

September 30, 2014

North Dakota Public Service Commission  
Patrick Fahn  
600 E. Boulevard, Dept 408  
Bismarck, ND 58505-0480



**RE: Tree and Shrub Planting Survival – First Year Annual Report Vantage Pipeline Case No. PU-11-109**

Dear Mr. Fahn,

In accordance with the North Dakota Public Service Commission (NDPSC) Tree and Shrub Mitigation Specifications, KC Harvey is submitting documentation of the reclamation planting survival monitoring for the first year after reclamation for the Vantage Pipeline Case Number PU-11-109.

The Tree and Shrub Reclamation Plan provided the following information as requested by the NDPSC Mitigation Specifications:

- The number and variety of trees and shrubs removed
- Reclamation plan for replacing these species at a 2:1 ratio
- The variety, location, and date of replacement plantings

A letter to the NDPSC dated May 12, 2014 and titled Tree and Shrub Reclamation Plan for Vantage Pipeline Case No. PU-11-109 documented the actual tree and shrubs planted as part of the reclamation efforts. Tree and shrub stock was obtained from the Divide County Conservation District and were planted in May 2014.

The tree and shrub survival monitoring occurred September 3 to 5, 2014. The results are documented in the attached annual report.

Please contact us if you require any additional information.

Sincerely,

Handwritten signature of David P. Cameron in black ink.

David P. Cameron, P.E.  
Principal Engineer  
KC Harvey Environmental, LLC

Handwritten signature of Monica Pokorny in black ink.

Monica Pokorny  
Senior Ecologist  
KC Harvey Environmental, LLC

# FIRST ANNUAL MONITORING REPORT OF TREE AND SHRUB RECLAMATION PLANTING SURVIVAL

Prepared for:

State of North Dakota Public Service Commission  
Vantage Pipeline  
Case No: PU-11-109

September 30, 2014

**KC HARVEY**  
ENVIRONMENTAL, LLC

  
**VANTAGE**  
PIPELINE US LP



## **Introduction**

This document is a report of the first annual Vantage Pipeline inspection for tree and shrub reclamation plantings survival. Vantage Pipeline US LP replanted trees and shrubs removed during construction using the methods outlined in the State of North Dakota Public Service Commission (NDPSC) approved Tree and Shrub Reclamation Plan submitted October 2013 (NDPSC approval letter dated November 25, 2013). The 79.8 miles pipeline alignment is from Tioga, ND to the Canadian border northwest of Fortuna, ND within Divide and Williams Counties. The construction right-of-way (ROW) was 70 feet wide. A permanent ROW (PROW) approximately 30 feet of the ROW will be maintained for the lifetime of the pipeline. Vantage Pipeline agrees to comply with all stipulations in the NDPSC's Tree and Shrub Mitigation Specifications, including completing annual inspections for three years following reclamation.

### ***Tree and Shrub Reclamation Plantings***

An inventory of planted tree and shrub species was documented in a letter to the NDPSC dated May 12, 2014 and titled Tree and Shrub Reclamation Plan for Vantage Case No. PU-11-109. Table 1 outlines the trees and shrubs planted as part of the pipeline reclamation in May 2014. Trees planted were at least two-year-old saplings, and shrubs were seedlings or root cuttings. There were six species of trees and shrubs removed from windbreaks, shelterbelts or natural areas during the construction of the Vantage Pipeline. The same species were replaced in approximately the same locations. There are four locations on the Vantage Pipeline where either Russian olive or Siberian elm were present in native grasslands. Following the North Dakota Forest Service (NDFS) recommendations, these two species were replaced with a native shrub or tree species. Snowberry and wild rose have regenerated from root fragments and seed where the species were present pre-pipeline disturbance. Trees and shrubs disturbed by the pipeline construction were replaced at a rate of 2:1. The goal is for  $\geq 75\%$  survival three years after planting.

### ***Tree and Shrub Reclamation Planting Survival Monitoring***

Vantage Pipeline US LP monitored tree and shrub reclamation plantings for survival on September 3 to 5, 2014. The number of live stems per species planted were counted at each planting original. Survival percentage is the ratio of live stems to planted stems. Table 1 documents the survival rate of the reclamation tree and shrub plantings. The overall survival rate was 33%. Factors impacting survival included tree and shrub plantings being cropped through by landowners, the removal of plantings during construction of an adjacent Pipeline, and competition with seeded grasses. In some location, the replacement plantings were not found due to the grass cover and survival was not confirmed. Monitoring during 2015 will further evaluate survival in these locations. A comparison between the preconstruction inventory, planned mitigation and counts determined during the fall 2014 survey is provided in Table 1. As indicated in Table 1, a total of 322 plantings were destroyed by either cropping or pipeline construction activities. This represents 31% of the mitigation planting for the locations (Table 1). A potential survival rate of 68% may have been achieved assuming 100 % survival in these locations that were destroyed by cropping or adjacent pipeline construction activities. This percentage falls below the 75% target survival rate. A number of plantings will regenerate through natural seeding and propagation mechanisms and additional mitigation efforts may re-establish these tree and shrub species to achieve the 75% survival rate. It is worth noting that no additional efforts will be taken to re-establish tree and shrub species in areas where cropping will continue or pipeline construction activities have destroyed the trees and shrub plantings that have already been completed.

The natural regeneration of snowberry and rose was monitored by counting the number of stems re-establishing. As documented in the Reclamation Plan (October 2013), the desired re-established density of snowberry and rose is 1 stem re-established/10 stems disturbed. This 1:10 ratio assumes each individual snowberry or rose plant has rhizome producing multiple stems. The survival rate of snowberry and rose was calculated as a percentage of the stem count observed during the survival monitoring to the pre-construction stem count multiplied by 10. In several locations along the pipeline reclamation plantings or seeded areas have been disturbed by new pipeline construction or have low survival (Table 2). However, the overall survival of snowberry and rose exceeded the goal of 75% survival. The overall survival of snowberry and rose was 257%.

In addition to the planted and regenerating trees and shrubs on the Vantage Pipeline, new shrub growth was observed in several areas along the reclaimed pipeline. There were 1,111 previously undocumented silverberry, snowberry and rose shrubs inventoried in September 2014 (Table 3).

In summary, the planted trees and shrubs had a relatively low (33%) survival due partly to farming and pipeline construction activities. Snowberry and rose had a high (257%) overall regeneration. In addition, 1,111 new silverberry, snowberry and rose plants were observed regenerating in new locations. The goal was to replace 75% of the 8,634 trees and shrubs on the pipeline. During the recent survey, 20,593 trees and shrubs were monitored within the reclaimed pipeline disturbance. This represents 238% of the targeted mitigation goal; however, some of these are in different locations and are different species than the pre-disturbance trees and shrubs.

Table 1. Survival of tree and shrub reclamation plantings, September 2014.

Pipeline Milepost	Inventory Species	Inventory Stem Count	Mitigation Plan	Date Planted	Mitigation Species Planted	Mitigation Stem Count Planted	Survey Date	Survival Monitoring Observed Stem Count	Notes
0.71	Silverberry	25	replace same, 2 to 1	5/7/2014	Silverberry	50	9/3/2014	50	
2.50	Russian Olive	1	Replace with chokecherry, 2 to 1	5/7/2014	Chokecherry	2	9/3/2014	0	
3.15	Chokecherry	50	replace same, 2 to 1	5/7/2014	Chokecherry	100	9/3/2014	0	
3.51	Dogwood	5	replace same, 2 to 1	5/7/2014	Dogwood	10	9/3/2014	0	
4.24	Siberian Elm	1	Replace with chokecherry, 2 to 1	5/7/2014	Chokecherry	2	9/3/2014	0	
4.35	Chokecherry	2	replace same, 2 to 1	5/7/2014	Chokecherry	4	9/3/2014	0	
4.35	Green Ash	10	replace same, 2 to 1	5/7/2014	Green Ash	20	9/3/2014	0	
4.36	Willow	2	replace same, 2 to 1	5/7/2014	Willow	4	9/3/2014	0	
4.95	Silverberry	100	replace same, 2 to 1	5/7/2014	Silverberry	200	9/3/2014	130	
5.36	Chokecherry	10	replace same, 2 to 1	5/8/2014	Chokecherry	20	9/3/2014	13	
5.68	Silverberry	75	replace same, 2 to 1	5/8/2014	Silverberry	150	9/3/2014	84	
5.71	Silverberry	10	replace same, 2 to 1	5/8/2014	Silverberry	20	9/3/2014	20	
6.07	Caragana	10	replace same, 2 to 1	5/8/2014	Caragana	20	9/3/2014	8	Cropped with wheat
6.07	Green Ash	5	replace same, 2 to 1	5/8/2014	Green Ash	10	9/3/2014	4	Cropped with wheat
6.21	Caragana	15	replace same, 2 to 1	5/8/2014	Caragana	30	9/3/2014	9	Cropped with wheat
6.21	Dead Green Ash	2	replace same, 2 to 1	5/8/2014	Green Ash	4	9/3/2014	0	Cropped with wheat
6.35	Caragana	16	replace same, 2 to 1	5/8/2014	Caragana	32	9/3/2014	10	Cropped with wheat
6.35	Dead Green Ash	2	replace same, 2 to 1	5/8/2014	Green Ash	4	9/3/2014	2	Cropped with wheat
6.48	Caragana	20	replace same, 2 to 1	5/8/2014	Caragana	40	9/3/2014	19	Cropped with wheat
6.48	Green Ash	6	replace same, 2 to 1	5/8/2014	Green Ash	12	9/3/2014	1	Cropped with wheat
6.77	Silver Buffaloberry	50	replace same, 2 to 1	5/8/2014	Silver Buffaloberry	100	9/3/2014	11	
6.77	Silver Buffaloberry	50	replace same, 2 to 1	5/8/2014	Silver Buffaloberry	100	9/3/2014	11	
7.63	Juniper	1	replace same, 2 to 1	5/8/2014	Juniper	2	9/3/2014	0	
8.41	Chokecherry	1	replace same, 2 to 1	5/8/2014	Chokecherry	2	9/3/2014	0	
11.93	Russian Olive	1	Replace with chokecherry, 2 to 1	5/6/2014	Chokecherry	2	9/3/2014	0	

Pipeline Milepost	Inventory Species	Inventory Stem Count	Mitigation Plan	Date Planted	Mitigation Species Planted	Mitigation Stem Count Planted	Survey Date	Survival Monitoring Observed Stem Count	Notes
12.43	Siberian Elm	7	replace same, 2 to 1	5/6/2014	Siberian Elm	14	9/3/2014	0	
15.10	Siberian Elm	1	Replace with chokecherry, 2 to 1	5/6/2014	Chokecherry	2	9/4/2014	2	
16.09	Chokecherry	1	replace same, 2 to 1	5/6/2014	Chokecherry	2	9/4/2014	0	
21.36	Maple	1	replace same, 2 to 1	5/6/2014	Maple	2	9/4/2014	0	ROW cropped
21.38	Green Ash	8	replace same, 2 to 1	5/6/2014	Green Ash	16	9/4/2014	0	ROW cropped
21.39	Willow	2	replace same, 2 to 1	5/6/2014	Willow	4	9/4/2014	3	ROW cropped
30.24	Chokecherry	1	replace same, 2 to 1	5/6/2014	Chokecherry	2	9/4/2014	0	
30.34	Chokecherry	3	replace same, 2 to 1	5/6/2014	Chokecherry	6	9/4/2014	0	
30.48	Chokecherry	2	replace same, 2 to 1	5/6/2014	Chokecherry	4	9/4/2014	4	
33.44	Ponderosa Pine	4	replace same, 2 to 1	5/6/2014	Ponderosa Pine	8	9/4/2014	0	
40.16	Siberian Elm	7	replace same, 2 to 1	5/6/2014	Siberian Elm	14	9/4/2014	0	Removed by Flickertail pipeline.
61.52	Caragana	95	replace same, 2 to 1	5/6/2014	Caragana	190	9/4/2014	11	Removed by Flickertail pipeline.
<b>TOTAL</b>						<b>1204</b>		<b>392</b>	

**Table 2. Survival of snowberry and wild rose natural regeneration and seedlings, September 2014.**

Milepost	Inventory Species	Inventory Stem Count	Mitigation Plan	Desired replacement (2:1)/10	Survival Monitoring Date	Survival Observed Stem Count	Notes
0.60	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	1	
0.69	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	0	
0.71	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	150	
0.71	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	150	
0.71	Wild rose	100	Natural Regeneration and seeding	20	9/3/2014	5	
0.82	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	10	
0.85	Snowberry	70	Natural Regeneration and seeding	14	9/3/2014	80	
0.85	Wild rose	35	Natural Regeneration and seeding	7	9/3/2014	30	
0.87	Snowberry	50	Natural Regeneration and seeding	10	9/3/2014	50	
0.88	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	150	
0.95	Snowberry	1000	Natural Regeneration and seeding	200	9/3/2014	36	
2.50	Snowberry	50	Natural Regeneration and seeding	10	9/3/2014	500	
3.03	Snowberry	1000	Natural Regeneration and seeding	200	9/3/2014	0	
3.08	Snowberry	1000	Natural Regeneration and seeding	200	9/3/2014	0	
3.11	Snowberry	1000	Natural Regeneration and seeding	200	9/3/2014	0	
3.15	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	0	
3.21	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	0	
3.25	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	0	
3.51	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	0	
3.53	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	0	
3.60	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	0	
3.60	Wild rose	100	Natural Regeneration and seeding	20	9/3/2014	220	
3.64	Snowberry	10000	Natural Regeneration and seeding	2000	9/3/2014	185	
3.70	Snowberry	350	Natural Regeneration and seeding	70	9/3/2014	0	
3.78	Snowberry	500	Natural Regeneration and seeding	100	9/3/2014	5	
4.04	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	25	
4.30	Wild rose	200	Natural Regeneration and seeding	40	9/3/2014	0	
4.55	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	65	
4.59	Snowberry	500	Natural Regeneration and seeding	100	9/3/2014	5	
4.66	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	0	
4.76	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	7	
5.24	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	10	

Milepost	Inventory Species	Inventory Stem Count	Mitigation Plan	Desired replacement (2:1)/10	Survival Monitoring Date	Survival Observed Stem Count	Notes
5.28	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	50	
5.30	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	200	
5.40	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	150	
5.44	Wild rose	50	Natural Regeneration and seeding	10	9/3/2014	60	
5.47	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	300	
5.52	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	100	
5.59	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	60	
5.68	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	60	
5.71	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	30	
5.75	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	50	
5.75	Wild rose	50	Natural Regeneration and seeding	10	9/3/2014	30	
5.78	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	50	
6.01	Snowberry	50	Natural Regeneration and seeding	10	9/3/2014	100	
6.04	Snowberry	150	Natural Regeneration and seeding	30	9/3/2014	60	
6.04	Wild rose	50	Natural Regeneration and seeding	10	9/3/2014	10	
6.67	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	100	
6.72	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	50	
6.84	Snowberry	500	Natural Regeneration and seeding	100	9/3/2014	60	
6.88	Wild rose	50	Natural Regeneration and seeding	10	9/3/2014	2	
6.91	Snowberry	50	Natural Regeneration and seeding	10	9/3/2014	30	
6.96	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	150	
7.00	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	60	
7.26	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	100	
7.28	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	20	
7.33	Snowberry	500	Natural Regeneration and seeding	100	9/3/2014	200	
7.40	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	180	
7.43	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	100	
7.47	Snowberry	1000	Natural Regeneration and seeding	200	9/3/2014	20	
7.53	Snowberry	300	Natural Regeneration and seeding	60	9/3/2014	200	
7.63	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	20	
7.70	Snowberry	500	Natural Regeneration and seeding	100	9/3/2014	100	
7.73	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	30	
7.78	Snowberry	500	Natural Regeneration and seeding	100	9/3/2014	0	

Milepost	Inventory Species	Inventory Stem Count	Mitigation Plan	Desired replacement (2:1)/10	Survival Monitoring Date	Survival Observed Stem Count	Notes
7.87	Snowberry	50	Natural Regeneration and seeding	10	9/3/2014	0	
7.99	Snowberry	1500	Natural Regeneration and seeding	300	9/3/2014	20	
8.09	Snowberry	1000	Natural Regeneration and seeding	200	9/3/2014	40	
8.15	Snowberry	200	Natural Regeneration and seeding	40	9/3/2014	0	
8.21	Snowberry	250	Natural Regeneration and seeding	50	9/3/2014	8	
8.33	Snowberry	150	Natural Regeneration and seeding	30	9/3/2014	50	
8.37	Snowberry	350	Natural Regeneration and seeding	70	9/3/2014	12	
8.53	Snowberry	100	Natural Regeneration and seeding	20	9/3/2014	0	
11.97	Snowberry	150	Natural Regeneration and seeding	30	9/3/2014	9	
11.97	Wild rose	100	Natural Regeneration and seeding	20	9/3/2014	3	
14.84	Snowberry	1500	Natural Regeneration and seeding	300	9/4/2014	300	
15.04	Snowberry	1250	Natural Regeneration and seeding	250	9/4/2014	105	
16.08	Snowberry	550	Natural Regeneration and seeding	110	9/4/2014	100	
30.32	Snowberry	100	Natural Regeneration and seeding	20	9/4/2014	115	
30.34	Snowberry	50	Natural Regeneration and seeding	10	9/4/2014	20	
30.42	Snowberry	200	Natural Regeneration and seeding	40	9/4/2014	100	
30.46	Snowberry	100	Natural Regeneration and seeding	20	9/4/2014	100	
30.72	Snowberry	200	Natural Regeneration and seeding	40	9/4/2014	42	
30.76	Snowberry	1000	Natural Regeneration and seeding	200	9/4/2014	15	
30.79	Snowberry	850	Natural Regeneration and seeding	170	9/4/2014	220	
38.91	Snowberry	23	Natural Regeneration and seeding	5	9/4/2014	65	
42.08	Snowberry	21	Natural Regeneration and seeding	4	9/4/2014	43	Disturbed by adjacent pipeline
42.17	Snowberry	18	Natural Regeneration and seeding	4	9/4/2014	27	Disturbed by adjacent pipeline
48.44	Snowberry	18	Natural Regeneration and seeding	4	9/4/2014	5	
48.44	Wild rose	4	Natural Regeneration and seeding	1	9/4/2014	2	
50.63	Snowberry	13	Natural Regeneration and seeding	3	9/4/2014	0	Disturbed by adjacent pipeline
50.73	Snowberry	10	Natural Regeneration and seeding	2	9/4/2014	90	Disturbed by adjacent pipeline
50.73	Snowberry	14	Natural Regeneration and seeding	3	9/4/2014	90	Disturbed by adjacent pipeline
50.77	Snowberry	12	Natural Regeneration and seeding	2	9/4/2014	0	Disturbed by adjacent pipeline
50.85	Snowberry	8	Natural Regeneration and seeding	2	9/4/2014	12	Disturbed by adjacent pipeline
50.93	Snowberry	6	Natural Regeneration and seeding	1	9/4/2014	0	Disturbed by adjacent pipeline
51.11	Snowberry	17	Natural Regeneration and seeding	3	9/4/2014	2	Disturbed by adjacent pipeline
51.12	Snowberry	9	Natural Regeneration and seeding	2	9/4/2014	0	Disturbed by adjacent pipeline

Milepost	Inventory Species	Inventory Stem Count	Mitigation Plan	Desired replacement (2:1)/10	Survival Monitoring Date	Survival Observed Stem Count	Notes
51.32	Snowberry	4	Natural Regeneration and seeding	1	9/4/2014	0	Disturbed by adjacent pipeline
51.62	Snowberry	5	Natural Regeneration and seeding	1	9/4/2014	12	Disturbed by adjacent pipeline
51.62	Snowberry	6	Natural Regeneration and seeding	1	9/4/2014	0	Disturbed by adjacent pipeline
51.68	Snowberry	15	Natural Regeneration and seeding	3	9/4/2014	9	Disturbed by adjacent pipeline
51.68	Wild rose	3	Natural Regeneration and seeding	1	9/4/2014	14	Disturbed by adjacent pipeline
51.74	Snowberry	10	Natural Regeneration and seeding	2	9/4/2014	15	Disturbed by adjacent pipeline
51.79	Snowberry	20	Natural Regeneration and seeding	4	9/4/2014	18	Disturbed by adjacent pipeline
51.81	Snowberry	23	Natural Regeneration and seeding	5	9/4/2014	3	Disturbed by adjacent pipeline
51.95	Snowberry	15	Natural Regeneration and seeding	3	9/4/2014	6	Disturbed by adjacent pipeline
52.04	Snowberry	24	Natural Regeneration and seeding	5	9/4/2014	50	Disturbed by adjacent pipeline
52.04	Wild rose	1	Natural Regeneration and seeding	1	9/4/2014	3	Disturbed by adjacent pipeline
52.19	Snowberry	6	Natural Regeneration and seeding	1	9/4/2014	4	Disturbed by adjacent pipeline
52.25	Snowberry	5	Natural Regeneration and seeding	1	9/4/2014	22	Disturbed by adjacent pipeline
52.25	Wild rose	2	Natural Regeneration and seeding	1	9/4/2014	0	Disturbed by adjacent pipeline
52.33	Snowberry	10	Natural Regeneration and seeding	2	9/4/2014	4	Disturbed by adjacent pipeline
52.36	Snowberry	20	Natural Regeneration and seeding	4	9/4/2014	10	Disturbed by adjacent pipeline
52.45	Snowberry	15	Natural Regeneration and seeding	3	9/4/2014	12	Disturbed by adjacent pipeline
52.53	Snowberry	9	Natural Regeneration and seeding	2	9/4/2014	8	Disturbed by adjacent pipeline
52.61	Snowberry	21	Natural Regeneration and seeding	4	9/4/2014	0	Disturbed by adjacent pipeline
53.85	Snowberry	9	Natural Regeneration and seeding	2	9/4/2014	280	
53.89	Snowberry	16	Natural Regeneration and seeding	3	9/4/2014	520	
53.95	Snowberry	17	Natural Regeneration and seeding	3	9/4/2014	480	
53.99	Snowberry	16	Natural Regeneration and seeding	3	9/4/2014	190	
54.19	Snowberry	14	Natural Regeneration and seeding	3	9/4/2014	230	
54.30	Snowberry	12	Natural Regeneration and seeding	2	9/4/2014	2	
64.50	Snowberry	16	Natural Regeneration and seeding	3	9/5/2014	12	
64.54	Snowberry	2	Natural Regeneration and seeding	1	9/5/2014	4	
64.62	Snowberry	29	Natural Regeneration and seeding	6	9/5/2014	100	
65.91	Snowberry	2	Natural Regeneration and seeding	1	9/5/2014	25	
67.76	Snowberry	7	Natural Regeneration and seeding	1	9/5/2014	0	
67.79	Snowberry	12	Natural Regeneration and seeding	2	9/5/2014	200	
68.17	Snowberry	16	Natural Regeneration and seeding	3	9/5/2014	10000	
68.21	Snowberry	20	Natural Regeneration and seeding	4	9/5/2014	2	

Milepost	Inventory Species	Inventory Stem Count	Mitigation Plan	Desired replacement (2:1)/10	Survival Monitoring Date	Survival Observed Stem Count	Notes
68.27	Snowberry	23	Natural Regeneration and seeding	5	9/5/2014	60	
68.30	Snowberry	9	Natural Regeneration and seeding	2	9/5/2014	100	
68.33	Snowberry	15	Natural Regeneration and seeding	3	9/5/2014	1	
68.62	Snowberry	5	Natural Regeneration and seeding	1	9/5/2014	6	
68.62	Wild rose	3	Natural Regeneration and seeding	1	9/5/2014	1	
68.72	Snowberry	5	Natural Regeneration and seeding	1	9/5/2014	13	
69.10	Snowberry	6	Natural Regeneration and seeding	1	9/5/2014	0	
69.10	Wild rose	2	Natural Regeneration and seeding	1	9/5/2014	0	
69.64	Snowberry	12	Natural Regeneration and seeding	2	9/5/2014	35	
69.73	Snowberry	15	Natural Regeneration and seeding	3	9/5/2014	40	
74.01	Snowberry	5	Natural Regeneration and seeding	1	9/5/2014	0	
74.04	Snowberry	6	Natural Regeneration and seeding	1	9/5/2014	0	
74.11	Snowberry	10	Natural Regeneration and seeding	2	9/5/2014	5	
74.23	Wild rose	6	Natural Regeneration and seeding	1	9/5/2014	1	
74.29	Snowberry	10	Natural Regeneration and seeding	2	9/5/2014	0	
74.47	Snowberry	35	Natural Regeneration and seeding	7	9/5/2014	200	
74.51	Snowberry	23	Natural Regeneration and seeding	5	9/5/2014	15	
74.53	Snowberry	15	Natural Regeneration and seeding	3	9/5/2014	5	
74.62	Snowberry	25	Natural Regeneration and seeding	5	9/5/2014	35	
74.62	Wild rose	6	Natural Regeneration and seeding	1	9/5/2014	30	
74.65	Snowberry	20	Natural Regeneration and seeding	4	9/5/2014	20	
74.77	Snowberry	20	Natural Regeneration and seeding	4	9/5/2014	35	
79.13	Snowberry	2	Natural Regeneration and seeding	1	9/5/2014	135	
79.29	Snowberry	10	Natural Regeneration and seeding	2	9/5/2014	65	
79.29	Wild rose	3	Natural Regeneration and seeding	1	9/5/2014	2	
79.36	Snowberry	1	Natural Regeneration and seeding	1	9/5/2014	5	
79.36	Wild rose	2	Natural Regeneration and seeding	1	9/5/2014	0	
79.47	Snowberry	15	Natural Regeneration and seeding	3	9/5/2014	0	
79.61	Snowberry	3	Natural Regeneration and seeding	1	9/5/2014	0	
79.88	Snowberry	12	Natural Regeneration and seeding	2	9/5/2014	35	
80.18	Snowberry	15	Natural Regeneration and seeding	3	9/5/2014	0	
<b>TOTAL</b>		<b>37919</b>		<b>7430</b>		<b>19090</b>	

**Table 3. New shrub species growth along the pipeline, September 2014.**

<b>Milepost</b>	<b>Original Inventory Species</b>	<b>New Species Observed</b>	<b>New Species Stem Count</b>
0.60	Snowberry	Wild Rose	10
2.50	Snowberry	Wild Rose	100
3.60	Wild rose	Snowberry	150
5.52	Snowberry	Wild Rose	20
6.67	Snowberry	Wild Rose	40
6.91	Snowberry	Wild Rose	50
7.28	Snowberry	Wild Rose	5
7.33	Snowberry	Wild Rose	60
7.40	Snowberry	Wild Rose	20
8.33	Snowberry	Wild Rose	3
8.41	Chokecherry	Wild Rose	3
8.41	Chokecherry	Snowberry	6
14.84	Snowberry	Wild Rose	2
30.32	Snowberry	Wild Rose	15
30.42	Snowberry	Wild Rose	5
30.79	Snowberry	Wild Rose	2
50.77	Snowberry	Wild Rose	6
54.19	Snowberry	Wild Rose	2
64.62	Snowberry	Wild Rose	11
68.17	Snowberry	Silverberry	47
74.51	Snowberry	Wild Rose	2
74.53	Snowberry	Wild Rose	1
74.62	Snowberry	Wild Rose	1
74.62	Wild rose	Snowberry	220
74.65	Snowberry	Wild Rose	2
74.77	Snowberry	Wild Rose	4
79.13	Snowberry	Wild Rose	20
79.29	Snowberry	Wild Rose	4
79.29	Wild rose	Snowberry	280
79.36	Wild rose	Snowberry	10
79.61	Snowberry	Wild Rose	2
79.88	Snowberry	Wild Rose	8
		<b>TOTAL</b>	<b>1111</b>