total Activity Area	12.7 acres

\*4,238 linear feet of line on Forest Service, times average of 125 linear feet width (maximum) = 12.2 acres.

#### **Existing Condition**

The existing 6-inch line corridor is within the activity area of the proposed action. This corridor is well vegetated and is not eroding. This is a good example of what to expect in the corridor after the installation of the new 12-inch line in the proposed action. Adjacent to the existing corridor on both sides is undisturbed forestland or, on the north side of Peters Mountain, rock cliffs. A detailed soil survey has been completed for the project area (see below). The information about the soils is obtained from the, Jefferson National Forest soil survey area in Virginia on the USDA Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>.

Field work for this soil survey was done in the mid to late 1980s and early 1990s. The soils potentially impacted by this project are derived primarily from sandstone and shale bedrock geology and material from surrounding uplands. Soils occurring in this area are identified using the maps below. The soils are well-drained and are expected to be suited for the proposed activities.



Soil Map—Giles County, Virginia, and Jefferson National Forest, Virginia  
(Soil Map Columbia Gas Line to Celanese)

MAP LEGEND		MAP INFORMATION	
<p><b>Area of Interest (AOI)</b></p> <p> Area of Interest (AOI)</p> <p><b>Soils</b></p> <p> Soil Map Unit Polygons</p> <p> Soil Map Unit Lines</p> <p> Soil Map Unit Points</p> <p><b>Special Point Features</b></p> <p> Blowout</p> <p> Borrow Pit</p> <p> Clay Spot</p> <p> Closed Depression</p> <p> Gravel Pit</p> <p> Gravelly Spot</p> <p> Landfill</p> <p> Lava Flow</p> <p> Marsh or swamp</p> <p> Mine or Quarry</p> <p> Miscellaneous Water</p> <p> Perennial Water</p> <p> Rock Outcrop</p> <p> Saline Spot</p> <p> Sandy Spot</p> <p> Severely Eroded Spot</p> <p> Sinkhole</p> <p> Slide or Slip</p> <p> Sodic Spot</p>	<p> Spoil Area</p> <p> Stony Spot</p> <p> Very Stony Spot</p> <p> Wet Spot</p> <p> Other</p> <p> Special Line Features</p> <p><b>Water Features</b></p> <p> Streams and Canals</p> <p><b>Transportation</b></p> <p> Rails</p> <p> Interstate Highways</p> <p> US Routes</p> <p> Major Roads</p> <p> Local Roads</p> <p><b>Background</b></p> <p> Aerial Photography</p>	<p>The soil surveys that comprise your AOI were mapped at scales ranging from 1:15,800 to 1:24,000.</p> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: <a href="http://websoilsurvey.nrcs.usda.gov">http://websoilsurvey.nrcs.usda.gov</a> Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Giles County, Virginia Survey Area Data: Version 8, Jan 21, 2009</p> <p>Soil Survey Area: Jefferson National Forest, Virginia Survey Area Data: Version 4, Sep 17, 2012</p> <p>Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Nov 11, 2010—Mar 17, 2011</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>	

## Map Unit Legend

Giles County, Virginia (VA071)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
20C	Jefferson very stony loam, 0 to 15 percent slopes	8.2	1.1%
22F	Jefferson variant and Drall soils, very stony, 30 to 65 percent slopes	18.0	2.5%
23F	Lehew and Wallen soils, very stony, 35 to 65 percent slopes	0.4	0.1%
30D	Nolichucky very stony sandy loam, 15 to 30 percent slopes	24.2	3.4%
30F	Nolichucky very stony sandy loam, 30 to 65 percent slopes	453.0	62.9%
<b>Subtotals for Soil Survey Area</b>		<b>503.8</b>	<b>69.9%</b>
<b>Totals for Area of Interest</b>		<b>720.6</b>	<b>100.0%</b>

Jefferson National Forest, Virginia (VA606)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
45F	Dekalb, shallow-Rock outcrop complex, 60 to 80 percent slopes, extremely stony	8.5	1.2%
46D	Dekalb cobbly sandy loam, 15 to 35 percent slopes, very stony	43.3	6.0%
46E	Dekalb cobbly sandy loam, 35 to 60 percent slopes, very stony	19.0	2.6%
46ES	Dekalb cobbly sandy loam, 35 to 60 percent slopes, rubbly	84.9	11.8%
48D	Calvin very channery loam, 15 to 35 percent slopes, extremely stony	29.2	4.0%
57C	Clymer sandy loam, 3 to 15 percent slopes	7.9	1.1%
75D	Lily gravelly sandy loam, 15 to 35 percent slopes	16.4	2.3%
75E	Lily gravelly sandy loam, 35 to 60 percent slopes	7.6	1.0%
<b>Subtotals for Soil Survey Area</b>		<b>216.8</b>	<b>30.1%</b>
<b>Totals for Area of Interest</b>		<b>720.6</b>	<b>100.0%</b>

**Hydric Soils Presence--**Hydric soils (a wetland primary indicator) have not been identified in the activity area for this project.

**Prime Farmland Soils Presence--**No prime farmland soils have been identified in the activity areas for this project.

### **Direct and Indirect Effects**

#### **Alternative 1**

Alternative 1 has the potential to affect the soil resource as a result of the proposed actions of constructing a gas pipeline. The effects of these actions on soils in the activity areas can be described in terms of short and long-term effects on the productivity of the soils. Short-term effects are those effects lasting three years or less, and are associated with the recovery period in which non-displaced disturbed soils become re-established with vegetative cover. Short-term effects imply that the existing soil profile is left mostly intact. Surface disturbances, such as compaction and removal of vegetation are the primary impacts. In contrast, long-term effects are associated with activities which displace the upper portions of the soil profile (topsoil). Many years are needed for the soil to recover its original productivity when the upper layers are removed. Topsoil formation is a slow process and typically occurs at a rate of one inch per 200-600 years, and depends on local climatic and ecological factors.

There is an additional indirect effect to areas which receive the displaced topsoil from excavated areas, such as fill slopes along roads. With this added mineral soil material and organic matter, productivity on these areas would be improved by increasing soil depth, soil moisture holding capacity, organic matter and nutrients. This is not to say that excavated sites, which have long-term direct effects to soil productivity, are offset by these areas where topsoil is deposited. It is mentioned here as an indirect effect of excavation activities associated with Alternative 1. Topsoil deposition areas would not be used to offset any effects shown in the following analysis. It is an effect which is not easily estimated or displayed, but one that does occur.

Important factors considered in evaluating effects to soil resources from this project are: the Columbia Gas of Virginia application for permit, the extent of the activity areas and the extent of the area where long-term soil productivity has been reduced. Effects to the soils from this project are considered not significant when at least 85 percent of the activity area retains its original soil productivity (Forest Service Handbook, R8, 2509.18.2.2, Soil Quality Standards).

General forest areas are expected to recover quickly. Research has shown that the upper few inches of soil recovers quickly from any compaction occurring, except for rutting. This is due to organic matter additions from vegetation removal, soil biota activity, freezing and thawing and plant root growth from existing and new vegetation. Recovery from compaction is slower in the 8 to 12 inch depth zone, but compaction is not expected at these depths in areas other than access routes and staging area, unless rutting occurs. Portions of the staging area are expected to have a longer recovery period since this area must recover from compaction and soil displacement. Productivity loss on the staging area is considered to be a long-term impact to soil productivity.

The extent of ground disturbance and the estimated short and long-term effects to soils for Alternative 1 is displayed below. In pipeline installation operations, the impacts of trenching are considered to be short-term impacts to soil productivity, since excavated soil is returned to the trench. Other impacts are associated with areas benched to obtain cover material for the pipe and excavated areas on the staging area and access routes. The proposed activities in Alternative 1 of road maintenance, clearing and grubbing vegetation and maintenance of a 40 feet wide easement are not expected to produce any long-term effects to soil productivity. These activities would not be displacing or deeply compacting the soils occurring in these areas. Exposure of bare soil created by proposed activities would be re-vegetated using erosion control plants and structures during a recovery period and the soil surface is not expected to erode after this recovery period.

The table below displays the estimated potential effects to soil productivity from the activities proposed in Alternative 1 and considered in this environmental analysis. Assumptions used to estimate the effects are shown below the table.

Table 1. Alternative 1 Estimated Acreage of Potential Short and Long-Term Effects to Soil Productivity.

<b>Activity</b>	<b>Short-Term</b>	<b>Long-Term</b>	<b>Total</b>
(1) Gasline trenching (10' X 4238')	1 acres	0	1 acre
(2) Permanent grading over pipe for cover (1483' X 10')	0	0.4 acre	0.4 acre
(3) Staging area (0.5 acre)	0.5 acre	0	0.5 acre
(4) Access (12' X 6000')	0.4 acre	1.3 acres	1.7 acres
<b>Totals</b>	<b>1.9 acres</b>	<b>1.7 acres</b>	<b>3.6 acres</b>

**Assumptions used for above table:**

(1) 10' used to instead of 6' stated in permit application to account for disturbed area associated with trenching operation and soil stockpiling.

(2) Anticipated permanent grading changes where there is a need to create a bench on one side of the new line to provide sufficient cover over the pipeline. This would be only within the permanent 40-foot maintained right of way. Assume 35% of trench length on Forest Service (1483 feet), 10 feet wide.

(3) Staging area, if bladed, will be returned to preconstruction contours as much as possible and to do whatever is necessary to make this a temporary impact. Soil displacement minimized.

(4) Access necessary for equipment to maneuver on the slopes along the gas line would be needed along the length of the line and also outside the 40 feet easement in the cleared area. Assume 6000' X 12', with 80% long-term impact to soil productivity.

As shown in the above table, Alternative 1 is expected to have impacts to soils in the activity areas. To put the magnitude of these impacts into perspective, the estimated acres impacted by Alternatives 1 is compared to the acres in the activity area below. This estimates the percentage of the activity area potentially impacted by the proposed activities for these alternatives.

Table 2. Estimated Percentage of the Activity Area Soils Affected by the Proposed Action.

Alternative	Extent of Activity Area	Estimated Effects		Percent of Activity Area Affected Long-Term
		Short-Term	Long-Term	
Alternative 1	12.7 acres	1.9 acres	1.7 acres	13.4 %

The table above shows that Alternative 1 will affect long-term soil productivity.

Some soil compaction would occur along the gas line construction route as a result of heavy equipment use. Areas of concentrated use, such as the staging area and access routes along the pipeline are most affected. This compaction would increase the bulk density of the soils and result in a decrease in pore space, soil air and in the water holding capacity of the soils and would increase water runoff. These effects are considered detrimental to plant growth. The degree and depth of compaction depends on the number of passes the equipment makes and the moisture content of the soil at the time the passes are made. Changes in pore space do not normally occur on well-drained soils, such as those that occur over most of the project area, until three or more passes have occurred.

Soil movement (erosion) can occur on long unimpeded slopes with grade, where mineral soil material is exposed to raindrop impact and overland water flow. Soil movement can affect soil productivity when soil is transported by water offsite. Soils on upper slopes can lose productive topsoil as it moves down slope with water. Soil erosion may occur where bare soil is exposed on a slope as a result of equipment tracking difficulties (spinning wheels), access roads and staging area. The placement of the staging area on gentle slopes prevents long unimpeded erosion surfaces. The presence of a natural organic surface layer covering the soil would also prevent long, unimpeded erosion surfaces.

Management practices for minimizing soil movement include the use of waterbars and establishment of vegetation to check the flow of water down the travel-way also interrupts the long unimpeded slopes referred to above. The potential for soil movement is also expected to be temporary and limited to a recovery period time of approximately 1 to 3 years. Prompt seeding of the disturbed areas would help prevent continued soil movement after sale closure. Mitigation measures included in the proposed action (measures 10-14 in Appendix A):

- A specific erosion and sediment control plan will be developed by Columbia Gas of Virginia and reviewed and approved by the Forest Service.
- Sediment control structure of hay bales and/or silt fences would be installed along gradient sides of all work areas and the staging area.
- A protective cover, such as mulch, will be applied on disturbed areas where needed to prevent accelerated erosion during construction or before the next growing season.

- Schedule, to the extent practicable, construction activities to avoid direct soil and water disturbance during periods of the year when heavy precipitation and runoff are likely to occur.
- Limit the amount of exposed or disturbed soil at any one time to the minimum necessary to complete construction operations.

Implementation of these management practices will minimize soil impacts due to this project. Direct and indirect effects to the soil resource are below the significance level of 15% the activity area.

### **Cumulative Effects**

The scope of the analysis considered for cumulative effects to soils for this project is the project area. The project area is about 12.7 acres for Alternative 1 (125' X 4238'). The project area provides an area to estimate the effects to soils from past, future and proposed actions for this piece of the Forest. Past actions and future planned actions in the project area, when combined with the proposed actions described in this document, would be considered for estimating the cumulative effects to soils for this area of the Forest.

The Forest Service is charged with maintaining soil productivity on its land (Forest Service Manual 2502, Forest and Rangeland Renewable Resources Planning Act 1974, National Forest Management Act 1976). Cumulative effects to soils would consider past and future planned activities and their effects on soil productivity within this project area.

### **Past and Future Actions in this Project Area:**

Past activities impacting soils in the project area are:

- 1973 construction of the existing gas line adjacent to the proposed line. The maintained easement appears to have recovered from the previous construction with well vegetated slopes and no evidence of access.

Future activities:

- There are no future actions planned for this area for the next 10-15 years.

The construction of the existing gas line adjacent to the proposed line has no impacts or contribution to the cumulative effects on the soil resource for this project.

### **Direct and Indirect Effects**

#### **Alternative 2**

There are no direct or indirect impacts from the no action alternative. There would be no adverse impacts to the soil resource.

### **Cumulative Effects**

There would be no cumulative effects associated with this alternative and the soil resource.

## HYDROLOGY

### **Issue(s) Related to this Resource:**

None

### **Scope of the Analysis:**

The analysis area for determining the effects on the hydrologic resources is the Stillhouse Branch, Scott Branch, and Clendennin Creek watersheds. The time frame for the analysis will be until sediment levels return to pre-project levels.

### **Existing Condition:**

The proposed pipeline construction is in the Stillhouse Branch and Scott Branch watersheds. Forest roads accessing the work location are partially in the Clendennin Creek watershed. Stillhouse Branch and Clendennin Creek flow into the New River and are in the Clendennin Creek-Bluestone Lake sub-watershed (Hydrologic Unit Code 050500020602). Scott Branch is in the Rich Creek sub-watershed (HUC 050500020601). Rich Creek is a tributary of the New River. Annual precipitation over the project area averages 39 inches.

The Watershed Analysis conducted for the Forest Plan and documented in the Final Environmental Impact Statement determined that the Rich Creek and New River/East River watersheds have a Watershed Condition Rank (WCR) of “average”.

In the Stillhouse Branch watershed (957 acres), the estimated annual sediment yield is 151 tons; in the Clendennin Creek watershed (2273 acres), 168 tons; and in the Scott Branch watershed (4379 acres), 692 tons.

The following table shows the percentage of the three watersheds in different land uses:

Land Use	Stillhouse	Clendennin	Scott
Forest	93%	96%	63%
Developed	5%	1%	9%
Pasture/Hay	2%	2%	28%

The Commonwealth of Virginia conducts an assessment of water quality every two years in accordance with Section 305(b) of the Clean Water Act. Virginia’s 2012 305b assessment included a watershed load ranking for nitrogen, phosphorus, and sediment in each of three source categories – agriculture, urban, and forestry. Rankings of high, medium, and low were assigned. Watersheds were also ranked for population served by a public water supply. For stream dependent living resources, an index of biological integrity was used to indicate the degree of aquatic biotic integrity and resource importance. Watersheds were also assigned rankings of high, medium, low, or none, based on the percentage of rivers and lakes that were impaired. The

results of the assessment for the Clendennin Creek/Bluestone Lake sub-watershed and the Rich Creek sub-watershed are shown in Table 3 below. (The portion of the Rich Creek sub-watershed that is in West Virginia was not included in the assessment.)

Table 3. 2012 Water Quality Assessment

PARAMETER	RANK	
	Clendennin/Bluestone	Rich Creek
Agriculture Nitrogen	Low	High
Agriculture Phosphorous	Low	High
Agriculture Sediment	Medium	High
Urban Nitrogen	Medium	Medium
Urban Phosphorous	Medium	Medium
Urban Sediment	Medium	Medium
Forest Nitrogen	Low	Low
Forest Phosphorous	Low	Low
Forest Sediment	Low	Low
Total Nitrogen	Low	Medium
Total Phosphorous	Low	High
Total Sediment	Low	High
Riverine Impairments	Low	High
Lacustrine Impairments	None	None
Modified Index of Biological Integrity	High	Insufficient Data
Public Water Supply	None	None

## Hydrology Effects Alternative 1

### Direct and Indirect Effects

Some sediment occurs naturally in all stream systems and is part of the natural geologic processes. Natural watershed disturbance regimes of fire, flood, insect, and disease result in a range of natural variability of sediment to which the stream channel has adjusted. However, human caused soil disturbing activity can produce volumes and rates of sediment delivery to streams that are in excess of the stream's ability to accommodate it. Excess sediment in streams can coat the stream bottom, fill pools, and reduce the carrying capacity of the stream for fish and stream insects. Fine sediment can fill the voids between gravel particles in the streambed, reducing the movement of aquatic insects, water and oxygen. The effects of sediment delivered to a stream channel diminish as watershed size increases. Most vulnerable are small sensitive headwaters catchments where concentrated soil-disturbing activity can have profound results.

In reality, there is a great deal of variability in a watershed's sediment yield between years (interannual variability). Sediment yield is much greater during high runoff years with more stormflow to erode and transport sediment. Conversely, sediment yield is much less during drought years when high flows may be less than bankfull. Data from the USGS gage on the Clinch River at Speers Ferry provides an expression of the variability of annual sediment yield. For the 62 years with flow and sediment data, each year's percent difference from the long-term mean ranges from + 143 percent to – 100 percent. A change of annual sediment yield of plus or

minus 52 percent represents one standard deviation from the long-term mean, and values less than 52 percent are interpreted as being within the range of interannual variability.

A sediment model was used to estimate the tons of sediment produced by the proposed activity, and delivered to respective stream channels. Soil erosion was calculated using (1) erosion rates derived from research data from North Carolina and West Virginia (Swift, 1984; Kochenderfer and Helvey, 1984) and (2) the Universal Soil Loss Equation, as adapted to forest land (Dissmeyer and Foster, 1984). The Universal Soil Loss Equation includes site-specific factors related to soil type and land slope. Erosion is expressed as tons per acre moved from the site. This unit rate is multiplied by the disturbed area in acres to obtain unmitigated erosion in tons. This figure is then adjusted for factors of geology, soils, and mitigation to obtain an adjusted value of total erosion. Total erosion is then delivered to the stream channels based on aggregated sediment delivery ratios from the procedural guide ‘An Approach to Water Resources Evaluation of Non-Point Silvicultural Sources’ (1980). The sediment delivery ratio for each segment of soil disturbance is calculated using factors based on sideslope, soil texture, distance to the nearest channel or drainway, and also factors of surface roughness, slope position, percent ground cover, and slope shape. These combined factors are translated into a Sediment Delivery Index that represents the portion of eroded material that is actually delivered to a stream. When multiplied by the calculated erosion, it gives an estimate of tons of sediment delivered to the adjacent stream channel. This sediment increase is compared with existing annual sediment yield from each watershed as determined by data from Patric, Evans, and Helvey (1984) and displayed as a percent increase over existing.

Rates of soil erosion and sedimentation are greatest at the time of soil disturbing activity and decrease as the soil stabilizes and vegetation begins to grow. This is reflected in Table 4 below.

Sediment modeling is based on a number of assumptions that may not be accurately reflected on the ground. The results provide very rough approximations of the changes in sediment delivery that might be expected as a result of proposed activities. Nevertheless, they allow a comparison of the impacts of various alternatives and provide a measure of relative risk to the aquatic ecosystem. The model assumes that Forest Plan standards and guidelines would be implemented. It assumes "normal" runoff and sediment years. Table 4 below displays the results of the sediment model by year for Alternative 1, in tons of sediment from the activity.

Table 4. Sediment Production from Soil Disturbing Activities (tons), by Watershed and Land Ownership

	2014	2015	2016	2017
Clendennin Creek				
Forest Service	0.3	0.1	0.0	0.0
Private	0.0	0.0	0.0	0.0
Stillhouse Branch				
Forest Service	2.8	0.4	0.1	0.0
Private	3.4	0.5	0.1	0.0
Scott Branch				
Forest Service	2.4	0.3	0.0	0.0
Private	2.8	0.4	0.1	0.0

The maximum predicted sediment increase to Clendennin Creek is 0.2 percent; to Stillhouse Branch, 4.1 percent; and to Scott Branch, 0.8 percent. These are well within the expected variability of sediment from year to year (interannual variability). There would be no change in the stream bed composition or in aquatic habitat quality or complexity from sediment related to the project. The predicted sediment increases to Clendennin Creek, Stillhouse Branch, and Scott Branch would be insignificant and immeasurable, and well within the range of variability of annual sediment loads to the stream. Thus, there would be no measurable or observable direct or indirect effects.

### **Cumulative Effects**

A portion of the Appalachian Trail is being rerouted. This entails about 0.3 mile of trail construction in the Stillhouse Branch watershed and 2.7 miles in the Clendennin Creek watershed. This will result in a negligible increase in sediment – only about 0.1 ton in the Clendennin Creek watershed. Considered cumulatively with activities related to Alternative 1, the total increase in sediment in that watershed would still be only about 0.2 percent. Thus there would be no measurable or observable cumulative effects.

In the past ten years, there have been no other activities on Forest Service land that affect water quality in the analysis area. There are no other future activities currently planned.

Virginia's 2012 list of impaired streams includes Rich Creek downstream from Scott Branch. The impairment is E. coli bacteria, and the source is municipal, wildlife, wet weather discharges, and domestic waste. The pipeline construction project will not be a source of bacterial contamination and will not contribute to this impairment.

The New River in the vicinity of the project is listed as impaired due to PCBs in fish tissue. The project will in no way add to this impairment.

### **Hydrology Effects Alternative 2**

#### **Direct and Indirect Effects**

Under Alternative 2, there would be no soil disturbance and no sediment increases or other direct or indirect effects on water quality.

#### **Cumulative Effects**

There would be no cumulative effects on water quality.

## **AIR QUALITY**

### **Issue(s) Related to this Resource:**

None

### **Scope of the Analysis:**

The geographic bounds for this analysis include the immediate area associated with gas line construction.

### **Existing Situation:**

No sources of negative air impacts occur within the project area on National Forest lands.

### **Direct and Indirect Effects**

#### **Alternative 1**

The heavy mechanized equipment used to clear the right-of-way and dig the gas line trench will emit exhaust into the air during the construction phase. This is considered a minor impact given the expected duration and few pieces of equipment being used.

### **Cumulative Effects**

No other foreseeable planned activities are known for the area. Thus no cumulative effects are anticipated.

#### **Alternative 2**

With no construction, no additional emissions from heavy equipment will occur in the project area. Therefore by definition, there are no direct, indirect or cumulative effects.

## **Social and Economic Environment**

### **Recreation**

#### **Issue(s) Related to this Resource:**

**2. HIKER EXPERIENCE AND SAFETY** – If the Appalachian Trail (AT) has not been relocated prior to construction for this project, there is a concern that the hiker experience along the AT will be negatively impacted by the construction activity but the primary concern is hiker safety. Hikers will be in the area during construction activity, including speed hikers and night hikers. The hiker experience will be addressed here but the bulk of this issue will be addressed under the “Health and Safety” section of this EA.

## **INDICATORS:**

- a. Are the proposed measures that are included in the proposed action adequate to address the potential hazards to hikers that are associated with the pipeline construction zone and its activities?
- b. Do these measures adequately address the numbers and nature of some thru-hikers, such as speed hiking and night hiking?

## **Scope of the Analysis:**

The geographic scope of the environmental effects analysis of the alternatives on recreation resources is limited to National Forest lands within the project area. The temporal bounds include past road and trail activities affecting current recreation access and use of the area, and any reasonably foreseeable recreation projects.

## **Existing Situation:**

The AT currently intersects the existing pipeline in two locations: once at the base of Peters Mountain, near Clendenin Road and again at the ridgeline of Peters Mountain. Since the new line parallels the existing line, it will cross the AT in these same locations. However, the AT on Peters Mountain will soon be relocated and the new location completely removes the AT from the pipeline corridor (See project map in Appendix B).

All parties involved in this project (Columbia Gas of Virginia, Celanese, the Appalachian Trail Conservancy, the National Park Service and the Forest Service) are committed to getting this relocation finished as soon as possible. If the AT relocation can be completed prior to pipeline construction activity in the vicinity of the AT, all issues with hiker experience and hiker safety will be eliminated. In case circumstances do not allow for the relocation to be completed, this analysis will address the impacts and requirements needed if the AT is not moved prior to construction. The following mitigation measures (measures 1-7 in Appendix A) were designed to reduce these impacts.

- The staging area will be located just west of the existing corridor and southwest of the ridgeline of Peters Mountain, as flagged in the field on April 22, 2013.
- A barrier fence to restricted access will be placed around the vicinity of the AT prior to any activity and will remain in place for the duration of the project. This fence will enclose an area about 50' uphill from traverse point #1027 on the north side of the ridge to the top of the staging area on the south side of the ridge and about 300' wide. It will be an orange plastic mesh barrier fence, about 4 feet high and will be clearly signed as a "Do not enter" area. Construction activity inside the fence will be limited to the movement of equipment and supplies a few times a day for the majority of the project. The exception to this will be when the pipeline is actually installed inside the fence (limited to an August 1 to September 30 period as described below).

Gates will be installed in this perimeter fence where it crosses the AT. These gates will be staffed during all periods of construction activity for the length of the project, anticipated to be from April to October 2014. These gates will be closed to hikers only when equipment is inside the area. In the rare occasion when this equipment is inside the perimeter fence for more than a few minutes, hikers will be permitted to cross the area with escort from contractor personnel.

- Installation of the pipeline inside the perimeter fence will be limited to a construction period of August 1 to September 30. This is the time of the year that has the fewest hikers while still being inside the construction season (April through November). Two interior security fences will be installed, paralleling the trail. During construction in this section, the AT will remain passable. For the short amount of time the area right at the AT needs to be trenched (anticipated to be less than a day), a bridge will be installed over the trench with a design provided by the contractor and approved by the Forest Service. Again, the gates in the perimeter fence at the AT crossing locations will be staffed during all construction activity and when not staffed, these gates will be left open with the area along the trail safe for public use.
- Clearing and grubbing of the corridor inside the restricted area is anticipated to occur prior to May 15<sup>th</sup>, 2014. If it is not done before May 15<sup>th</sup>, it will not be allowed until the August 1 to September 30 construction period.
- Information concerning this project will be posted on the following web sites to alert hikers: [www.appalachiantrail.org](http://www.appalachiantrail.org), [www.nps.gov/appa](http://www.nps.gov/appa), [www.fs.usd.gov/gwj](http://www.fs.usd.gov/gwj). Information will also be posted at the Clendennin Road (Virginia State Route 641) and Stony Creek Road (Virginia State Route 635) crossings and at Pine Swamp and Docs Knob trail shelters.
- Any disposal of cleared timber and brush will occur outside of the restricted area.

## **Recreation Experience Effects Alternative 1**

### **Direct and Indirect Effects**

All of the requirements listed above are designed to deal with hiker safety during construction and some will have a negative impact on hiker experience. Walking up on the construction site will be an unexpected intrusion to many hikers as they will not have seen the information on the web sites or read the posted information along the trail. Even those that have the information ahead of time might not be expecting what will be there and the level of the project. The area will be well signed and staffed to direct/delay hikers as needed. The intent is to not delay hikers for more than a few minutes. They may need to cross the construction area at the top of the mountain with an escort.

While every effort has been made to address the safety issue, short of completely moving the AT away from the construction area, there will be a negative impact on hiker experience as they come up on the sights and noise of the project. The north bound thru-hiker will have just come through a location close to a cement plant and an active railroad track, and crossed two state roads and a US route and walked through the Celanese Plant property. So the hiker will be in an area that has considerable sights and sounds of human activity. The first AT crossing with the project is a small area near Clendennin Road that will be dealt with by a short reroute in the woods. This is another opportunity to prepare the hiker for what they will see at the top of the mountain. As mentioned above, there will be project information posted at this location. This information will include photographs of the construction site on the ridgeline to prepare the hiker. Given all of these factors, the impact to hiker experience from the project is being managed at a reasonable level.

### **Cumulative Effects**

There are no other activities planned for this area other than the relocation of the AT, which will be away from the project site. Once the AT is moved, hiker experience should be improved as the new location moves the hiker away from the development along the US 460 corridor and the buildings on Celanese property quickly and replaces this with a river/woods walk. Once the hiker crosses Clendennin Road, they will get to the top of Peters Mountain much faster than the current location and will avoid both crossings of the gas line.

### **Recreation Experience Effects Alternative 2**

#### **Direct and Indirect Effects**

Since there is no project with this alternative, there is no change in hiker experience and therefore no effects.

#### **Cumulative Effects**

By definition, with no direct or indirect effects, there are no cumulative effects.

### **HERITAGE RESOURCES**

#### **Issue(s) Related to this Resource:**

None

#### **Scope of the Analysis:**

The geographic scope of the analysis is the area proposed for new ground disturbing activities (construction clearing limits, new corridor, and staging area). Past ground disturbing activities are not included in the analysis, as any potential damage to cultural resources that might have existed cannot be evaluated or recovered.

### **Existing Situation:**

An archeological survey was performed across the project area in spring of 2013, after clearing limits were identified. No cultural or historic sites were found. The archaeological reconnaissance report concluded “no effect”. Concurrence by the Virginia Department of Historic Resources, Office of Review and Compliance was issued on June 29, 2013.

If any cultural resources are located during the implementation of construction activities, all work will stop until the resources can be evaluated by the Forest Service Archeologist, in consultation with the State Historic Preservation Office, Department of Historic Resources.

## **HERITAGE RESOURCES EFFECTS**

### **Alternative 1**

#### **Direct and Indirect Effects**

Since there are no cultural or historic sites within the proposed boundaries of the activities, there would be no impacts on heritage resources in the area.

#### **Cumulative Effects**

No other reasonably foreseeable future ground disturbing activities are planned for the area. Since there are no effects anticipated, there would be no cumulative effects to heritage resources by definition.

### **Heritage Resources Effects**

#### **Alternative 2**

#### **Direct and Indirect Effects**

With no ground disturbing activities proposed under this alternative, there would be no impacts on heritage resources in the area.

#### **Cumulative Effects**

Since there is no activity, there would be no cumulative effects to heritage resources by definition.

### **Scenic Resource**

#### **Issue(s) Related to this Resource:**

**1. SCENIC RESOURCES** – There is concern that the wider clearing limit associated with this new line may adversely impact views from US 460 and the AT. The short-term concern is associated with the construction period and is particularly focused on where the proposed line crosses the AT.

**INDICATORS:**

- a. Does the pipeline have significant impacts in the short or long-term on the scenic resources along the AT and as viewed from US 460?
- b. What are the cumulative impacts to the scenic resource of this line, in conjunction with the other transmission lines and cell towers in this area?

**Definitions:**

Scenic Class is a system of classification describing the importance or value of a particular landscape or portions of that landscape. The values in this classification system range from 1 (highest value) to 7 (lowest value). Scenic Class related to each prescription in the Forest Plan determines the Scenic Integrity Objectives of the area. The Forest Plan specifically provides direction as related to each prescription, the Scenic Class and its associated Scenic Integrity Objective.

Scenic Integrity Objectives (SIOs) are developed as measurable standards for the visual management of public lands. These SIOs are mapped and established as part of the Forest Plan. In managing scenery, degrees of integrity are defined as Very High to Low. Under the High SIO management activities are not visually evident. Under the Moderate SIO activities remain visually subordinate to the landscape character. Under the Low SIO management activities may visually dominate the original landscape character; however, they must be in scale with the surrounding area.

Concern Levels are a measure of people's concern for the scenic quality of the National Forests. Three concern levels are employed, each identifying a different level of user concern for the visual environment. Level 1 is the highest concern and includes all seen areas from primary travel routes and use areas. Level 2 is of moderate concern and includes secondary roads, and use areas and Level 3 is of lowest concern and includes all seen areas where less than ¼ of the Forest visitors have a major concern for scenic qualities.

Distance Zones are divisions of a particular landscape being viewed. They are used to describe the part of the landscape that is being evaluated. The three distance zones are Foreground, Middleground and Background. Foreground is within ¼ to ½ mile of the observer. Normally individual boughs of trees can be discerned at this distance. Middleground is from the Foreground zone to 3-5 miles from the observer. At this distance tree cover tends to appear very uniform and individual tree forms are only discernible in very open areas. Background extends from Middleground to infinity. Texture in stands is generally very weak or non-existent at this distance.

For additional explanation of these and other terms associated with the Visual Management System please refer to the forest plan or Agriculture Handbook Number 701, Landscape Aesthetics, A Handbook for Scenery Management.

**Scope of the Analysis:**

The geographic bounds for this scenic analysis would include the area visible from the identified viewing points surrounding Peters Mountain. The existing gas line location and proposed expansion of that corridor was evaluated from vantage points with high concern to eliminate obtrusive edges, shapes, patterns in conjunction with the shape and density of each unit.

The time periods for this analysis would include projects occurring up to 10 years in the past and into the future. This time period is based on the concept that the greatest impacts on visuals generally last about 10 years at which time the impacted areas are not as easily discernible to the casual observer.

**Existing Situation:**

Peters Mountain is managed to provide Roaded Natural recreational opportunities. Thus, the area is not remote. Visitors are expected to experience comfort and security but feelings of solitude, challenge, and risk are not to be expected. Other visitors would be frequently encountered. Recreational activities that occur within the project area are dispersed in nature.

The Concern Level 1 areas included in the analysis may be seen from US 460 west bound traffic and from the AT. Views from US 460 west are in the Middleground distance zone. These views are available for approximately 1 mile to observers traveling at 60 miles per hour and are occasionally obstructed by foreground topography and vegetation.

Views from the AT are in the Foreground distance zone at the top and bottom of Peters Mountain. At the top of Peters Mountain the AT and the existing pipeline cross at nearly right angles. The AT goes over the grassy corridor on nearly flat terrain and offers views to the valleys below on both east and west sides of Peters Mountain. At the bottom of Peters Mountain the AT crosses the existing pipeline near the AT crossing of Virginia State Route 641, known as Clendennin Road. Views from the AT at this location are in the Foreground distance zone, the woods are gently sloped and open with adjacent rural housing and rolling farm land. An existing old road bed parallels Clendennin Road at this crossing. No visual impacts of an existing pipeline are evident to the casual observer at this location. The project area is not visible at any other Concern Level 1 areas.

The Concern Level 3 route in the analysis area is Virginia State Route 641, Clendennin Road. Views from Clendennin Road are in the Foreground and Middleground distance zone. Middleground views from Clendennin Road are partially obstructed by terrain and foreground vegetation. Foreground views from Clendennin Road are of rural homes and farm land, the existing pipeline location is not evident to the casual observer.

Inventoried Scenic Integrity is a measure of the existing condition of the landscape character, vegetation and level of alteration of the land. The Inventoried Scenic Integrity for this project is Moderate. A measure of Moderate Scenic Integrity indicates that the landscape in these areas appear slightly altered.

Inventoried Scenic Class is a system of classification describing the importance or value of a particular landscape or portions of that landscape. The values in this classification system range from 1 (highest value) to 7 (lowest value). The Inventoried Scenic Class for The Appalachian Trail Corridor is Scenic Class 1. The Inventoried Scenic Class for the remainder of the project area is Scenic Class 2.

## **Management Prescriptions Outlined in the Forest Plan**

The Scenic Class related to each prescription determines the Scenic Integrity Objectives of the area. As the prescription for each area of land varies, the Scenic Integrity Objective may also vary. The Forest Plan specifically provides direction as related to each prescription, the inventoried Scenic Class and its associated Scenic Integrity Objective.

A portion of the project area is within the Appalachian Trail Corridor. Forest Plan direction Chapter 3-23 is specific to the Appalachian Trail Corridor as it pertains to public utilities.

4A-028 direction is to locate new public utilities and rights-of-way in areas of this management prescription area where major impacts already exist. Limit linear utilities and rights of way to a single crossing of the prescription area, per project.

4A-029 direction is that mitigation measures including screening, feathering and other visual management techniques to mitigate visual and other impacts of new or upgraded utility rights of way. Mitigation measures apply to facilities as well as vegetation.

A portion of the project area is within the Rx 8A1, Mix of Successional Habitats in Forested Landscapes. The landscape character of this area retains a natural, forested appearance. A mid to late-successional forest greater than 40 years of age should dominate the landscape. The area should be interspersed with both forest communities greater than 100 years of age and herbaceous openings, providing diversity for scenic attractiveness and wildlife habitat.

## **Scenic Resources Effects**

### **Alternative 1**

The project as proposed meets the Forest Plan direction for Rx 4A Appalachian Trail Corridor, by co-location of the pipeline on the corridor of the existing pipeline and location of utilities where impacts already exist.

Mitigation measures to preserve the scenic resources are (these are measures 1, 7 and 8 in Appendix A):

- Any disposal of cleared timber and brush will occur outside of the restricted area.
- Prior to the initiation of clearing activities, CGV and the contractor will work with the Forest Service to minimize clearing within the 125-foot maximum clearing corridor where possible; particularly at the top of the small ridge most visible from US 460. This location was field-reviewed with the contractor and a Forest Service Landscape Architect.
- Clearing for a staging area of approximately 0.5 acres was field located with the contractor, Forest Service Landscape Architect and ATC to minimize the impacts of this area on the visual resource. The new staging area location will not impact the AT corridor and will not be readily apparent from US 460.

Lands allocated in Rx 8A1, Mix of Successional Habitats in Forested Landscapes in the Forest Plan have a Scenic Class rating of 2 and the Scenic Integrity Objective, as adopted by the Forest Plan, is Moderate. The proposed management activities would not be readily discernible to the casual observer and would easily meet the Scenic Integrity Objective of Moderate.

With fresh soil visible, short-term impacts could be visible from US 460 for approximately 60 seconds to travelers heading west. Due to the duration of the view and the viewing angle, long-term impacts to views from US 460 would not show a distinguishable difference between the existing pipeline and the proposed wider pipeline. Two other power lines and towers on Peters Mountain are more dominant than the narrow grass strip of the pipeline and tend to draw the viewer's attention.

After the initial construction has healed, AT hikers on top of Peters Mountain will cross a grassy corridor approximately 125' wide. This will afford hiker a long view of the West Virginia and Virginia valleys below. This kind of overlook often gives the hikers a sense of accomplishment to be able to see how high they have climbed. It is the same view currently visible, but will be of a slightly larger scope.

At the bottom of Peters Mountain, the trail and pipeline are not readily discernible as they both cross Clendenin Road amid rural homes and farm land and near an old roadbed. A wider pipeline location would not be evident to the casual observer at this location.

All proposed activities in Alternative 1 are in compliance with the Forest Plan.

### **Cumulative Effects**

The consideration of potential cumulative effects of the proposed activities in each alternative when combined with past, present, and reasonable foreseeable future projects include the future relocation of the Appalachian Trail. This proposed relocation would move the Appalachian Trail away from the pipeline location. After the AT is relocated, it will no longer cross the pipeline. No other reasonably foreseeable future ground disturbing activities are planned for the area. There are no cumulative effects to scenic resources.

### **Scenic Resources Effects Alternative 2**

#### **Direct and Indirect Effects**

With no ground disturbing activities proposed under this alternative, there would be no impacts on scenic resources in the area.

#### **Cumulative Effects**

There are no cumulative effects to the scenic resources from the no action alternative.

## **ROADS MANAGEMENT**

### **Issue(s) Related to this Resource:**

None

### **Scope of the Analysis:**

The spatial bounds of the analysis of effects are limited to national forest lands in the proposed gas transmission line corridor and the roads needed to access this corridor. The temporal bounds include past activities near the project area and any foreseeable actions within the next 10 years.

### **Existing Conditions:**

Two existing access routes would be utilized as part of this project. They are shown in blue on the Project Map in Appendix B. These roads are in place but would require some maintenance. All road maintenance will be approved by the Forest Engineer. All construction equipment would be brought up the transmission line corridor, from the West Virginia side to the top of Peters Mountain and down the other side to the Celanese Plant. No construction equipment would be moved across Forest System Roads (FSRs).

One road, FSR11098, accesses the upper section of the transmission line. It dead ends at a power line tower and this location would be used for limited parking (5 or 6 standard trucks) for construction foremen and inspectors. FSR11098 is in fair condition and is used primarily by the power company for line and tower maintenance. This road is gated yearlong and starts off of FSR972 (Pocahontas Road). The front 1.4 miles of Pocahontas Road are open yearlong to public vehicle traffic and is maintained so that passenger cars can travel on it. The rest of Pocahontas Road is gated yearlong to general public use but is open for those who have a disabled hunter permit from Virginia Department of Game and Inland Fisheries.

The second road accesses the national forest from private land. This road has two gates on it before it enters federal land. Once it enters national forest lands it splits with one of the forks dead ending at the existing gas transmission line, right at a monitoring well. It sees very little traffic and is steep in some sections but stable. This road needs to be incorporated into Columbia Gas of Virginia's permit for this line and a gate should be installed by Columbia Gas of Virginia at the federal property line as a permit condition.

### **Roads Management Effects Alternative 1**

#### **Direct and Indirect Effects**

No changes in any road designation, management objective level, or use classification are needed for this project. The existing access roads would require maintenance. A gate on the lower access road would help reduce any unauthorized vehicle traffic on this road. Since no road reconstruction or construction is required, no impacts are expected.

#### **Cumulative Effects**

Since no effects are expected by the proposed action to roads management, by definition, no cumulative effects are expected.

## **Roads Management Effects Alternative 2**

### **Direct and Indirect Effects**

Under the No Action Alternative, no roads would be impacted by the proposed activity.

### **Cumulative Effects**

There are no cumulative effects to roads management from the no action alternative.

## **CLIMATE CHANGE**

### **Issue(s) Related to this Resource:**

None

### **Direct and Indirect Effects:**

#### **Alternative 1**

Climate change can affect the resources in the project area and the proposed project can affect climate change through altering the carbon cycle. Climate models are continuing to be developed and refined, but the two principal models found to best simulate future climate change conditions for the various regions across the country are the Hadley Centre model and the Canadian Climate Centre model (Climate Change Impacts on the United States 2001). Both models indicate warming in the southern region of the US. However, the models differ in that one predicts little change in precipitation until 2030 followed by much drier conditions over the next 70 years. The other predicts a slight decrease in precipitation during the next 30 years followed by increased precipitation. These changes could affect forest productivity, forest pest activity, vegetation types, major weather disturbances (droughts, hurricanes), and stream flow. These effects would likely be seen across the Forest, though some sensitive species (such as high elevation communities) may be affected sooner than others. The proposed project does not have any such sensitive areas. It is not expected that the pipe line construction would substantially alter the effects of climate change in the project area given only 12.7 acres are being impacted.

The action alternative would alter the carbon cycle in that it affects the carbon stock in any one of the pools. Alternative 1 would remove biomass as a result of timber removal. This would reduce the amount of carbon stored in the impacted area. But, all or most of carbon stored in the existing trees would continue to be stored as the trees to be cut will not be processed into products.

There would be a direct, short-term increase in carbon emissions due to an increase in dead vegetation following the clearing. However, the short-term loss of biomass resulting from clearing trees may be offset by the area's increased ability to produce herbaceous biomass.

Removal of existing trees for the gas line right-of-way in Alternative 1 would reduce existing carbon stocks at the construction site. The harvest of live trees, combined with the likely

increase in down, dead wood would temporarily convert trees from a carbon sink (removes more carbon from the atmosphere than it emits) to a carbon source (emits more carbon through respiration than it absorbs). These stands would remain a source of carbon to the atmosphere until carbon uptake by new trees and other vegetation exceed the emissions from decomposing dead organic material.

The impacts of this project on global carbon sequestration and atmospheric concentrations of carbon dioxide are miniscule. However, the forests of the US significantly reduce atmospheric concentrations of carbon dioxide resulting from fossil fuel emissions. The forest and wood products of the US currently sequester approximately 200 teragrams (196,841,306 US tons) of carbon per year (Heath and Smith 2004). This rate of carbon sequestration offsets approximately 10% of carbon dioxide emissions from burning fossil fuels (Birdsey et al. 2006). US forests currently contain 66,600 teragrams of carbon. The short-term reduction in carbon stocks and sequestration rates resulting from the proposed project are imperceptibly small on global and national scales, as are the potential long-term benefits in terms of carbon storage.

The currently large carbon sink in U.S. forests is a result of past land use changes, including the re-growth of forests on large areas of the eastern US harvested in the 19<sup>th</sup> century and 20<sup>th</sup> century fire suppression in the western US (Birdsey et al. 2006). The continuation of this large carbon sink is uncertain because some of the processes promoting the current sink are likely to decline and projected increases in disturbance rates such as fire and large-scale insect mortality may release a significant fraction of existing carbon stocks (Pacala et al. 2008; Canadell et al. 2007).

### **Alternative 2**

Under the No Action Alternative, there would be no change from the current condition. Forested stands are expected to be less resilient to possible climate change impacts such as changes in productivity or insect or disease.

### **Cumulative Effects:**

There are no expected cumulative impacts expected either temporally or geographically at this site in the future.

## **HEALTH AND SAFETY**

### **Issue(s) Related to this Resource:**

**2. HIKER EXPERIENCE AND SAFETY** – There is a concern that the hiker experience along the AT will be negatively impacted by the construction activity but the primary concern is hiker safety. Hikers will be in the area during construction activity, including speed hikers and night hikers.

**INDICATORS:**

- a. Are the proposed measures that are included in the proposed action adequate to address the potential hazards to hikers that are associated with the pipeline construction zone and its activities?
- b. Do these measures adequately address the numbers and nature of some thru-hikers, such as speed hiking and night hiking?

**Scope of the Analysis:**

The geographic scope of the environmental effects analysis of the alternatives on health and safety is limited to National Forest lands within the project area. The temporal bounds include past activities affecting current use of the area, and any reasonably foreseeable recreation projects. The scope includes the following mitigation measures that will be implemented as part of this project (these are measures 1-7 and 17 in Appendix A):

- The staging area will be located just west of the existing corridor and southwest of the ridgeline of Peters Mountain, as flagged in the field on April 22, 2013.
- A barrier fence to restricted access will be placed around the vicinity of the AT prior to any activity and will remain in place for the duration of the project. This fence will enclose an area about 50' uphill from traverse point #1027 on the north side of the ridge to the top of the staging area on the south side of the ridge and about 300' wide. It will be an orange plastic mesh barrier fence, about 4 feet high and will be clearly signed as a "Do not enter" area. Construction activity inside the fence will be limited to the movement of equipment and supplies a few times a day for the majority of the project. The exception to this will be when the pipeline is actually installed inside the fence (limited to an August 1 to September 30 period as described below).

Gates will be installed in this perimeter fence where it crosses the AT. These gates will be staffed during all periods of construction activity for the length of the project, anticipated to be from April to October 2014. These gates will be closed to hikers only when equipment is inside the area. In the rare occasion when this equipment is inside the perimeter fence for more than a few minutes, hikers will be permitted to cross the area with escort from contractor personnel.

- Installation of the pipeline inside the perimeter fence will be limited to a construction period of August 1 to September 30. This is the time of the year that has the fewest hikers while still being inside the construction season (April through November). Two interior security fences will be installed, paralleling the trail. During construction in this section, the AT will remain passable. For the short amount of time the area right at the AT needs to be trenched (anticipated to be less than a day), a bridge will be installed over the trench with a design provided by the contractor and approved by the Forest Service. Again, the gates in the perimeter fence at the AT crossing locations will be staffed during all construction activity and when not staffed, these gates will be left open with the area along the trail safe for public use.

- Clearing and grubbing of the corridor inside the restricted area is anticipated to occur prior to May 15<sup>th</sup>, 2014. If it is not done before May 15<sup>th</sup>, it will not be allowed until the August 1 to September 30 construction period.
- Information concerning this project will be posted on the following web sites to alert hikers: [www.appalachiantrail.org](http://www.appalachiantrail.org), [www.nps.gov/appa](http://www.nps.gov/appa), [www.fs.usd.gov/gwj](http://www.fs.usd.gov/gwj). Information will also be posted at the Clendennin Road (Virginia State Route 641) and Stony Creek Road (Virginia State Route 635) crossings and at Pine Swamp and Docs Knob trail shelters.
- Any disposal of cleared timber and brush will occur outside of the restricted area.
- Portable toilet facilities would be made available for use by all construction crew personnel for the duration of the project, at a ratio of no less than one per 20 persons.

### **Existing Situation:**

As discussed under the “Recreation” section, the AT currently intersects the existing pipeline in two locations: once at the base of Peters Mountain, near Clendenin Road and again at the ridgeline of Peters Mountain. Since the new line parallels the existing line, it will cross the AT in these same locations. However, the AT on Peters Mountain will soon be relocated and the new location will completely remove the AT from the pipeline corridor (See project map in Appendix B).

All parties involved in this project (Columbia Gas of Virginia, Celanese, the Appalachian Trail Conservancy, the National Park Service and the Forest Service) are committed to getting this relocation finished as soon as possible. If the AT relocation can be completed prior to pipeline construction activity in the vicinity of the AT, all issues with hiker safety will be eliminated. In case circumstances do not allow for the relocation to be completed, this analysis will address the impacts and requirements needed if the AT is not moved prior to construction.

### **Health and Safety Effects**

#### **Alternative 1**

All of the requirements listed above, other than the sanitation requirement with portable toilets, are designed to deal with hiker safety during construction. As discussed earlier, walking up on the construction site will be an unexpected event to many hikers. The area will be well signed and staffed to direct/delay hikers as needed. The intent is to not delay hikers for more than a few minutes. They may need to cross the construction area at the top of the mountain with an escort.

While every effort has been made to address the safety issue, short of completely moving the AT away from the construction area, there is still a potential that some hikers will not obey the signs and go through the designated area. It is possible, although unlikely, that some hikers may try to skirt around the outside edges of the perimeter fence and cross the pipeline area in an uncontrolled setting. This is unlikely since this would require them to walk several feet up and down a steep side slope and they would still be within sight of the personnel at the gates. If a hiker chose to avoid being seen while going around the construction area, it would involve even

longer sidehill hiking on steep terrain and would take longer than just going through the designated areas.

Additionally, the north bound thru-hiker will have just come through a location close to a cement plant and an active railroad track, and will cross two state roads and a US route and walk through the Celanese Plant property. So the hiker will be in an area that has considerable sights and sounds of human activity and which required the hiker to be very aware of their surroundings. The first AT crossing with the project is a small area near Clendennin Road that will be dealt with by a short reroute in the woods. This is another opportunity to prepare the hiker for what they will encounter at the top of the mountain. As mentioned above, there will be project information posted at this location. This information will include photographs of the construction site on the ridgeline to prepare the hiker. Given all of these factors, the potential impact to hiker safety from the project is being managed at a reasonable level.

### **Cumulative Effects**

There are no other activities planned for this area that will affect hiker safety.

## **Health and Safety Effects Alternative 2**

### **Direct and Indirect Effects**

Since there is no project with this alternative, there is no change in health and safety and therefore no effects.

### **Cumulative Effects**

By definition, with no direct or indirect effects, there are no cumulative effects.

## **LITERATURE CITED**

### **Consultation and Coordination**

The Forest Service consulted the following Federal, state, and local agencies and organizations during the development of this EA.

#### **ID Team Members:**

Tom Bailey, Soils Scientist, USDA Forest Service (USFS)  
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#### **Forest Service Personnel, State, Local Agencies and Organizations Consulted:**

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Federal Energy Regulatory Commission (FERC)  
Appalachian National Scenic Trail, National Park Service  
Virginia Department of Conservation & Recreation, Division of Natural Heritage  
Virginia Department of Environmental Quality  
Virginia Department of Game and Inland Fisheries  
Virginia State Corporation Commission  
Barbara Walker, Editor, USFS  
Jonathan Wheeler, Dispersed Recreation/Trails/Wilderness Technician, USFS

## APPENDIX A – Design Criteria and Mitigation Measures

This appendix outlines the site-specific requirements for this project as well as the most applicable Forest Plan Standards.

1. The staging area will be located just west of the existing corridor and southwest of the ridgeline of Peters Mountain, as flagged in the field on April 22, 2013.
2. Information concerning this project will be posted on the following web sites to alert hikers: [www.appalachiantrail.org](http://www.appalachiantrail.org), [www.nps.gov/appa](http://www.nps.gov/appa), [www.fs.usda.gov/gwj](http://www.fs.usda.gov/gwj). Information will also be posted at the Clendennin Road (Virginia State Route 641) and Stony Creek Road (Virginia State Route 635) crossings and at Pine Swamp and Docs Knob trail shelters. On site posted information will include photos of the perimeter fence area.
3. A barrier fence to restricted access will be placed around the vicinity of the AT prior to any activity and will remain in place for the duration of the project. This fence will enclose an area about 50' uphill from traverse point #1027 on the north side of the ridge to the top of the staging area on the south side of the ridge and about 300' wide. It will be an orange plastic mesh barrier fence, about 4 feet high and will be clearly signed as a "Do not enter" area. Construction activity inside the fence will be limited to the movement of equipment and supplies a few times a day for the majority of the project. The exception to this will be when the pipeline is actually installed inside the fence (limited to an August 1 to September 30 period as described below).
4. Gates will be installed in this perimeter fence where it crosses the AT. These gates will be staffed during all periods of construction activity for the length of the project, anticipated to be from April to October 2014. These gates will be closed to hikers only when equipment is inside the area. In the rare occasion when this equipment is inside the perimeter fence for more than a few minutes, hikers will only be permitted to cross the area with escort from contractor personnel.
5. Installation of the pipeline inside the perimeter fence will be limited to a construction period of August 1 to September 30. This is the time of the year that has the fewest hikers while still being inside the construction season (April through November). Two interior security fences will be installed, paralleling the trail. During construction in this section, the AT will remain passable. For the short amount of time the area right at the AT needs to be trenched, a bridge will be installed over the trench with a design provided by the contractor and approved by the Forest Service. Again, the gates in the perimeter fence at the AT crossing locations will be staffed during all construction activity and when not staffed, these gates will be left open with the area along the trail safe for public use.

6. Clearing and grubbing of the corridor inside the restricted area is anticipated to occur prior to May 15<sup>th</sup>, 2014. If it is not done before May 15<sup>th</sup>, it will not be allowed until the August 1 to September 30 construction period.
7. Any disposal of cleared timber and brush will occur outside of the restricted area.
8. Prior to the initiation of clearing activities, CGV and the contractor will work with the Forest Service to minimize clearing within the 125-foot maximum clearing corridor where possible; particularly at the top of the small ridge most visible from US 460. This location was field-reviewed with the contractor and a Forest Service Landscape Architect.
9. Two existing access routes would be utilized as part of this project. These roads are in place but would require some maintenance. All road maintenance will be approved by the Forest Engineer. These roads, which are currently unclassified roads, would be part of the special use permit. Columbia Gas of Virginia will be required to install a gate to Forest Service specifications at the federal boundary on the lower access road.
10. A specific erosion and sediment control plan will be developed by Columbia Gas of Virginia and reviewed and approved by the Forest Service.
11. Sediment control structure of hay bales and/or silt fences would be installed along gradient sides of all work areas and the staging area.
12. A protective cover, such as mulch, will be applied on disturbed areas where needed to prevent accelerated erosion during construction or before the next growing season.
13. Schedule, to the extent practicable, construction activities to avoid direct soil and water disturbance during periods of the year when heavy precipitation and runoff are likely to occur.
14. Limit the amount of exposed or disturbed soil at any one time to the minimum necessary to complete construction operations.
15. A specific revegetation plan will be developed by Columbia Gas of Virginia and reviewed and approved by the Forest Service, including the seed mix.
16. If any cultural resources are located during the implementation of construction activities, all work will stop until the resources can be evaluated by the Forest Service Archeologist, in consultation with the State Historic Preservation Office, Department of Historic Resources.
17. Portable toilet facilities would be made available for use by all construction crew personnel for the duration of the project.

Additionally, all Forest Plan standards apply. Those that are most applicable to this project are listed below.

**WATER QUALITY:**

FW-1: Resource management activities that may affect soil and/or water quality follow Virginia, West Virginia, and Kentucky Best Management Practices, State Erosion Control Handbooks, and standards in the Forest Plan, p. 2-7.

FW-5: On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat would be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years, Forest Plan, p. 2-7.

FW-9: Heavy equipment is operated so that soil indentations, ruts or furrows are aligned on the contour and the slope of such indentations is 5% or less, Forest Plan, p. 2-7.

FW-10: Management activities that cause bare mineral soil on slopes greater than 5% would have erosion control planned and implemented Forest Plan, p. 2-7.

**VEGETATION:**

FW-86: The use of Category 1 non-native invasive plant species is prohibited, Forest Plan, p. 2-27.

FW-87: The establishment or encouragement of Category 2 non-native invasive plant species is prohibited in areas where ecological conditions would favor invasiveness and is discouraged elsewhere. Projects that use Category 2 Species should document why no other (non-invasive) species would serve the purpose and need, Forest Plan, p. 2-27.

FW-88: Favor use of native grasses and wildflowers beneficial as wildlife foods when seeding temporary roads, skid roads, log landings and other temporary openings when slopes are less than 5%. On slopes greater than 5%, favor use of vegetation that best controls erosion, Forest Plan, p. 2-27.

**BACKCOUNTRY RECREATION:**

FW-158: Management activities along system trails shall be implemented with sensitivity to the experience of the users. Appropriate techniques to mitigate the effects of management activities are addressed during site-specific project analysis. Measures to mitigate the effects of activities might include vegetation screening; the temporary re-routing of trail segments; temporary trail closure, avoidance and reclamation; and timing of project implementation to reduce impacts during high use periods. Forest Plan, p. 2-41.

**VISUALS:**

FW-184: The Forest Scenic Integrity Objectives (SIOs) Maps govern all new projects (including special uses). Assigned SIOs are consistent with Recreation Opportunity Spectrum management direction. Existing conditions may not meet the assigned SIO, Forest Plan, p. 2-48

4A-020: All management activities will meet or exceed a Scenic Integrity Objective of High, Forest Plan p.3-23

8A1-019: Management activities are designed to meet or exceed the following Scenic Integrity Objectives (SIO), which may vary by inventoried Scenic Class (SC): if SC is 1 then SIO is High; if SC is 2 then SIO is Moderate; if SC is 3 or more then SIO is Low, Forest Plan p. 3-116.

**CULTURAL RESOURCES:**

FW-204: Projects are designed to avoid, minimize or mitigate negative effects on potentially significant heritage resources. In-place protection of identified sites is the minimum requirement until site significance is determined, Forest Plan, p. 2-50.

FW-210: Ensure that Section 106 compliance clauses are inserted in contracts and sales documents, and that clauses are discussed in pre-work conferences, Forest Plan, p. 2-51.

**LINEAR RIGHTS-OF-WAY AND COMMUNICATION SITES:**

FW-247: Develop and use existing corridors and sites to their greatest potential in order to reduce the need for additional commitment of lands for these uses. When feasible, expansion of existing corridors and sites is preferable to designating new sites, Forest Plan, p. 2-60.

FW-253: Specify management requirements for permittee access roads in the designated use permit, where roads are included in the authorization, Forest Plan, p. 2-61.

**LAND AND SPECIAL USES:**

4A-028: Locate new public utilities and rights-of-way in areas of this management prescription area where major impacts already exist. Limit linear utilities and rights-of-way to a single crossing of the prescription area, per project, Forest Plan, p. 3-23.

FW-253: Specify management requirements for permittee access roads in the designated use permit, where roads are included in the authorization, Forest Plan, p. 2-61.

## **APPENDIX B – MAP**

## APPENDIX C – LITERATURE CITED

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