

APPENDIX E – SILT LOADING CALCULATIONS

Table 19. Silt loading calculations for the 8-month monitoring event.

Wyoming RRP SEED 12(1)
 Seedskdee National Wildlife Refuge Stabilization Project
 Samples taken May 18, 2005

Section	1		2		3	
	Terrazyme		Lignosulfonate		Permazyme	
Product	Terrazyme		Lignosulfonate		Permazyme	
Milepost	0.1	0.3	0.1	0.3	0.1	0.3
Moisture (%)	0.3	0.4	0.2	0.1	0.2	0.2
Sample mass, (g)	4266.2	1765.2	1084.0	1010.6	1574.8	1561.0
Percent passing the No. 200 sieve	1.9%	0.9%	0.6%	0.2%	0.8%	0.6%
Mass passing the No. 200 sieve, (g)	81.1	15.9	6.5	2.0	12.6	9.4
Area (in ²)	1152	1152	1152	1152	1152	1152
Silt loading (g/in ²)	0.070	0.014	0.006	0.002	0.011	0.008
Silt loading (oz/ft²) (oz/ft²)	0.36	0.07	0.03	0.01	0.06	0.04
	Average = 0.21		Average = 0.02		Average = 0.05	
RANK	4		1		2	

Section	4		5		6	
	Soil Sement		DCA 2000		DMC 820 (Lig/Mag)	
Product	Soil Sement		DCA 2000		DMC 820 (Lig/Mag)	
Milepost	0.1	0.3	0.1	0.3	0.1	0.3
Moisture (%)	0.3	0.3	0.3	0.4	0.3	0.2
Sample mass, (g)	4490.2	4098.2	4048.5	3324.8	2125.9	1509.3
Percent passing the No. 200 sieve	3.4%	3.8%	2.0%	3.4%	1.5%	0.6%
Mass passing the No. 200 sieve, (g)	152.7	155.7	81.0	113.0	31.9	9.1
Area (in ²)	1152	1152	1152	1152	1152	1152
Silt loading (g/in ²)	0.133	0.135	0.070	0.098	0.028	0.008
Silt loading (oz/ft²) (oz/ft²)	0.67	0.69	0.36	0.50	0.14	0.04
	Average = 0.68		Average = 0.43		Average = 0.09	
RANK	6		5		3	

Conversion: 1 g/in² = 5.0794 oz/ft²

APPENDIX E – SILT LOADING CALCULATIONS

Table 20. Silt loading calculations for the 11-month monitoring event.

Wyoming RRP SEED 12(1)
Seedsdeek National Wildlife Refuge Stabilization Project
Samples taken August 30, 2005

Section Product	1				2			
	Terrazyme				Lignosulfonate			
Milepost	0.15	0.25	0.35	0.48	0.15	0.25	0.38	0.48
Moisture (%)	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.2
Sample mass, (g)	5531.6	3927.9	2385.9	1958.7	1816.5	1457.8	3108.6	3466.8
Percent passing the No. 200 sieve	3.5%	2.8%	3.3%	5.7%	1.8%	3.0%	3.2%	3.3%
Mass passing the No. 200 sieve, (g)	193.6	110.0	78.7	111.6	32.7	43.7	99.5	114.4
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.224	0.127	0.091	0.129	0.038	0.051	0.115	0.132
Silt loading (oz/ft²)	1.14	0.65	0.46	0.66	0.19	0.26	0.58	0.67
Silt loading (oz/ft²)	Average = 0.73				Average = 0.43			
RANK	4				2			

Section Product	3				4			
	Permazyme				Soil Sement			
Milepost	0.15	0.25	0.38	0.48	0.15	0.25	0.38	0.48
Moisture (%)	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2
Sample mass, (g)	4818.5	2246.1	2775.1	3900.0	6760.1	3322.9	7022.4	4469.1
Percent passing the No. 200 sieve	3.6%	3.6%	3.2%	4.0%	6.3%	6.4%	6.3%	6.6%
Mass passing the No. 200 sieve, (g)	173.5	80.9	88.8	156.0	425.9	212.7	442.4	295.0
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.201	0.094	0.103	0.181	0.493	0.246	0.512	0.341
Silt loading (oz/ft²)	1.02	0.48	0.52	0.92	2.50	1.25	2.60	1.73
Silt loading (oz/ft²)	Average = 0.73				Average = 2.02			
RANK	4				6			

Section Product	5				6			
	DCA 2000				DMC 820 (Lig/Mag)			
Milepost	0.15	0.19	0.38	0.52	0.15	0.35	0.5	0.6
Moisture (%)	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1
Sample mass, (g)	4815.5	1965.1	1511.1	1824.3	1524.8	1145.9	1194.9	1737.7
Percent passing the No. 200 sieve	3.5%	3.5%	1.0%	2.8%	3.3%	3.6%	2.3%	2.5%
Mass passing the No. 200 sieve, (g)	168.5	68.8	15.1	51.1	50.3	41.3	27.5	43.4
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.195	0.080	0.017	0.059	0.058	0.048	0.032	0.050
Silt loading (oz/ft²)	0.99	0.40	0.09	0.30	0.30	0.24	0.16	0.26
Silt loading (oz/ft²)	Average = 0.45				Average = 0.24			
RANK	3				1			

Conversion: 1 g/in² = 5.0794 oz/ft²

APPENDIX E – SILT LOADING CALCULATIONS

Table 21. Silt loading calculations for the 20-month monitoring event.

Wyoming RRP SEED 12(1)
SeedsKdee National Wildlife Refuge Stabilization Project
Samples taken May 18, 2006

Section	1				2			
	Terrazyme				Lignosulfonate			
Product								
Milepost	0.05	0.18	0.33	0.52	0.05	0.18	0.33	0.52
Moisture (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sample mass, (g)	4266.4	4346.6	5630.1	4581.1	2559.7	2581.6	2754.4	3507.1
Percent passing the No. 200 sieve	4.3%	5.7%	7.6%	6.6%	4.2%	5.2%	4.3%	6.0%
Mass passing the No. 200 sieve, (g)	183.5	247.8	427.9	302.4	107.5	134.2	118.4	210.4
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.212	0.287	0.495	0.350	0.124	0.155	0.137	0.244
Silt loading (oz/ft²)	1.08	1.46	2.52	1.78	0.63	0.79	0.70	1.24
Silt loading (oz/ft²)	Average = 1.71				Average = 0.84			
RANK	5				1			

Section	3				4			
	Permazyme				Soil Sement			
Product								
Milepost	0.05	0.18	0.33	0.52	0.05	0.18	0.33	0.52
Moisture (%)	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0
Sample mass, (g)	4042.3	4508.6	5028.1	4262.8	4815.2	3895.1	7077.2	6836.2
Percent passing the No. 200 sieve	5.4%	4.4%	5.2%	4.1%	6.5%	5.5%	6.6%	6.0%
Mass passing the No. 200 sieve, (g)	218.3	198.4	261.5	174.8	313.0	214.2	467.1	410.2
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.253	0.230	0.303	0.202	0.362	0.248	0.541	0.475
Silt loading (oz/ft²)	1.28	1.17	1.54	1.03	1.84	1.26	2.75	2.41
Silt loading (oz/ft²)	Average = 1.25				Average = 2.06			
RANK	3				6			

Section	5				6			
	DCA 2000				DMC 820 (Lig/Mag)			
Product								
Milepost	0.05	0.18	0.35	0.54	0.05	0.25	0.45	0.55
Moisture (%)	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1
Sample mass, (g)	3377.0	3477.5	3280.6	4492.8	4197.2	6045.7	7127.1	7425.3
Percent passing the No. 200 sieve	5.1%	4.6%	3.9%	4.5%	4.9%	5.2%	4.3%	4.5%
Mass passing the No. 200 sieve, (g)	172.2	160.0	127.9	202.2	205.7	314.4	306.5	334.1
Area (in ²)	864	864	864	864	1152	1152	1152	1152
Silt loading (g/in ²)	0.199	0.185	0.148	0.234	0.179	0.273	0.266	0.290
Silt loading (oz/ft²)	1.01	0.94	0.75	1.19	0.91	1.39	1.35	1.47
Silt loading (oz/ft²)	Average = 0.97				Average = 1.28			
RANK	2				4			

Conversion: 1 g/in² = 5.0794 oz/ft²

APPENDIX E – SILT LOADING CALCULATIONS

Table 22. Silt loading calculations for the 23-month monitoring event.

Wyoming RRP SEED 12(1)
Seedskeedee National Wildlife Refuge Stabilization Project
Samples taken August 29, 2006

Section Product	1				2			
	Terrazyme				Lignosulfonate			
Milepost	0.22	0.35	0.45	0.50	0.22	0.35	0.45	0.50
Moisture (%)	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.0
Sample mass, (g)	1046.3	2462.5	2149.5	2702.8	1989.5	2377.4	2002.2	2035.7
Percent passing the No. 200 sieve	1.5%	1.7%	2.8%	1.0%	0.6%	1.0%	0.8%	1.3%
Mass passing the No. 200 sieve, (g)	15.7	41.9	60.2	27.0	11.9	23.8	16.0	26.5
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.018	0.048	0.070	0.031	0.014	0.028	0.019	0.031
Silt loading (oz/ft²)	0.09	0.25	0.35	0.16	0.07	0.14	0.09	0.16
Silt loading (oz/ft²)	Average = 0.21				Average = 0.11			
RANK	3				1			

Section Product	3				4			
	Permazyme				Soil Sement			
Milepost	0.22	0.35	0.45	0.50	0.22	0.35	0.45	0.50
Moisture (%)	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Sample mass, (g)	2360.9	2616.9	2915.7	5122.4	4335.9	7320.5	4047.2	5375.2
Percent passing the No. 200 sieve	1.1%	1.2%	1.2%	2.2%	4.9%	4.1%	4.5%	3.3%
Mass passing the No. 200 sieve, (g)	26.0	31.4	35.0	112.7	212.5	300.1	182.1	177.4
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.030	0.036	0.040	0.130	0.246	0.347	0.211	0.205
Silt loading (oz/ft²)	0.15	0.18	0.21	0.66	1.25	1.76	1.07	1.04
Silt loading (oz/ft²)	Average = 0.30				Average = 1.28			
RANK	5				6			

Section Product	5				6			
	DCA 2000				DMC 820 (Lig/Mag)			
Milepost	0.02	0.08	0.43	0.525	0.18	0.28	0.48	0.62
Moisture (%)	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0
Sample mass, (g)	1986.1	3633.0	1980.4	1710.1	2173.2	1495.7	3389.6	3608.0
Percent passing the No. 200 sieve	1.0%	2.3%	1.4%	2.9%	0.5%	0.6%	1.0%	1.2%
Mass passing the No. 200 sieve, (g)	19.9	83.6	27.7	49.6	10.9	9.0	33.9	43.3
Area (in ²)	864	864	864	864	864	864	864	864
Silt loading (g/in ²)	0.023	0.097	0.032	0.057	0.013	0.010	0.039	0.050
Silt loading (oz/ft²)	0.12	0.49	0.16	0.29	0.06	0.05	0.20	0.25
Silt loading (oz/ft²)	Average = 0.27				Average = 0.14			
RANK	4				2			

Conversion: 1 g/in² = 5.0794 oz/ft²

Table 23. Gradation test averages from silt testing.

Sieve Size	Section I TerraZyme				Section II Lignosulfonate			
	8-month	11-month	20-month	23-month	8-month	11-month	20-month	23-month
3/4-in	100	100	100	100	100	100	100	100
1/2-in	98	98	97	98	100	99	97	98
3/8-in	93	93	94	93	98	96	93	94
# 4	78	79	82	79	88	85	83	80
# 8	60	66	69	62	67	70	70	61
# 10	55	62	66	59	61	66	67	56
# 16	43	53	57	47	44	54	57	44
# 30	27	39	44	32	24	37	41	27
# 40	18	30	35	23	15	28	32	18
# 50	11	21	26	15	7	18	23	11
# 200	1.4	3.8	6.1	1.8	0.4	2.8	4.9	0.9

Sieve Size	Section III PermaZyme				Section IV Soil Sement			
	8-month	11-month	20-month	23-month	8-month	11-month	20-month	23-month
3/4-in	100	100	100	100	100	100	100	100
1/2-in	99	98	99	96	96	98	97	95
3/8-in	95	95	96	90	90	95	94	90
# 4	81	81	84	71	74	81	81	74
# 8	59	65	69	53	59	66	67	59
# 10	54	61	66	49	55	63	64	56
# 16	40	51	56	39	45	54	55	46
# 30	22	36	42	25	32	41	42	35
# 40	14	27	32	18	24	33	33	27
# 50	7	19	24	11	17	24	24	19
# 200	0.7	3.6	4.8	1.4	3.6	6.4	6.2	4.2

Sieve Size	Section V Caliber				Section VI Mag/Lig			
	8-month	11-month	20-month	23-month	8-month	11-month	20-month	23-month
3/4-in	100	100	100	100	100	100	100	100
1/2-in	97	97	98	93	98	99	97	95
3/8-in	91	94	95	88	93	97	93	89
# 4	71	80	81	70	78	88	80	74
# 8	52	61	65	53	59	71	67	56
# 10	49	57	62	50	55	67	63	52
# 16	41	45	52	41	43	53	54	40
# 30	28	31	39	29	27	37	40	24
# 40	20	23	30	21	19	27	32	16
# 50	14	15	22	14	11	18	23	10
# 200	2.7	2.7	4.5	1.9	1.1	2.9	4.7	0.8

