

Table 2. Analysis of effects on Virginia spiraea.

Pipeline Activity	Subactivity	Environmental Impact or Threat	Stressor	Stressor Pathway (optional)	Exposure (Resource Affected)	Range of Response	Conservation Need Affected	Demographic Consequences	NE, NLAA or LAA	Comments
New Disturbance - Construction	Vehicle Operation and Foot Traffic	physical impacts to individuals, habitat alteration and/or degradation	crushing, soil compaction	vehicles	habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance - Construction	Clearing - herbaceous vegetation and ground cover	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting, digging up, and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance - Construction	Clearing - trees and shrubs	physical impacts to individuals, habitat alteration and/or degradation	crushing, burying, digging up, cutting		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	This could result in the direct removal of VASP plants or alter the habitat so that it is no longer suitable for VASP.
New Disturbance - Construction	Vegetation Disposal (upland) - dragging, chipping, hauling, piling, stacking	neutral	none						NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.
New Disturbance - Construction	Vegetation Disposal (upland) - brush pile burning	neutral	none						NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.
New Disturbance - Construction	Vegetation Clearing - tree side trimming by bucket truck or helicopter	habitat alteration and/or degradation	altered sunlight			discountable - beneficial			NLAA	Primary impacts will occur from the original clearing of the ROW. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.
New Disturbance - Construction	Grading, erosion control devices	physical impacts to individuals, habitat alteration and/or degradation, temporary loss of habitat	crushing, burying, cutting roots		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance - Construction	Trenching (digging, blasting, dewatering, open trench, sedimentation)	physical impacts to individuals, habitat alteration and/or degradation, temporary loss of habitat	crushing, burying, cutting roots		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance - Construction	Pipe Stringing - bending, welding, coating, padding and backfilling	neutral	none						NE	This activity will occur in areas that have already been disturbed. No additional impacts after clearing, grading, and trenching.
New Disturbance - Construction	Hydrostatic Testing (water withdrawal and discharge), new line	neutral	none						NE	The water used during hydrostatic testing will be discharged in upland areas. VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian habitats are anticipated from this action.
New Disturbance - Construction	Regrading and Stabilization - restoration of corridor	neutral	none						NE	This activity will occur in areas that have already been disturbed. No additional impacts after clearing, grading, and trenching.
New Disturbance - Construction	Facilities - noise, lights	neutral	none						NE	No impacts to this species are anticipated from this action.
New Disturbance - Construction	Access Roads - upgrading existing roads, new roads temp and permanent - grading, graveling	physical impacts to individuals, habitat alteration and/or degradation, temporary or permanent loss of habitat	crushing, changes in hydrology, contaminants, burying, digging up		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary access road ROW post-construction.
New Disturbance - Construction	Access Roads - upgrading existing roads, new roads temp and permanent - culvert installation	physical impacts to individuals, habitat alteration and/or degradation, temporary or permanent loss of habitat	crushing, changes in hydrology, contaminants, burying, digging up		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary access road ROW post-construction.
New Disturbance-Construction	Access Roads - upgrading existing roads, new roads temp and permanent- tree trimming and tree removal	habitat alteration and/or degradation	altered sunlight			discountable - beneficial			NLAA	Primary impacts will occur from the original clearing of the temporary access road. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.
New Disturbance-Construction	Stream Crossings, flume	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance-Construction	Stream Crossings, dam & pump	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance-Construction	Stream Crossings, cofferdam	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.

New Disturbance - Construction	Stream Equipment Crossing Structures	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance - Construction	Crossings, wetlands and other water bodies (non- riparian) - clearing	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance - Construction	Crossings, wetlands and other water bodies (non- riparian) - tree side trimming	habitat alteration and/or degradation	altered sun			discountable - beneficial			NLAA	Primary impacts will occur from the waterbody crossing. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.
New Disturbance - Construction	Crossings, wetlands and other water bodies (non- riparian) - grading, trenching, regrading	physical impacts to individuals, habitat alteration and/or degradation	cutting root systems, digging up plants, burying		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
New Disturbance - Construction	Crossings, wetlands and other water bodies (non- riparian) - pipe stringing	neutral	none						NE	This activity will occur in areas that have already been disturbed. No additional impacts after clearing, grading, and trenching.
Operation & Maintenance	Facilities - vehicles, foot traffic, noise	neutral	none						NE	No impacts to this species are anticipated from this action.
Operation & Maintenance	Vegetation Management - mowing	physical impact to individuals	cutting, crushing			discountable			NLAA	Mowing will only be occurring along the ROW which is outside of the areas containing VASP habitat.
Operation & Maintenance	Vegetation Management - chainsaw and tree clearing	neutral	none						NE	These activities will occur in areas not suitable for VASP.
Operation & Maintenance	Vegetation Management - herbicides - hand, vehicle mounted, aerial applications	neutral	none						NE	Spraying of herbicides will not occur at this site.
Operation & Maintenance	Vegetation Disposal (upland) - dragging, chipping, hauling, piling, stacking	neutral	none						NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.
Operation & Maintenance	Vegetation Disposal (upland) - brush pile burning	neutral	none						NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.
Operation & Maintenance	Vegetation Management - tree side trimming by bucket truck or helicopter	habitat alteration and/or degradation	altered sunlight			discountable - beneficial			NLAA	Primary impacts will occur from the original clearing of the ROW. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.
Operation & Maintenance	ROW repair, regrading, revegetation (upland) - hand, mechanical	physical impacts to individuals, habitat alteration and/or degradation	sedimentation, chemical contaminants			discountable			NLAA	E&S plans will be used to minimize effects from erosion and sedimentation on-site. No herbicides will be used at this site.
Operation & Maintenance	ROW repair, regrading, revegetation (wetland) - hand, mechanical	physical impacts to individuals, habitat alteration and/or degradation, temporary or permanent loss of habitat	crushing, burying, soil compaction, introduction of invasives	heavy equipment and machinery, imported fill and materials, storm water runoff	habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
Operation & Maintenance	ROW repair, regrading, revegetation - in stream stabilization and/or fill	physical impacts to individuals, habitat alteration and/or degradation, temporary or permanent loss of habitat	crushing, burying, soil compaction, introduction of invasives	heavy equipment and machinery, imported fill and materials, storm water runoff	habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.
Operation & Maintenance	Access Road Maintenance - grading, graveling	neutral	none						NE	Access roads on this site will be temporary and will be restored post-construction.
Operation & Maintenance	Access Road Maintenance - culvert replacement	neutral	none						NE	Access roads on this site will be temporary and will be restored post-construction.
Operation & Maintenance	General Appurtenance and Cathodic Protection Construction - Off ROW Clearing	physical impacts to individuals, habitat alteration and/or degradation	crushing, burying, soil compaction, introduction of invasives		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	This could result in the direct removal of VASP plants or alter the habitat so that it is no longer suitable for VASP.
Operation & Maintenance	General Appurtenance and Cathodic Protection Construction - trenching, anode, bell hole	physical impacts to individuals, habitat alteration and/or degradation	crushing, burying, soil compaction, chemical contaminants, introduction of invasives		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	This could result in the direct removal of VASP plants or alter the habitat so that it is no longer suitable for VASP.
Operation & Maintenance	Inspection Activities - ground and aerial	neutral	none						NE	Aerial and ground inspections will have no effect because they will not be occurring in VASP habitat.