Appendix E – Terrestrial Ecology – Plants

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John Sevier Fossil Plant Site

Herbaceous Vegetation: Approximately 95 percent of the area inspected by TVA biologists is contained within TL or railroad rights-of-way. Common species found are Bermuda grass, blackberries, butterfly weed, chicory, daisy fleabane, and Johnson grass. There are areas within the TL corridors where woody vegetation (eastern red cedar, green ash) is being re-established. In addition, several non-native species are present such as crown vetch, Japanese honeysuckle, Japanese stilt grass, sericea lespedeza, and small carp grass.

Evergreen-Deciduous Forests make up approximately 3 percent of the total acreage and are scattered along fencerows and a small areas of palustrine forest. Common woody species include American elm, autumn olive, black gum, tulip poplar, Virginia pine, and white ash. Vines such as blackberries, greenbriers, Japanese honeysuckle, trumpet creeper, Virginia creeper and wood rose are common.

The remaining 2 percent of the project area occurs as Scrub-shrub wetlands. Dominant species within this community are: American sycamore, black willow, green ash, pawpaw, pussy willow, silky willow, and wool grass. Both the silky willow and pussy willow are new county records for Hawkins County, Tennessee.

Gas Pipeline Route

Construction and expansion of 28 miles of gas pipeline from near Bristol, Virginia, to JSF cross portions of Washington County, Virginia, and Green, Hawkins, Sullivan, and Washington Counties, Tennessee. All 28 miles of the gas pipeline occurs within the Ridge and Valley Ecoregion, described above. However, the pipeline crosses several subdivisions of the Ridge and Valley and they include the following: Southern Shale Valley, Southern Sandstone Ridges, Southern Dissected Ridges and Knobs, and Southern Limestone Dolomite Valleys and Low Rolling Hills.

The Southern Shale Valleys Ecoregion has previously been described above. The Southern Limestone/Dolomite Valleys and Rolling Hills is a heterogeneous region composed predominantly of limestone and cherty dolomite. Landforms are mostly undulating valleys and rounded ridges and hills, with many caves and springs. Soils vary in their productivity, and land cover includes oak-hickory and oak-pine forests, pasture, intensive agriculture, and urban and industrial.

In the Southern Sandstone Ridges Subregion, the soils are generally stony or sandy with low fertility. This subecoregion has major sandstone ridges, but these ridges also have areas of shale and siltstone.

The Southern Dissected Ridges and Knobs contain more crenulated, broken, or hummocky ridges, compared to the smoother, more sharply pointed sandstone ridges of the previously described region. Chestnut oak forests and pine forests are typical for the higher elevations of the ridges, with areas of white oak, mixed mesophytic forest, and tulip poplar on the lower (Griffith et al. 1998).

<u>Upland Forests</u>- along the proposed pipeline routes is generally composed of three forest cover types: early successional forest, mixed early successional/second growth forest, second growth forest. In total, approximately 115 acres of upland forest would be affected

by construction of the project. Of this, approximately 31 acres would be permanently affected by operations (SpectraEnergy Partners 2009).

Early Successional Forest **-** This forest cover found in the pipeline project area contained dominant canopy species including southern red oak, tulip poplar, sugar maple, red maple, boxelder, American elm, black walnut, wild black cherry, black locust, white ash, white oak, chestnut oak, sassafras, Virginia pine, eastern red cedar, hickory, American sycamore, and basswood. Dominant mid-story vegetation includes species found in the canopy as well as redbud, spicebush , multiflora rose, wild grape, paw paw, yellow buckeye, black raspberry, Allegheny raspberry, currant, Chinese privet, smooth sumac, winged elm, bush honeysuckle and flowering dogwood. Dominant woody understory and herbaceous species include seedlings of canopy species, poison ivy, Virginia creeper, Japanese honeysuckle, trumpet creeper, woodland agrimony, wood-sorrel, bottlebrush grass, Japanese stilt grass, Christmas fern, ebony spleenwort, Queen Anne's lace, violets, wingstem, white avens, pokeweed, jumpseed, deertongue, goldenrod, mayapple, jewelweed, large-flowered leafcup, common ragweed, yarrow, white snakeroot and moonseed. Early successional forests also contained, in limited areas, components of old field habitat.

Mixed Early Successional/Second-Growth Forest **-** Mixed early successional/second growth forest in the project area have the following dominant canopy species: sugar maple, southern red oak, green ash, basswood, chestnut oak, wild black cherry, tulip tree, American sycamore, white oak, black locust, eastern red cedar, hickory, shagbark hickory, black walnut, boxelder, sweetgum Virginia pine, chinquapin oak, post oak, white ash, American beech, and sassafras. Dominant mid-story vegetation includes species found in the canopy as well as winged sumac, flowering dogwood, yellow buckeye, redbud, American elm, slippery elm, red maple, spicebush, Virginia creeper, wild grape, multiflora rose, black raspberry, and paw paw. Dominant woody understory and herbaceous species include seedlings of canopy species, greenbrier, Japanese honeysuckle, mayapple, Christmas fern, maidenhair fern, white grass, Solomon's seal, wingstem, woodsorrel, Japanese stilitgrass, goldenrod, white snakeroot, flowering spurge, cleavers, woodland agrimony, ebony spleenwort, deertongue, jumpseed, common ragweed, great ragweed , spotted lady's thumb, clearweed, American hog peanut, white avens, Virginia wild rye jewelweed, sanicle, clubmoss, rattlesnake fern, and wood fern. Portions of mixed early successional/second-growth forest contain stands of coniferous forest dominated by Virginia pine and eastern red cedar (SpectraEnergy Partners 2009).

Second-Growth Forest - These types of forest consists of dominant canopy species including: green ash, boxelder, black gum , southern red oak, sassafras, post oak, tulip tree, white oak, beech, sugar maple, black locust, chestnut oak, black cherry, American sycamore, black oak , black walnut, white ash, chinquapin oak, eastern red cedar, Virginia pine, American elm, shagbark hickory, hickory, basswood, and princess tree . Dominant mid-story vegetation includes species found in the canopy as well as dogwood, wild grape, spicebush, multiflora rose, yellow buckeye, hop hornbeam, redbud, paw paw, winged elm, and tree of heaven. Dominant woody understory and herbaceous species include seedlings of canopy species, poison ivy, Virginia creeper, Japanese honeysuckle, blueberry, viburnum, green briar, pokeweed, orchard grass, blackberry, may apple, woodsorrel, wingstem, common cinquefoil, violet, ebony spleenwort, white avens, woodland agrimony, spotted lady's-thumb, American hogpeanut, clearweed, jewelweed, Christmas fern, baneberry, Joe pye weed, Solomon's seal, sedge (*Carex* sp.), wild ginger, white grass, goldenrod, panic grass, Japanese stiltgrass, aster, deer-tongue, common ragweed, bloodroot, plantain-leaf sedge, rattlesnake fern, and winter creeper. Portions of second

growth forest contain stands of coniferous forest dominated by Virginia pine and eastern red cedar (SpectraEnergy Partners 2009).

Open Land cover type in the Project area is made up of several types including, maintained lawns (non-residential), agriculture and pasture/hayfield, and old field and scrub/shrub. Approximately 225 acres of open land cover type would be affected by construction of the gas pipeline system. These cover types would be allowed to revert to pre-construction conditions following construction. Although approximately 30 acres of existing open land would be maintained as new permanent ROWs. Occasional maintenance activities along the permanent ROW, such as mowing, would not result in a change in this cover type during pipeline operations. Agricultural crops can be planted within the permanent ROW (SprectraEnergy Partners 2009).

Maintained Lawns - According to the DER Report (SpectraEnergy Partners 2009), multiple mowed lawns (non-residential) and one golf course are crossed by the project. Predominant vegetation within these areas is dominated by grasses and assumed similar to those listed found in pastures/hayfields (see below).

Agricultural Lands - These lands are vegetated areas primarily used to produce row crops. They are characterized by herbaceous vegetation that has been planted or is intensely managed for the production of food, feed, or fiber. Agricultural lands in the project area consist primarily of corn, soybeans, and tobacco crops.

Pastures/Hayfields - Areas along the Project route that are classified as pasture are dominated by grasses and used as grazing land for livestock or hay production. Dominant species include: Queen Anne's lace, red clover, white clover, timothy grass, bull thistle, common plantain, common ragweed, daisy fleabane , goldenrod, smooth brome, tall fescue , crowngrass , self heal, agrimony, chicory, horse nettle, orchard grass, American hogpeanut, hop clover, wingstem, rough cocklebur, bluegrass,, three-seeded mercury ironweed), St. Johnswort, wild bergamot, narrowleaf plantain, showy ticktrefoil, yellow foxtail, bush clover, dandelion, wild grape, teasel, curly dock, common milkweed, poison ivy, oxeye daisy, barnyard grass pokeweed, Allegheny blackberry, multiflora rose, black raspberry, panicgrass, Johnson grass, Indian hemp, crown vetch, Japanese honeysuckle, purpletop, black eyed susan and common cinquefoil. Some pastures were forested, in parts, and were dominated in the canopy by boxelder, tulip tree, eastern red cedar, wild black cherry, black locust, and black walnut. Pastures and hayfields also contain in limited areas, components of old field habitat (SpectraEnergy Partners 2009).

Old-Field and Scrub-Shrub Lands - Old-field habitats present within the project area are dominated by the following species: multiflora rose, wingstem, Allegheny blackberry, black raspberry, eastern redcedar, winged sumac, smooth sumac, goldenrod, Japanese honeysuckle, black locust, poison ivy, Indian hemp, autumn olive, great ragweed, bush clover, panicgrass, tall fescue, and Queen Anne's lace. Old field areas were often associated with existing pipeline/TL ROWs located within the pipeline project area, and as such, saplings of canopy species identified within the upland early successional/second growth forest habitats were also present within these areas. Limited areas of old-field habitats were also present within pastures and hayfields.

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